





**Universitat de les Illes Balears**

**CATÀLEG DE PROJECTES  
D'INVESTIGACIÓ  
DE LA UNIVERSITAT  
DE LES ILLES BALEARS**

**2003**

Palma, 2004

© de l'edició: Universitat de les Illes Balears, 2004

© del text: Universitat de les Illes Balears, 2004

Rector: Avel·lí Blasco

Vicerector d'Investigació i Política Científica: **Francisco Muñoz**

Edició: Oficina de Suport a la Recerca. Servei de Publicacions i Intercanvi Científic.  
Universitat de les Illes Balears. Campus universitari.

Cra. de Valldemossa, km 7.5. 07122 Palma (Illes Balears)

Coberta: Jaume Falconer

DL: PM 718-2004

## ÍNDIX

Projectes de recerca en el marc de la Unió Europea	7
– Universitat de les Illes Balears	9
– Departament de Biologia	13
– Departament de Biologia Fonamental i Ciències de la Salut	17
– Departament de Ciències de l'Educació	21
– Departament de Ciències Matemàtiques i Informàtica	25
– Departament de Dret Privat	31
– Departament d'Economia Aplicada	35
– Departament de Física	39
– Departament de Química	49
– Institut Mediterrani d'Estudis Avançats (IMEDEA)	51
– Laboratori de Sistemes d'Informació Geogràfica i Territorial	69
Projectes de recerca finançats pel Govern espanyol i el Govern de les Illes Balears	73
– Departament de Biologia	75
– Departament de Biologia Fonamental i Ciències de la Salut	99
– Departament de Ciències de l'Educació	115
– Departament de Ciències de la Terra	123
– Departament de Ciències Històriques i Teoria de les Arts	137
– Departament de Ciències Matemàtiques i Informàtica	147
– Departament de Dret Privat	161
– Departament de Dret Públic	169
– Departament d'Economia Aplicada	173
– Departament d'Economia de l'Empresa	177
– Departament de Filologia Catalana i Lingüística General	181
– Departament de Filologia Espanyola, Moderna i Llatina	185
– Departament de Filosofia i Treball Social	193
– Departament de Física	201
– Departament d'Infermeria i Fisioteràpia	215
– Departament de Psicologia	219
– Departament de Química	235
– Institut Mediterrani d'Estudis Avançats (IMEDEA)	251
– Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS)	281
Accions integrades	285
Accions especials	289
Altres accions	305
Índex d'investigadors	311
Índex d'abreviacions	327



**PROJECTES DE RECERCA  
EN EL MARC DE LA UNIÓ EUROPEA**





**UNIVERSITAT DE LES ILLES BALEARS**



**Referència:** NNE5/2001/293.

**Modalitat:** Energy, environment and sustainable development.

**Títol:** *Grid-connected Pv systems integrated in educational and cultural facilities.*

**Acrònim:** UNIVERSOL.

**Investigador responsable:** [MOYÀ NIELL, Gabriel](#).

**Categoria:** TU (àrea de coneixement: Ecologia).

**Inici:** 2002.                      **Fi:** 2004.

**Socis:**

Universitat Rovira i Virgili (Espanya)  
Universitat Autònoma de Barcelona (Espanya)  
Institut Català d'Energia (Espanya)  
Iberdrola Ingeniería y Consultora, S.A. (Espanya)  
Ajuntament de Santa Coloma de Gramenet (Espanya)  
Ajuntament de Badalona (Espanya)  
Ajuntament d'Artà (Espanya)  
Universitat de Girona (Espanya)  
Whitby Bird and Partners, LTD (Regne Unit)  
Oxford Brookes University (Regne Unit)  
The Chancellor, Master and Scholars of the University of Cambridge (Regne Unit)  
University of Leicester (Regne Unit)  
University of East Anglia (Regne Unit)  
Institute Universitary of Technology (França)  
Université de Bourgogne (França)  
Electricite de France (França)  
Conseil Régional Rhone-Alpes (França)  
Hespul (França)  
Ecole Nationale Supérieure d'Arts et Métiers Centre de Lille (França)  
Pole Scolaire de la Bannière (França)  
Ecole National de Travaux Publics de l'Etat (França)  
Université Claude Bernard Lyon 1 (França)  
Groupement d'Etablissements de Formation a l'Energie (França)  
Municipality of Ria-Sirach (França)  
Region Languedoc-Roussillon (França)  
Ecole National Supérieure d'Arts et Métiers (França)  
Coordinador: Universitat de Barcelona (Espanya)

### Summary

The main objective of the project is to actively participate in the Take-Off campaign aiming at doubling the share of RES in the European mix by 2010, by installing a significant number of medium-large grid-connected PV systems in educational and cultural facilities in four State-members (Spain, France, UK and the Netherlands). Wishing to establish the foundations on which the Green Campuses and Green Municipalities of the future can be built, the participants (universities, technical training organisations, regional governments and municipalites, cultural centres, utilities and enterprises) also aim at raising social awareness on energy issues and actual possibilities of PV technology. Thanks to the best architectural integration and technical design, and to a carefully elaborated monitoring and dissemination programme, the project will clearly contribute to improving the acceptance of renewable energy sources among all concerned professionals, and the general public.

**Referència:** INTERREG IIIB-MEDOC. 2002-02-1.1-F-012.

**Títol:** *Coordination euro-méditerranéenne de l'Université.*

**Acrònim:** TETHYS.

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** SALINAS IBÁÑEZ, Jesús M.

**Categoria:** TU (àrea de coneixement: Didàctica i Organització Escolar).

**Inici:** 2002.                   **Fi:** 2004.

**Socis:**

Université de Provence (Aix-Marseille I) (França)

Université de Droit, d'Economie et des Sciences (Aix-Marseille III) (França)

Université de Gênes (Itàlia)

Universitat de Barcelona (Espanya)

Coordinador: Université de la Méditerranée (Aix-Marseille II) (França)

**DEPARTAMENT DE BIOLOGIA**



**Títol:** *Development and evaluation of improved fruit fly attractants in the Balearic Islands.*

**Centre:** Departament de Biologia. Edifici Guillem Colom Casasnovas.

**Investigadora responsable:** [ALEMANY FERRÀ, Aina](#).

**Categoria:** TU (àrea de coneixement: Zoologia).

**Inici:** 2000.                      **Fi:** 2005.

**Socis:**

Instituto Nacional de Investigaciones Agrarias (Espanya)  
Centro Nacional de Pesquisa de Agroindustria Tropical (Brasil)  
Universitat de Costa Rica Rodrigo Facio (Costa Rica)  
Universitat de Tolima (Colòmbia)  
Research & Development Golan Heights (Israel)  
Programa Moscamed (Mèxic)  
Agricultural Research Service (EUA)  
University of Southampton (Regne Unit)  
University of Thessaloniki (Grècia)  
Subtropical Agricultural Research (EUA)  
Direcció de Serviços de Investigaçao Agrícola (Portugal)  
Instituto Nacional de Tecnología Agropecuaria (Argentina)  
CIRAD-FLOHR. Reunió (França)  
Ministry of Agriculture, Food Technology & Natural Resources (Maurici)  
Honduran Foundation for Agricultural Research (Hondures)  
Univesitat de Sao Paulo (Brasil)  
Coordinador: International Atomic Energy Agency

### Summary

*Ceratitits capitata* is in Spain a key pest due to its destructive effect on so many commercial fruits as citrus, peach and apricots. Other non commercial host as *Ficus carica* and *Opuntia ficus-indica* are also key host because of their importance as medfly reservoirs. At the moment, control measures are based on repetitive insecticides bait sprays which have serious effects on natural enemies and on fruit quality. In this sense, it is important to reduce insecticide treatments using environment-friendly and cost effective techniques as an alternative to conventional insecticides. Environmental protection measures are also increasing the need for alternatives to conventional pest control, and we have to consider that Menorca island and some areas of Ibiza island have been declared Reserves of Biosphere by UNESCO. Standard and effective monitoring systems are needed for IPM strategies, reflecting precise changes in temporal and spatial distributions of the medfly. Detection and monitoring population is critical in the Balearic Islands, because the possibility to control the pest at two moments over the year when the population is very low. At this moment, selective and effective captures will reduce the pest below the economic damage level, thus reducing or even eliminating the use of insecticides. On the other hand, the olive fly *Bactrocera oleae*, is also an important pest in Spain. This monophagous pest requires as in the case of medfly, an area-wide approach. For this reason, it is also important to develop effective attractants for monitoring and for use on a mass trapping strategy basis. Finally, geographical situation of the Balearic Islands is an adequate place to study isolated populations.

**Referència:** ICA3-CT-2002-50005.

**Títol:** *Optimisation of water use by plants in the Mediterranean.*

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** MEDRANO GIL, Hipólito.

**Categoria:** CU (àrea de coneixement: Fisiologia Vegetal).

**Inici:** 2002.                      **Fi:** 2004.

**Socis:**

Coordinador: IACR-Rothamsted Experimental Station (Regne Unit)

### **Summary**

Water is essential to sustaining human and environmental health. Where fresh water supplies are limited sustainable development and stability require the efficient management of water resources. Agriculture is by far the largest user of water resources accounting for around 75% of consumption. However forecasts suggest that demand for agricultural products will double to support population growth forecasts for the Mediterranean. This is compounded by the predicted change in climate as a result of global warming and salinisation of coastal aquifers.

Increasing the efficiency of water use within agricultural systems is critical to ensure food security and stability of agricultural production systems. At the moment despite several initiatives there is still a gap between the research scientists and politicians and agronomists. Given that the recent advances in molecular and genetic research have added substantially to our understanding of basic biological processes that may lead to novel technologies it is vital to improve communication between research scientists and end users.

The aim of the present project is to bridge the gap between cutting edge research scientists working in molecular, genetic and physiological and environmental research and the end users of their science. As importantly this bridge will ensure that research scientists are fully aware of the needs of the end users. OPTIMISE will encourage specifically target contact with and between the EU and the following Mediterranean Partner Countries: *Algeria, Egypt, Jordan, Lebanon, Morocco, Palestine Authority, Syria, Tunisia and Turkey.* Furthermore, the integrated and holistic approach adopted will further promote co-operation between scientists of different disciplines, in different countries, lead to development of new links between research laboratories, exchange of ideas, resources and technology. We will ensure good communication with other EU funded activities.



**DEPARTAMENT DE BIOLOGIA FONAMENTAL I  
CIÈNCIES DE LA SALUT**



**Referència:** QLK1-2001-00183.

**Modalitat:** Life science: biotechnology, agricultural and food research.

**Títol:** *Dietary lipids as risk factors in development. Mechanistic issues.*

**Acrònim:** DLARFID.

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** PALOU OLIVER, Andreu.

**Categoria:** CU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2002.                      **Fi:** 2004.

**Socis:**

The State Institute for Quality Control of Agricultural Products of Wageningen (Holanda)

Klinikum der Universitaet Regensburg (Alemanya)

University of Southern Denmark (Dinamarca)

The Wenner-Gren Institute Stockholm University (Suècia)

Instituto di Morfologia Umana Normale (Itàlia)

Coordinador: Jagiellonian University Medical College (Polònia)

**Summary**

The nutritional factors are not only the source of energy but also are essential for the organism growth and development. They serve as the factors regulating the expression of genes and synthesis of proteins and they also indirectly regulate hormones, physiology of development and functional tissue remodelling of the mature organism. Unfortunately, the same factors and mechanisms are involved in deep pathology of diet-mediated social threatening illnesses Beta-carotene, the source of the lipid soluble vitamin A and retinoic acid in humans was recommended for the prevention of atherosclerosis and cancer development. Unexpectedly, the recent three multicenter, randomized human trials revealed the weak protective effect against the increased incidence of myocardial infarction, and morbidity/mortality due to the lung cancer. Since the beta-carotene is commonly used as the food colorant, the influence of its metabolites together with fatty acids derivatives will be investigated in the healthy and cancer human and animal cells. The possible involvement of the new classes of proteins and genes will be followed by the most modern methods to determine the early markers of pathology.

The Consortium of 9 research Centers from 7 EU Countries is formed to realize aims of this project with the use of most advanced technology methods such as molecular biology: cDNA-microarray, proteomic: high-resolution 2D geleelectrophoresis with mass spectrometry, flow cytometry). Improved knowledge of beta-carotene and food fatty acid derivatives on regulation of gene expression will serve as the scientific basis for new diagnosis of hazard, search for the new type of anticancer, antiatherosclerotic, anti-obesity or antidiabetic pharmacotherapy, enhancing European food industry competitiveness and the innovative potential of European R&D. Developing the basis for the future food product labelling system will contribute to the improvement of the quality of life of a consumer.



**DEPARTAMENT DE CIÈNCIES DE L'EDUCACIÓ**



**Referència:** 26778.

**Modalitat:** Information society: safer internet action plan.

**Títol:** *Safer internet for knowing and living.*

**Acrònim:** SIFKAL.

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** SUREDA NEGRE, Jaume.

**Categoria:** CU (àrea de coneixement: Didàctica i Organització Escolar).

**Inici:** 2001.                   **Fi:** 2003.

**Socis:**

Universität des Saarlandes (Alemanya)

University of East Anglia (Regne Unit)

Extreme Media Solutions (Grècia)

Gesellschaft für Medienpädagogik und Kommunikationskultur (Alemanya)

Universitat Internacional d'Andalusia (Espanya)

Coordinador: Universitat de Cádiz (Espanya)

### **Summary**

Using Internet in a safer way does not depend exclusively on the implementation of technical controls in the client or server services neither on restrictive norms in relation to contents. Safer use of the Internet means, specifically, an Internet that gives its users (who may include parents, teachers, adolescents, local authorities and librarians) a potentially powerful tool to know better our world and to live better in it. However, to achieve this, we have to build up a social and educational understanding of the Internet, establishing a culture that protects individual rights while providing freedom of intercommunication. While we have established procedures for managing knowledge in print, the speed and openness of the new media present new challenges. The central objective of the SIFKAL project is to elaborate and disseminate information and recommendations about the educational and socially relevant possibilities of the Internet using a permanent and virtual place in multilingual and in different formats in relation to four targets groups: parents, teachers, librarians and local authorities. The project will focus on actual contributions, in initiatives, and on examples of best practice using the Internet as a media for knowing and living.

**Referència:** ME8/AIDCO/2000/2095-05.

**Modalitat:** Euromed Heritage II.

**Títol:** *Mediterranean voices: oral history and cultural practice in Mediterranean cities.*

**Acrònim:** MedVoices.

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [SUREDA NEGRE, Jaume.](#)

**Categoria:** CU (àrea de coneixement: Didàctica i Organització Escolar).

**Inici:** 2002.                   **Fi:** 2005.

**Socis:**

Economic and Social History Foundation of Istanbul (Turquia)  
University of Crete (Grècia)  
Intercollege of South Nicosia (Xipre)  
Gençlik Merkezi of North Nicosia (Xipre)  
University of Malta (Malta)  
Association d'Anthropologie de la Méditerranée (França)  
Universitat de Granada (Espanya)  
Universitat de Las Palmas de Gran Canaria (Espanya)  
The American University of Beirut (Líban)  
Centre for Cultural Heritage Preservation of Bethlehem (Palestina)  
University of Bologna (Itàlia)  
Bibliotheca Alexandrina (Egipte)  
Coordinador: London Metropolitan University (Regne Unit)

**Summary**

The principle aims of the project are to promote awareness of the cultural heritage of Mediterranean urban spaces, and to create and strengthen regional stakeholder networks. The central activity of the project is the creation of a database of oral and social history of urban neighbourhoods, collecting memories of people and places, and documents such as photographs, songs, etc. This will be made available to the general public and target groups such as local cultural and community associations, municipalities and educational institutions, through a web-site and other published outputs, and will form the basis for further activities both locally and regionally, including seminars and exhibitions. The research and related activities will draw out the cosmopolitan heritage of Mediterranean cities and the web of interconnections across the region, and at the same time contribute on not only a practical, but also a conceptual and critical level, to urban heritage management and policy.



**DEPARTAMENT DE CIÈNCIES MATEMÀTIQUES I  
INFORMÀTICA**



**Referència:** FMRX-CT98-0234.

**Modalitat:** Training and mobility of researchers.

**Títol:** *Viscosity solutions and their applications.*

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** [COLL VICENS, Bartomeu](#).

**Categoria:** TU (àrea de coneixement: Matemàtica Aplicada).

**Inici:** 1998.                      **Fi:** 2003.

**Socis:**

Université de Tours (França)  
Rheinische Friedrich-Wilhelms-Universität (Alemanya)  
Foundation for Research and Technology-Hellas (Grècia)  
Universita degli Studi di Milano (Itàlia)  
Universita degli Studi di Padova (Itàlia)  
Universita degli Studi di Roma-La Sapienza (Itàlia)  
Universitat de Las Palmas de Gran Canaria (Espanya)  
Kungl Tekniska Högskolan (Suècia)  
Coordinador: Université de Paris IX-Dauphine (França)

### Summary

This is a proposal for research on problems related to the theory of viscosity solutions and its applications. The theory of viscosity solutions is one of the most central and fastest growing areas in the field of nonlinear partial differential equations. Its scope extends from rather deep and challenging mathematical problems to the modelling and analysis of a large number of applied problems in science, engineering, atmospheric/ocean studies and economics, which include, among others, phase transitions, moving fronts, statistical mechanics, combustion, turbulent reaction-diffusions, optimal and stochastic control, mathematical finance, image processing, etc...The understanding of such applications obviously requires, in addition to theoretical results, extensive computations and efficient numerical methods, which can be derived and analysed using the theory of viscosity solutions.

The long list of applied areas and problems which can be studied using methods related to viscosity solutions, the rather difficult and challenging mathematical problems that encompasses as well as the astonishing progress already achieved, in such a relatively short (for mathematics) period, using viscosity solutions has generated an ever growing interest in Europe, US, Japan and China. An indication of the growing importance of this theory for mathematics is that, since 1981 when M. G. Crandall and P.-L. Lions introduced the concept of the viscosity solution, more than one thousand papers related to the subject have been published in mathematical journals of high quality, a rather amazing fact for mathematics. A proof of the importance and relevance of viscosity solutions for applied mathematics is the fact that they have already been used successfully to analyse a large number of questions related to the applications mentioned above. Europe is in a unique position to be at the forefront of this theory. Some of the leading groups in the world in the theory of viscosity solutions and its applications are located in Europe and all of them are participating in this project.

**Referència:** IST-2001-32202.

**Modalitat:** User-friendly information society.

**Títol:** *An automatic human model animation environment for augmented reality interaction.*

**Acrònim:** HUMODAN.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** PERALES LÓPEZ, Francisco José.

**Categoria:** TU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2002.

**Fi:** 2005.

**Socis:**

Fraunhofer Gesellschaft zur Foerderung der Arngewandten Forshung E.V. (Alemanya)

Kursaal Producciones Audiovisuales, S.L. (Espanya)

Synkronix Incorporation Limited (Regne Unit)

Systema Informatics, S.A. (Grècia)

Coordinador: Centro de Estudios e Investigaciones Técnicas de Guipuzcoa (Espanya)

**Summary**

The objective of the project is to design, develop and set up an innovative system for automatic recognition and animation of human motion in controlled environments. The most relevant and distinctive feature of this system with respect to existing technologies is that the individual being recorded will not wear any type of marker or special suit and neither will other type of sensors. By this way this system will be highly useful in a wide range of technological areas, like for example TV production, tele-presence, immersive and collaborative interactivity storytelling, medicine diagnose support, tele-operation, education and training.

An example of application of such a system is to animate easily and realistically a virtual performer in a TV set starting from recorded images of a real player. Further applications like virtual reality immersive collaboration environments and real time immersive storytelling will also be investigated. Medical issues are also interesting in the project.

The innovation and challenges of the project rely both in the recognition system to be developed and in both real-time and non real-time applications that such a system will allow.

Principal goal of HUMODAN project is to produce efficiently, realistically and with low cost the virtual animation of an individual by means of processing only a sequence of images recorded from different cameras and avoiding the use of sensors, markers or special suits.

The project addresses following objectives:

To develop a new system of human motion recognition without using sensors or markers.

To obtain automatically and rapidly (real-time in some applications) a realistic animation of an individual using a sequence of images from recorded from different cameras.

To use robust biomechanical analysis.

To develop specific applications, interfaces and plug-ins.

To produce an easy-to-use, user-friendly tool.

System will be easier and cheaper to use. Also, and possibly more important, with respect to future new application areas in which the slowness of the process and the necessity of

markers are actual main limitations that prevents from using motion capture technology. In the basis, it will be developed an innovative system for recognition of human motion based on the most modern techniques of image processing, analysis and synthesis. Besides, the system will be enhanced to recognize and analyse other biped and no-biped beings, like for example pet animals, robots, etc. In addition, system will be able to focus only in a part of the body but with high detail, like for example the hands or the face.

To ensure the widest range of applications, the individual recorded will not wear any type of marker or special suit. To this end, biomechanical models will be constructed using a hierarchical and articulated structure in order to establish a correlation between each structural element of the biomechanical model with the analytical characteristics of the images obtained using different views. Innovative shape or part recognition techniques will be applied. The biomechanical model will include a knowledge database to retain high-level information of the motions.

The biomechanical model will also require developing specific kinematics and dynamic models, and analysis and synthesis tools to support firstly the recognition phase and later the reconstruction and animation phase.

To make the system usable it will be also necessary to develop specific applications and plug-ins to integrate the animation into end users tools such as digital TV production software, animation software and virtual environments like a CAVE. To this end all developed software from the different subsystems will be integrated using adequate interfaces in order to be able to comply with networking applications and real time requirements.



**DEPARTAMENT DE DRET PRIVAT**





**Referència:** EDC-41021 EJURE/28233.

**Modalitat:** European digital content for the global networks.

**Títol:** *eJure: The European virtual knowledge centre on ICT and law.*

**Centre:** Departament de Dret Privat. Edifici Anselm Turmeda.

**Investigador responsable:** [CAVANILLAS MÚGICA, Santiago José.](#)

**Categoria:** CU (àrea de coneixement: Dret Civil).

**Inici:** 2003.

**Fi:** 2003.

**Socis:**

Universiteit Van Tilburg (Holanda)

Facultés Universitaires Notre-Dame de la Paix (Bèlgica)

Westfälische Wilhelms-Universität Münster (Alemanya)

Zuurmond & Co BV (Holanda)

Coordinador: Stichting Virtueel Kenniscentrum ICT en Recht (Holanda)

### **Summary**

Europe holds vast sources of people and content on ICT and law. Information on ICT and law has been acknowledged (EU Green Paper and eContent work programme) as potentially highly beneficial for Europe, both from a content and knowledge creation perspectives). However, these opportunities are not being seized, since the sources on ICT and law suffer from being scattered over different countries and over various bodies in various formats in different languages throughout Europe. EJure aims to pool and integrate these sources, making them accessible respectively exploitable for citizens, governments and businesses in their home language, allowing Europe to capitalize on the potential.

EJure will develop modules blending the implicit knowledge of legal experts with explicit (recorded) knowledge, where the latter includes mission critical law texts, court decisions, etc held by public bodies and market parties. Thus the key aspects of this definition phase project will be on addressing the barriers and seizing the opportunities for, and access to and exploitation of information on ICT and law.

The ultimate aim is to create the fundament for a rich legal community resource and interoperable exchange platform, innovating through a new model for legal knowledge publishing. EJure's best practice model will include a semantic layer to help understand what is in the content and link it with the knowledge that exist in legal expert's experiences and skills. The semantics, to be addressed in the definition phase, will be generated by a rich metadata set, including a multilingual thesaurus, and the context, comparison, sharing and reasoning produced by the abundant web of legal experts.



**DEPARTAMENT D'ECONOMIA APLICADA**



**Referència:** ASI/B7-301/98/679-014.

**Modalitat:** Human resource development.

**Títol:** *Professional join European Chinese cooperation in tourism.*

**Centre:** Departament de d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** SASTRE ALBERTÍ, Francesc.

**Categoria:** TU (àrea de coneixement: Economia Aplicada).

**Inici:** 2003.                      **Fi:** 2006.

**Socis:**

University of Guangzhou (Xina)  
University of Nice (França)  
University of Genoa (Itàlia)  
Coordinador: University of Angers (França)

### **Summary**

Our application is made with the aim of creating a regional multilateral network between 4 European universities and the University of Guangzhou in China with the purpose of upgrading the skills of teaching staff (existing lecturers and professors as well postgraduate students interested in a teaching career) so as to allow them to improve the quality of the training of their students in the field of tourism and hotel management. The present application corresponds to the Asia-Link Human Resource Development (HRD) type of project. Its projected length is three years.

The main activities will focus on devising teaching seminars in Guangzhou for our Chinese colleagues, organising intensive courses in the European universities of the consortium on specialised topics related to the teaching of tourism related subjects for both confirmed teaching staff involved in the development of tourism courses in the home institution (Guangzhou University) and administrators in charge of implementing the credit transfer system.

Sandwich courses and internship opportunities will be added to the above-mentioned activities with the aim of increasing the mutual knowledge of the industry of tourism, hospitality and hotel sectors for both teaching staff and advanced students in Europe for our Chinese colleagues and in China for the Europeans.



**DEPARTAMENT DE FÍSICA**





**Referència:** HPRN-CT-2000-00137.

**Modalitat:** Improving human research potential and the socio-economic knowledge base.

**Títol:** *Theoretical foundations of sources for gravitational wave astronomy of the next century: synergy between supercomputer simulations and approximation techniques.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [BONA GARCIA, Carles](#).

**Categoria:** CU (àrea de coneixement: Física Teòrica).

**Inici:** 2000.                   **Fi:** 2003.

**Socis:**

Friedrich Schiller Universität Jena (Alemanya)  
Observatoire de Paris. Section de Meudon (França)  
Universitat de València. Estudi General (Espanya)  
Aristotle University of Thessaloniki. Department of Physics (Grècia)  
Universita di Roma 'La Sapienza'. Dipartimento di Fisica (Itàlia)  
Scuola Internazionale Supeiore di Studi Avanzati (Itàlia)  
University of Southampton (Regne Unit)  
University of Portsmouth (Regne Unit)

**Coordinador:** Max Planck Institut für Gravitationsphysik. Albert Einstein Institut  
(Alemanya)

### Summary

There are five major objectives that will be achieved through this Network, important for GWA, that will not be possible without it. In summary they are: (1) The formation of a close alliance among the different expert groups to solve urgent problems required for GWA, too large and complex for any single group to tackle. Such a Network is needed, but does not exist at present. (2) The development and training of a young community of researchers to populate this emerging research area of GWA. Although there are strong, isolated European groups working in relevant research areas, there is no coordinated effort to build up the broad-based expertise required for a systematic attack on these problems. (3) The development of a community simulation code for relativistic astrophysics: Cactus. Simulation tools are essential for the success of this research area. As described below, the development and use of Cactus will be an important part of the training program for this Network. (4) The development of appropriate approximation tools, such as perturbation and post-Newtonian theory, to provide better physical understanding and conformation of numerical simulations. Without such schemes, simulations may provide little insight into the actual physics, and may be completely misinterpreted. Further, semi-analytic results may be used to confirm and validate numerical simulations in appropriate regimes. (5) The application of these tools to a set of core astrophysics problems, considered among the most urgent for the detection and interpretation of the first signals seen in the GEO and VIRGO detectors, and also seen as excellent focus problems for the development and training of the community and its research tools. These problems include GW signals from NSs and BHs.

**Referència:** G3RD-CT-2000-00265.

**Modalitat:** Competitive and sustainable growth.

**Títol:** *Autonomous inspection of subsea telecommunication cables, power cables and pipelines.*

**Acrònim:** AUTOTRACKER.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** CALVO IBÁÑEZ, Óscar Alberto.

**Categoria:** TEU int. (àrea de coneixement: Tecnologia Electrònica).

**Inici:** 2001.                      **Fi:** 2004.

**Socis:**

Heriot-Watt University (Regne Unit)  
Innovatum International Ltd (Regne Unit)  
SEAS Distribution AmbA (Dinamarca)  
BP Exploration Operating Company Ltd (Regne Unit)  
Alcatel Submarine Network AS (Dinamarca)  
Coordinador: Maridan AS (Dinamarca)

### **Summary**

The need for fast communication (telecom and internet) and transport of energy (power, oil and gas) has resulted in an increasing amount of subsea installations (cables and pipelines). To maintain the installations in safe and reliable condition preventive maintenance inspections are needed. The subsea network is greatly developed in certain geographic areas including the European seas (Baltic, North Sea, Atlantic Ocean and Mediterranean Sea), Gulf of Mexico and East Chinese Sea. Several parts of these areas are located at deep water (500-3500 m). Current inspection technology deploys shipboard monitoring sensors either from a free-flying surface towed platform (ROTV), which significantly degrades in quality, or from an ROV which is expensive. ROV operations require a DP survey vessel with some 40-man crew (DP stand for dynamic positioning, which is required for ROV operations). Shipboard inspection technology is not economically effective in water depths greater than 500 m and with oil exploration and development activity now moving into even deeper areas an alternative approach is required. The AUTOTRACKER project will provide a new autonomous platform (the AUTOTRACKER vehicle) for subsea inspections. The new platform can be deployed from any 'ship of opportunity' and it can replace current inspection platforms in a much cheaper and safer way. The new platform is not physically connected by cables to the surface, such as ROVs and ROTVs. The sensors used today on ROVs and ROTVs can be used on the new platform giving improved data, and at reduced cost because the need for an expensive DP survey vessel is eliminated. Potential savings are dramatic: a reduction of inspection costs with a factor 10 or more! Typical cost of 20 days ROV inspection in the North Sea is approx. 1 million EURO. Typical cost of 20 days ROV inspection in the North Sea is approx. 1 million EURO. The SMEs in the consortium want to exploit the results of the project on the 1-2 billion EURO world market for subsea inspections. The project contributes to the following EU politics: employment, working conditions, environment, internatl market and standardisation (see section 4 and 5).

**Referència:** AML/B7-311-97/0666/11-0077-A.

**Modalitat:** Latin America social development.

**Títol:** *Laboratory for distance-learning based on internet technology.*

**Acrònim:** LABDILEIT.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [GARCIA MORENO, Eugeni](#).

**Categoria:** CU (àrea de coneixement: Tecnologia Electrònica).

**Inici:** 2001.                   **Fi:** 2003.

**Socis:**

Technische Universität Ilmenau (Alemanya)  
Institute National des Sciences Appliquées (França)  
UniK, Center for Technology (Noruega)  
Universitat Simón Bolívar (Veneçuela)  
Instituto Nacional de Astrofísica, Óptica y Electrónica (Mèxic)  
Centro de Investigación y de Estudios Avanzados (Mèxic)  
Universidade Estadual de Campinas (Brasil)  
Coordinador: Universitat de les Illes Balears (Espanya)

**Summary**

The objective of this proposal is to establish user-friendly and efficient technology for interactive, on-line operation of remote education laboratory experiments, utilizing the Internet and the Web. Through collaboration between several universities, this technology will permit lab courses within many disciplines of engineering and science to be offered to regular and continuing education students locally and remotely. The concept is of particular interest for countries with sparsely populated regions and with large distances between major educational centers. Also, the remote lab can be offered to local colleges that can benefit from this technology to augment their engineering and science curriculum. To demonstrate the feasibility of this concept each participating institution agrees to implement a remote lab site, and to create one experimental lab module. Because of the participants background, such lab modules will be devoted the characterization of electronic devices and circuits. In order to carry out the lab modules, the proposal also includes the fabrication of one Application Specific Integrated Circuit, ASIC. The ASIC will be formed by different test circuits, each one designed by one partner. El lab module to be developed by each partner will be based on the characterisation through Internet of the circuit that he has designed.

**Referència:** IST-2000-29683.

**Modalitat:** User-friendly information society.

**Títol:** *Optical chaos communications using laser-diodes transmitters.*

**Acrònim:** OCCULT.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [MIRASSO SANTOS, Claudio Rubén](#).

**Categoria:** TU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2001.                    **Fi:** 2004.

**Socis:**

University of Wales (Regne Unit)  
Centre National de la Recherche Scientifique (França)  
Technische Universitaet Darmstadt (Alemanya)  
National and Kapodistrian University of Athens (Grècia)  
Università degli Studi di Pavia (Itàlia)  
Opto Speed SA (Suïssa)  
Consell Superior d'Investigacions Científiques (Espanya)  
Coordinador: Universitat de les Illes Balears (Espanya)

### **Summary**

The general objective of the proposal is the experimental demonstration of an emitter/receiver chaotic optical system capable to transmit encoded information through optical fibres. Our proposal is directed at improving the privacy in the transmission of secure data in the context of the increasing volumes of data that fibre-based optical networks carry. We concentrate on relatively high bit rate fibre-optic communication systems utilising semiconductor diode lasers as the optical sources. Our approach exploits the properties of the dynamically chaotic emitter and receiver systems that, under specific conditions are able to synchronise, and therefore allow for the encryption and decryption of messages at a device level. Our technique is complementary and fully compatible with other existing methods for encoding information.

**Referència:** INTERREG IIIB-MEDOC. 2002-02-4.3-I-079.

**Títol:** *Hydroptimet: optimisation des outils de prévision hydrométéorologique.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** ALONSO OROZA, Sergio.

**Categoria:** CU (àrea de coneixement: Física de la Terra).

**Inici:** 2002.                      **Fi:** 2004.

**Socis:**

ARPA Emilia Romagna, Servizio Meteorologico Regionale (Itàlia)

Centro Interuniversitario di Monitoraggio Ambientale (Itàlia)

Regione Toscana: Dipartimento dello Sviluppo Economico (Itàlia)

Regione Calabria: I Dipartimento della Presidenza, Settore 2, Servizio 4 (Itàlia)

Servizio Agrometeorologico Regionale per la Sardegna (Itàlia)

Regione Basilicata: Dipartimento Ambiente e Territorio (Itàlia)

CNR, Istituto di Scienze dell' Atmosfera e del Clima (Itàlia)

Agenzia per la Protezione dell Ambiente ed i Servizi Tecnici (Itàlia)

Agència Catalana de l' Aigua, Generalitat de Catalunya (Espanya)

Institut Polytechnique de Grenoble, LTHE (França)

Université Joseph Fourier (França)

Etat du Valais (Suïssa)

Coordinador: Regione Piemonte: Direzione Servizi Tecnici di Prevenzione (Itàlia)

### **Summary**

The main project aims are: 1) Optimisation of the connections between the meteorological and hydrological component according to the prevention and the forecast of natural risks, in particular of floods. 2) Experimentation of the operational use of new tools, derived from the meteorological modelling, for the high resolution quantitative forecast of the precipitation. 3) Temporal search of optimisation activities of the methodologies and tools developed in a previous INTERREG II C project and their diffusion to the national and international groups.

**Referència:** EVK1-CT2001-00092.

**Modalitat:** Energy, environment and sustainable development.

**Títol:** *Towards sustainable water use on mediterranean islands: addressing conflicting demands and varying hydrological, social and economics conditions.*

**Acrònim:** MEDIS.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [ALONSO OROZA, Sergio](#).

**Categoria:** CU (àrea de coneixement: Física de la Terra).

**Inici:** 2002.                   **Fi:** 2006.

**Socis:**

Natural Environment Research Council (Regne Unit)  
University of Cyprus (Xipre)  
Foundation of Research and Technology (Grècia)  
Università degli Studi di Messina (Itàlia)  
Centre National de la Recherche Scientifique (França)  
Universitat Politècnica de Catalunya (Espanya)  
Université de Corse Pascal Paoli (França)  
National Agricultural Research Foundation (Grècia)  
Regional Government of Crete (Grècia)  
Coordinador: Universitaet Muenster (Alemanya)

**Summary**

The availability of water in the Mediterranean in sufficient quantities and adequate quality represents a significant problem of European dimension. This is due to a number of factors which include: the over-exploitation of existing aquifers by various users, insufficient recharge due to diminishing precipitation, excessive and inadequate use through agricultural activities or tourism, significant deficits in water management and distribution schemes and conflicting or unresolved demands and interests between various users, to name just a few. These problems are exacerbated on the islands in the Mediterranean because of their isolation and thus the impossibility to draw on more distant or more divers aquifers in general and because of the threat of saline intrusions, which reduce the utilisation of existing, near-shore aquifers in particular. Consequently, some islands (e.g., Mallorca or Cyprus) because of the inability to cope with the existing water resources on the island have resorted to extremely costly measures such as sea water desalination or the transport of freshwater from the mainland to the island with tankers. While the availability, demand and distribution of water on each island are determined by specific conditions, there are a number of attributes common to all Mediterranean islands which call for the formulation of generic solutions to the above mentioned problems. Such solutions are also pertinent in the context of the Water Framework Directive (WFD), which came into force on 22.12.2000. Because most of these problems are mutually related and interdependent, solutions will only be derived through holistic considerations. This calls for a high degree of interdisciplinarity and renders mono-disciplinary studies almost useless. Moreover, enduring solutions will only be found through recommendations and/or regulations that are based on mutually agreed principles between the stakeholders involved. This requires a stakeholder-based participatory process that builds on the results of scientific investigations on the one hand and on the consent of major stakeholders on the other. Only

an approach combining interdisciplinarity and stakeholder involvement, which is central to MEDIS (Towards sustainable water use on Mediterranean Islands: addressing conflicting demands and varying hydrological, social and economic conditions) will result in water management practices that are both sustainable and acceptable/equitable. The overall goal of MEDIS is to contribute towards the sustainable use of water on islands of the Mediterranean where conflicting demand for water is combined with a wide range of hydrological, social and economic conditions. The study will be carried out in one typical catchment each on Corsica, Crete, Cyprus, Mallorca and Sicily. Based on interdisciplinary investigations involving, hydrology, spatial analysis (geo-informatics) and geophysics, improved methodologies for the characterisation of- and basic data on aquifers and the monitoring of water consumption, recharge and safe field will be developed/derived. Because agriculture represents the major user of water on most Mediterranean islands (except for Mallorca, where water demand is highest for tourism), improved agricultural practices that enable smaller water consumption will be recommended. A stakeholder analysis and the collection and examination of information on water demand by various stakeholders in conjunction with the physical data will be used in a decision support system employing multi-criteria analysis in order to derive various mutually agreeable water distribution schemes in a participatory bottom-up approach. This will form the basis for recommendations on equitable and sustainable water management practices under current and possibly decreased precipitation rates resulting from climate change. By carrying out this project on five islands that cover the Mediterranean from west to east and by enabling a dialogue between scientists and stakeholders as well as between principal stakeholders from each island, these recommendations will embrace generic solutions based on the collective experiences of the residents on all islands. Thus, MEDIS will not only enable improved water management practices on each of the islands considered, but will contribute to the implementation of the WFD on Mediterranean islands. It is expected that MEDIS will deliver: extensive maps, databases and electronic atlases of current water resources/supply, water demands and recharge for the islands under investigation; recommendations/ guidelines for best practices in agriculture in order to mitigate the inefficient use of water; a detailed analysis and evaluation of the social and economic impacts of current water management practices, the water demands of major stakeholders, and their perception on water and water availability in general; recommendations and/or guidelines for the implementation of an infrastructure for a stakeholder-based, participatory process leading to sustainable and equitable water distribution schemes on the Mediterranean islands. These objectives are realistic, because MEDIS will be carried out by a consortium of partners who have gained extensive experience in earlier studies addressing comparable problems. Moreover, we will seek collaboration with external experts and other ongoing projects in order to improve our investigations and to avoid undue overlap.





**DEPARTAMENT DE QUÍMICA**

**Referència:** HPMF-CT-2000-01057.

**Modalitat:** Improving human research potential and the socio-economic knowledge base.

**Títol:** *Development of an automatic analyser coupled with an integrated photocatalytic reactor for the determination of free and complexed heavy metals in water.*

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** CERDÀ MARTÍN, Víctor.

**Categoria:** CU (àrea de coneixement: Química Analítica).

**Inici:** 2001.                      **Fi:** 2003.

**Socis:**

Coordinador: Universitat de les Illes Balears (Espanya)

Our proposal is to design and set-up an in-situ apparatus for sampling and monitoring of waters by on-line and simultaneous measurements of several metals in water bodies. The device will be able to early survey trace metallic pollution. To built up the apparatus for the automated fluorimetric analysis of metals in water, the project foresees primarily the optimisation of a photo-oxidation device. In fact, one main requirement for the development of a metal analyser based on following complexation of the relevant analytes, is that metals occur in sample in a non-complexed form. Metals in natural or industrial water are bound to organic compounds like fulvic and humic acids, or even incorporated in organo-metallic compounds with covalent bonds. In order to achieve a quantitative availability of the relevant metals, these compounds have to be destroyed, or at least have to be released from the complexes.

A suitable method to reach this purpose is the catalysed oxidation with ultraviolet (UV) light, using TiO<sub>2</sub> as catalyst. After the set-up of the photo-oxidation reactor and of the separation and complexing device, the most innovative aspect is the development of a prototype for automatic fluorescence analysis. This prototype will allow to automate all the above steps and will apply traditional techniques, as well as new ones like flow and sequential analysis (FIA, SIA) and multi-syringe flow analysis (MSFA). Actually, this training represents a great opportunity for the applicant to apply his academic/practical experience in a finalised research project and to enlarge its scientific skills in applied environmental catalysis. Furthermore, by entering more in deep into such new analytical technologies, based on flow and sequential injection analysis, the fellowship gives to the applicant the possibility to acquire further (and not common) skills on in-situ environmental analysis. At the same time, he will improve his consciousness and understanding about European Community policies in Environment related matter and measures to be taken against air and water pollution. This will give him a rare and precious degree of expertise in this important and complex scientific/social domain. The research host group has a nice experience in the development of automatic analytical methods, but needs someone with good experience in the set-up, development and optimising of the photo-reactor.

**INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS  
(IMEDEA)**



**Referència:** EVK3-CT2000-00040.

**Modalitat:** Energy, environment and sustainable development.

**Títol:** *Nutrients cycling and the trophic status of coastal ecosystems.*

**Acrònim:** EUROTROPH.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** DUARTE QUESADA, Carlos.

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2001.                    **Fi:** 2004.

**Socis:**

Université Libre de Bruxelles (Bèlgica)  
Netherlands Institute of Ecology (Holanda)  
Centre National de la Recherche Scientifique (França)  
Université Pierre et Marie Curie-Paris VI (França)  
Aalborg Universitet (Dinamarca)  
University of Hull (Regne Unit)  
Coordinador: Université de Liège (Bèlgica)

### **Summary**

EUROTROPH aims to apprehend the functioning of carbon and nutrients storage in coastal ecosystems. The objectives of the projects are: 1- to determine the trophic status of four European coastal sites using different approaches, 2- to breakdown the effects of the various nutrients and organic matter species on the trophic level, 3- to develop biogeochemical and socio-economic models in order to forecast changes and provide management tools, 4- to converse the data into information for wider use and disseminate the results at appropriate levels (end-users), 5- to provide advises for a better control for coastal areas (monitoring procedures, regulation adapted to the trophic status, cost-effective management of nutrients and their disposal).

**Referència:** EVK3-CT2000-00044.

**Modalitat:** Energy, environment and sustainable development.

**Títol:** *Monitoring and managing of european seagrass beds.*

**Acrònim:** M&MS.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [DUARTE QUESADA, Carlos](#).

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2001.

**Fi:** 2004.

**Socis:**

University of Wales-Bangor (Regne Unit)

Universidade do Algarve (Portugal)

Danmarks Miljøundersøgelse (Dinamarca)

Instituto da Conservação da Natureza (Portugal)

Direcció General de Pesca del Govern Balear (Espanya)

Coordinador: [København's Universitet \(Dinamarca\)](#)

**Summary**

The objective of the M&MS project is to define the habitat requirements of European seagrass ecosystems, the present threats to their sustainability, and their resilience to disturbance in order to strengthen our forecast capacity and formulate cost-effective monitoring plans and management strategies. The objective will pursue the specific objectives: (1) to determine if isotopic composition of C, N and S in seagrasses reflects human disturbance, (2) to compile and analyse data on relationships between water column conditions and performance of different seagrass species, (3) to determine the interaction between seagrass performance and sediment conditions, (4) to determine the role of sexual reproduction and genetic diversity on recovery of European seagrass beds, (5) to investigate the dynamics of spatial occupation of seagrasses, its importance for recovery of seagrass beds and their role in coastal protection, and (6) to integrate existing and acquired knowledge into recommendations for monitoring and sustainable management of European seagrass beds.

**Referència:** Q5RS-2001-02456.

**Títol:** *Effects of nutrient release from Mediterranean fish farms on benthic vegetation in coastal ecosystems.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** DUARTE QUESADA, Carlos.

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2001.                      **Fi:** 2004.

**Socis:**

Institute of Marine Biology of Crete (Grècia)

Universitat de Barcelona (Espanya)

Department of Fisheries and Marine Research, Marine Biology and Ecology Section  
(Xipre)

National Environmental Research Institute (Dinamarca)

Universita degli Studi di Ancona (Itàlia)

Coordinador: University of Southern Denmark (Dinamarca)

### **Summary**

The main objectives are to study the environmental impacts of fish farming on benthic vegetation (seagrasses and macroalgae) and benthic fauna and to provide new insights for monitoring purposes. The specific objectives are to explore 1) the loss of nutrients from Mediterranean fish farms, 2) the incorporation of nutrients into pelagic and benthic vegetation in the surroundings of fish farms, 3) the impact of releases nutrients and fish farm effluents on benthic vegetation and fauna. We wish to evaluate if seagrasses and benthic fauna can be used as early warning indicators of fish farming impacts. Finally the obtained information on nutrient release and effects of nutrients on pelagic and benthic vegetation will be incorporated into a dose/response model. An important objective of this project is to include exchange of knowledge between scientist and end-users through workshops and conferences.

**Referència:** EVK3-CT2000-00028.

**Modalitat:** Energy, environment and sustainable development.

**Títol:** *Satellite-based ocean forecasting.*

**Acrònim:** SOFT.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [TINTORÉ SUBIRANA, Joaquim](#).

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2001.                    **Fi:** 2003.

**Socis:**

Université de Liège (Bèlgica)  
Natural Environment Research Council (Regne Unit)  
Safège Cetiis, SA (França)  
Saclant Undersea Research Center (Itàlia)  
Coordinador: Consell Superior d'Investigacions Científiques (Espanya)

### **Summary**

One of the actual challenges in operational oceanography is the prediction of ocean variability. Techniques useful to estimate the near future states of the ocean provide enormous benefits on human activities related to the sea. For such reason, efforts are carried out to get reliable and manageable ocean forecasting systems. Numerical ocean models are by far the most used tools for ocean prediction. This methodology requires the derivation of the dynamical laws controlling the ocean processes as well as the detailed knowledge of the initial conditions, ocean forcings, and monitoring of the space-time ocean variability for their validation. The objectives of SOFT are:

1. To develop an operative, reliable and manageable ocean forecasting system based on satellite imagery.
2. The integration of the above system into numerical ocean models in order to improve their numerical forecasts.



**Projecte núm:** EVK3-CT-2001-00046.

**Modalitat:** Energy, environment and sustainable development.

**Títol:** *New strategy of monitoring and management of HABs in the mediterranean sea.*

**Acrònim:** STRATEGY.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** TINTORÉ SUBIRANA, Joaquim.

**Categoria:** Professor d'investigació CSIC.

**Inici:** 2001. **Fi:** 2004.

**Socis:**

FOA Ambiental, SL (Espanya)  
Università degli Studi di Urbino (Itàlia)  
Instituto Español de Oceanografía (Espanya)  
National Centre for Marine Research (Grècia)  
Consiglio Nazionale delle Ricerche (Itàlia)  
Coordinador: Instituto de Ciencias del Mar CSIC (Espanya)

*Keywords:* HAB Monitoring Coastal management Mediterranean.

**Summary**

In the last decades there has been a clear trend towards the exploitation of the coastline for recreational purposes causing a significant increase of confined areas. STRATEGY main goal is to provide the keys for tackling one of the main risks of coastal regions on a world scale, and specifically along the Mediterranean coastline: the increased frequency of Harmful Algal Bloom (HAB) as the possible consequence of anthropogenic activities. In particular, STRATEGY aims at elucidating the importance of confined areas created or modified by human activity in HAB events. STRATEGY is centred in three species of the genus *Alexandrium* and is focused mainly through in situ studies in the Northern Mediterranean basin where blooms associated with *Alexandrium* species are recurrent and frequently cause public health, economic, and social problems. These regions have a common characteristic: the exploitation of the coastal zone for recreational use, with important highly established tourism industries or plans for development of the near future, and the same concern to conserve the quality of near-shore waters (substantial economical inputs depend on it). Effective communication and active participation of all the players involved at different levels and areas will be promoted. The outputs of STRATEGY will be essential to develop a new concept of monitoring and will provide the basis of an integrated coastal zone management in relationship with the coastal recreational waters (i.e. formulate new criteria of near-shore waters use).

**Referència:** LIFE00NAT/E/7303.

**Modalitat:** LIFE nature.

**Títol:** *Protection of Posidonia grasses in SCIs of Balears.*

**Acrònim:** POSIDONIA.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [TINTORÉ SUBIRANA, Joaquim](#).

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2002. **Fi:** 2005.

**Socis:**

Fundació Bosch i Gimpera de la Universitat de Barcelona (Espanya)

Direcció General de Pesca del Govern Balear (Espanya)

Coordinador: Conselleria de Medi Ambient del Govern Balear (Espanya)

**Summary**

**Objectives:** to warrant the viability and the biological richness of the habitat in the Balearic waters.

**Secondary objectives:** to preserve an important representation of the habitat, avoiding the main threats (overexploitation, uncontrolled public use, colonisation by exotic species...). To warrant the conservation of the species of the II annex of the Habitats Directive and the priority species of the Annex II of Birds Directive. To acquire and spread further knowledge about their ecology, and role in beach conservation and sedimentary dynamics.

**Referència:** HPRN-CT-2000-00034.

**Modalitat:** Improving human research potential and the socio-economic knowledge base.

**Títol:** *VCSELS for information society technology applications.*

**Acrònim:** VISTA.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino](#).

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2000.                   **Fi:** 2004.

**Socis:**

UCC (Irlanda)  
CNET (França)  
EPFL (Txèquia)  
UNI\_ULM (Alemanya)  
INFMI\_MI (Itàlia)  
UPMC\_LKB (França)  
KTH (Suècia)

Coordinador: Istituto Nazionale per la Fisica della Materia (INFMI.RUF) (Itàlia)

### Summary

Opto-electronics will have to play a crucial role in future development of communications and information processing and, as a consequence, will influence very much our society in the next years. The Vertical Cavity Surface Emitting Lasers (VCSEL) are likely to become much more important than standard semiconductor lasers in the near future in opto-electronic devices. In order to reach this major breakthrough, an effort must be faced for solving some problems related to the VCSEL behaviour, in particular for polarisation instabilities pattern complexity, modulation patterning effects, low power, thermal lensing and feedback effects. Even more important, VCSEL special characteristics can be fruitfully used for improving systems performance, for instance with polarisation control, by employing spatial structures for information processing, by achieving quantum-limited performance. The main objectives of the Project are the understanding of the underlying physical mechanisms relevant to VCSEL operation, the subsequent improvement of their efficiency and the transfer of this knowledge to VCSEL based systems. These objectives are achieved by exploring new possibilities associated with VCSEL features and by novel kind of lasers and device concepts.

At this purpose, a tight collaboration is necessary among laboratories with device construction facilities, laboratories with nonlinear and quantum optics and electronics expertise, theoretical groups. Indeed, the samples production requires a large research infrastructure and few European groups (and in few European countries) have this possibility. Besides, a complete characterisation and understanding of the laser behaviour implies specialised competencies and must be performed by groups with the necessary experience. This network will provide the link between the most important European groups in the involved research fields, connecting device production, characterisation and implementation in communication systems.

**Referència:** IST2000-26019.

**Modalitat:** User-friendly information society.

**Títol:** *Quatum images.*

**Acrònim:** QUANTIM.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2001.                   **Fi:** 2003.

**Socis:**

Istituto Nazionale per la Fisica della Materia (Itàlia)  
University of Strathclyde (Regne Unit)  
Universite de Franche-Comte (França)  
Centre National de la Recherche Scientifique (França)  
Northwestern University (EUA)  
Trustees of Boston University (EUA)  
Universite des Sciences et Technologies de Lille (França)  
Coordinador: Ecole Normale Superieure Paris (França)

### **Summary**

Information technologies, which mostly deal with single channel signals, involve more and more often the manipulation of more complex signals, for example when the information is contained in images, and also in parallel computing. Our general objective is to demonstrate that one can take advantage at the same time of the quantum mechanical aspects of light and of the fundamental and intrinsic parallelism of optical signals to develop new techniques in image and parallel information processing at the quantum level. It is in particular to show how, by tailoring the local quantum fluctuations and the spatial quantum correlations of light beams produced by various optical devices, one can improve the quality of different functions which are of great information technologies, such as recording, encryption, storage, read-out, refreshment and duplication of optical information.

**Referència:** EVK2-CT2000-00074.

**Modalitat:** Energy, environment and sustainable development.

**Títol:** *Exotic plant invasions: deleterious effects on mediterranean island ecosystems.*

**Acrònim:** EPIDEMIE.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [TRAVESET VILAGINÉS, Anna](#).

**Categoria:** Investigadora científica del CSIC.

**Inici:** 2001.      **Fi:** 2004.

**Socis:**

Centre de Recerca Ecològica i Aplicacions Forestals (Espanya)  
University of the Aegean (Grècia)  
Università degli Studi di Sassari (Itàlia)  
University of Wales-Bangor (Regne Unit)  
Lund University (Suècia)  
Université de Droit d'Economie et des Sciences d'Aix Marseille (França)  
Coordinador: Natural Environment Research Council (Regne Unit)

**Summary**

To assess the relative importance of the environmental & socioeconomic factors that determine the likelihood of exotic plant invasions in order to evaluate the sustainability of management strategies directed towards reducing the risks of invasion. To quantify the impacts of exotic plants on ecosystem function & services with the purpose of incorporating assessments of the economic and environmental hazards of invasion into management priorities. To integrate assessments of risk & hazard to predict the current & future vulnerability of ecosystems to exotic plant invasions, identify optimum management strategies & highlight appropriate planning & policy development to mitigate harmful impacts. To increase awareness & understanding among the general public, stakeholders, scientists, and policy makers of the vulnerability of semi-natural ecosystems to exotic invasion, the risks posed by exotic plant species and the ecological & economic consequences of invasion in Mediterranean islands.

**Referència:** Q5RS-2001-00839.

**Títol:** *Effects of changes in fishery discarding rates on seabird communities.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [ORO DE RIVAS, Daniel](#).

**Categoria:** Científic titular del CSIC.

**Inici:** 2001.                      **Fi:** 2005.

**Socis:**

Universität Hamburg (Alemanya)

University of Joensuu (Finlàndia)

Coordinador: University of Glasgow (Regne Unit)

### **Summary**

To quantify impact of change in fishery discarding rates on seabird communities, in order better to inform fishery discard management. We will determine whether winter at-sea distribution of appropriately selected species of scavenging seabirds is influenced by distribution of fisheries generating large quantities of discards, and quantify how feeding on discards in winter affects seabird demography through influences on adult body condition, breeding and survival. We will use existing databases to determine how changes in discard rates in well-documented fisheries in northwest North Sea and western Mediterranean over many years have influenced seabird breeding season diet, demographic parameters, and populations, and how changes in discarding rates are effecting predatory impacts of scavenging seabirds on smaller seabird species, and hence altering seabird community structure. Our aim is to provide a better understanding of scavenging seabird ecology that can be used to inform policy.

**Referència:** EVR1-CT2002-40025.

**Modalitat:** Energy, environment and sustainable development.

**Títol:** *European sea level service research infrastructure.*

**Acrònim:** ESEAS-RI.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [GOMIS BOSCH, Damià](#).

**Categoria:** TU (àrea de coneixement: Física de la Terra).

**Socis:**

Kort & Matrikelstyrelsen (Dinamarca)  
Natural Environment Research Council (Regne Unit)  
University of Nottingham (Regne Unit)  
Institut Espanyol d'Oceanografia (Espanya)  
Ente Público Puertos del Estado (Espanya)  
Real Instituto y Observatorio de la Armada (Espanya)  
General Command of Mapping (Turquia)  
Environmental Agency of the Republic of Slovenia (Eslovènia)  
Institute of Meteorological and Water Management (Polònia)  
Hydrographic Institute of the Republic of Croatia (Croàcia)  
University of Zagreb (Croàcia)  
Technische Universität Darmstadt (Alemanya)  
Vilnius Gediminas Technical University (Lituània)  
Universitat Politècnica de Catalunya (Espanya)  
Hellenic Navy Hydrographic Service (Grècia)  
Israel Oceanographic & Limnological Research Council (Regne Unit)  
Natural Environment Research Council (Regne Unit)  
Space Research Centre (Polònia)  
National Research Council of Italy (Itàlia)  
Coordinador: National Mapping Authority (Noruega)

### **Summary**

The primary technological objective of the ESEAS-RI project is to support the ESEAS research infrastructure and to facilitate the transnational coordination, the upgrading of the network of observing sites and the standardisation of the network, the operational routines, the databases and the quality-control. in the as a prerequisite for a full scientific exploitation of the present and future sea level observations. The primary scientific objective of the project is to study sea level variations at inter-annual to century time scales and to quantify potential future changes in mean sea level.

In order to reach the objective, the following main steps are necessary: 1. Quality control of the hourly tide gauge data accessible through the ESEAS. 2. Determination of vertical land movements at tide gauges in order to decontaminate the relative sea level records for this bias. 3. Determination of sea level variations on inter-decadal time scales in the North Atlantic and the semi-enclosed European seas as well as assessment of secular relative sea level trends for the European coasts. 4. Improvement of the network of ESEAS Observing Sites through upgrading of selected tide gauges and co-location of gauges with continuous GPS. Expected impacts: The availability of a quality-controlled database of hourly tide gauge data, and the successful upgrading of the ESEAS network are major milestones. The

project is expected to result in an major improvement of the research infrastructure comprised in the ESEAS. The research carried out in the project will result in an empirical model of sea level variations, which provides a unique basis for future studies of climate processes at decadal to inter-decadal time scales, particularly the North Atlantic Oscillation, as well as a coherent description of the occurrence of extreme sea levels.



**Referència:** Q5RS-2002-01610.

**Títol:** *Integrated approach to the biological basis of age estimation in commercially important fish species.*

**Acrònim:** IBACS.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [MORALES NIN, Beatriz](#).

**Categoria:** Científica titular del CSIC.

**Inici:** 2002.                      **Fi:** 2005.

### **Summary**

This project is a co-operative venture to improve our understanding of the biological basis of age estimation for commercial fish species. Our objective is to integrate modelling, laboratory and field observations to provide an objective basis for interpreting the macrostructures of otoliths used for estimation of fish age. We will take a multi-disciplinary approach, including mathematical modelling, geochemical analysis of oxygen isotope ratios, experimentation in controlled conditions with live fish, and collection of biological data from field populations, to develop generic models of otolith growth. We will establish a new age estimation protocol, and enable training through a data base hosted in a web site accessible by fisheries laboratories and fishermen's organisations. The research activities are divided into 4 tasks: Task 1: Model development. Task 2: New observations from Laboratory Experiments and Field Investigations. Task 3: Generic Model refinement Task 4: Development of ageing protocols and production of an accessible database and interactive web site for fisheries age estimation laboratories and fishermen's organisations. Through the workpackages and activities associated with these tasks, we expect to achieve: Developments of a generic model of otolith formation based on existing information, including functional aspects, and identify gaps in knowledge. Results from field studies of the correlation between temperature history and otolith macrostructure. Results from laboratory studies of the correlation between otolith micro- and macrostructure and feeding, temperature, and fish growth. Refined model of otolith formation, including growth patterns and otolith shape. Improved methodology or age determination in fishes based on objective classification of otolith growth structures using trained artificial neural networks for age identification. Increased confidence in fishery management due to improved reliability (and improved perception of reliability) of data. For nearly 100 years fishery scientists have used growth patterns in the calcified structures (otoliths scales vertebrae, etc) to estimate the age of individual fish. Despite the long familiarity with the technique, our understanding of the time-keeping properties of these structures remains superficial. Growth patterns in these structures need to be interpreted by individual readers to estimate fish age. This interpretation is often based on individual experience and subjective interpretations. The biggest source of subjectivity and thus lack of precision is due to the difficulty in distinguishing between seasonal and secondary growth features. We generally believe that seasonal variations in fish growth result in identifiable patterns, but in many cases our preconceived notions have been proved wrong and cannot be generalised through the distribution range of each species. For example, we have assumed that colder winter temperature and low food availability lead to the formation of thinner, translucent otolith zones. However, direct observations of several populations indicate that these zones are also formed during warmer periods of the year. Likewise, we believe that changes in otolith shape, and characteristic features (e.g. check marks) are indicative of ontological changes in physiology, habitat, or both, corresponding

to changes in inner ear function. We use these features to mark life history events without sufficient direct evidence of their significance or how they are formed. Without an understanding of the basic biological processes, the seasonality of age estimation structures requires empirical observations to test the validity of the technique for each species and each population under study. This adds to the uncertainty in age-based analytical assessments, especially of newly exploited species, and increases the probability that assessments will miss changes in population structure. To improve the situation it is imperative to understand the growth and formation of ageing structures. There is a need for a generalised model to explain the relationship between variations in seasonal conditions, fish growth and the formation of calcified tissues. Working with otoliths, we propose to use laboratory experiments and field observations to develop and refine models of otolith growth. By studying two species within a large and commercially valuable group, the gadiforms, we will develop protocols for age estimation that can be implemented throughout European laboratories. We will evaluate these protocols by direct comparison of the population age structure resulting from traditional methods. Our project will examine, both individually and comparatively, the way in which calcified structures grow in cod (*Gadus morhua*) and European hake (*Merluccius merluccius*). Cod and hake are widespread throughout very different environments. The gadiforms represents the most valuable fishery resources both worldwide, and throughout European waters and therefore our project is also based on the economic and social importance of this group of fish. Without the knowledge of the biological mechanisms of otolith growth, fishery scientists are working with limited tools, and hampered by an antiquated, purely empirical approach. By integrating observations, experiments, and modelling our multi-disciplinary approach will result in better interpretation of the structures, better agreement between age readers, and thus better quality data to support fishery management decisions

**Referència:** IST-2000-29683.

**Modalitat:** User-friendly information society.

**Títol:** *Optical chaos communications using laser-diodes transmitters.*

**Acrònim:** OCCULT.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [COLET RAFECAS, Pere](#).

**Categoria:** Científic titular del CSIC.

**Inici:** 2001.                   **Fi:** 2004.

**Socis:**

University of Wales (Regne Unit)  
Centre National de la Recherche Scientifique (França)  
Technische Universitaet Darmstadt (Alemanya)  
National and Kapodistrian University of Athens (Grècia)  
Università degli Studi di Pavia (Itàlia)  
Opto Speed SA (Suïssa)  
Consell Superior d'Investigacions Científiques (Espanya)  
Coordinador: Universitat de les Illes Balears (Espanya)

### **Summary**

The general objective of the proposal is the experimental demonstration of an emitter/receiver chaotic optical system capable to transmit encoded information through optical fibres. Our proposal is directed at improving the privacy in the transmission of secure data in the context of the increasing volumes of data that fibre-based optical networks carry. We concentrate on relatively high bit rate fibre-optic communication systems utilising semiconductor diode lasers as the optical sources. Our approach exploits the properties of the dynamically chaotic emitter and receiver systems that, under specific conditions are able to synchronise, and therefore allow for the encryption and decryption of messages at a device level. Our technique is complementary and fully compatible with other existing methods for encoding information.

**Títol:** *Mediterranean ocean forecasting system: toward environmental predictions.*

**Acrònim:** MFSTEP.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [TINTORÉ SUBIRANA, Joaquim](#).

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2003.

**Fi:** 2006.

**Socis:**

University of Bologna (UBLG.DF)  
Italian Agency for new Technology, Energy and Environment (ENEA.RAM.PC)  
National Centre for Marine Research (NCMRG.IO)  
Collecte Localisation Satellites SA (CLS.SOC)  
Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS.OCE)  
Institut fuer Meereskunde an der Universitaet Kiel (IMUK.FOZK)  
Universitat Politècnica de Catalunya (UPC.LEM)  
Centre National de la Recherche Scientifique (CNRS.OMP.POCT)  
National and Kapodistrian University of Athens (UAT.DAP.PO)  
Institute of Accelerating Systems and Applications (IASA)  
Institute of Marine Biology of Crete (IMBC.PHY.MDNS)  
National Research Council of Italy (CNR.ISTT)  
Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)  
Ministry of Agricultural and Natural Resources (MANR.DFLPO)  
Fondazione Eni- Enrico Mattei (FEEM)  
Météo-France (DMN.CNRM)  
National Research Council of Italy (CNR.ISAC.RM)  
National Institute of Biology (NIB.MBSP)  
Cesky Hydrometeorologivky Ujatv Praha (CNR.IOF)  
Consorcio Interuniversitario per la Gestione del Centro di Calcolo Elettronico  
dell'Italia Nord Orientale (CICCE.HPS)  
Consell Superior d'Investigacions Científiques (CSIC.IMEDEA)      Coordinador: Istituto  
Nazionale di Geofisica e Vulcanologia (INGV)

**Summary**

The Project aims to the further development of an operational forecasting system for the Mediterranean Sea based upon three main components: a) the Near Real Time Observing system, b) the numerical forecasting systems at basin scale and for regional areas; c) the forecast products dissemination/exploitation system.

The problems to be solved belong to three major categories:

- 1) Technology developments, connected to the new instrumentation for NRT monitoring and the provision of NRT protocols for data dissemination, comprehensive of telecommunication technology and quality control procedures;
- 2) Scientific development, connected to the understanding of the sampling scheme for different measuring platforms, the design and implementation of data assimilation schemes for different spatial scales, the ecosystem modelling validation/calibration experiments at the basin and the coastal areas scale and the development of data assimilation techniques for biochemical data;
- 3) Exploitation developments, consisting of software interfaces between forecast products and oil spill modelling, general contaminant dispersion models, emergency systems, search and rescue models, and fish stock observing systems. In addition, the study of forecast economic value and impact will be carried out.

**LABORATORI DE SISTEMES D'INFORMACIÓ  
GEOGRÀFICA I TERRITORIAL**



**Referència:** INTERREG IIIB-SUDOE. S.O.4.1.E11.

**Títol:** *Sistema de información territorial municipal.*

**Acrònim:** SITMUN.

**Centre:** Laboratori de Sistemes d'Informació Geogràfica i Territorial.

**Investigador responsable:** RUIZ PÉREZ, Maurici.

**Inici:** 2002.                      **Fi:** 2004.

**Socis:**

Govern de Cantàbria (Espanya)  
Consorci d'Informàtica Local de Mallorca (Espanya)  
Consell Insular de Menorca (Espanya)  
Universitat Autònoma de Barcelona (Espanya)  
Associação de Municípios da Terra Quente Transmontana (Portugal)  
Coordinador: Diputació de Barcelona (Espanya)

**Referència:** INTERREG IIIB-MEDOC. 2002-02-4.3-I-080.

**Títol:** *Qualité dans le territoire.*

**Acrònim:** QUATER.

**Centre:** Laboratori de Sistemes d'Informació Geogràfica i Territorial.

**Investigador responsable:** RUIZ PÉREZ, Maurici.

**Inici:** 2002.                      **Fi:** 2004.

**Socis:**

Regione Lombardia (Itàlia)  
Regione Piemonte (Itàlia)  
Ente Parco delle Madonie (Itàlia)  
Universitat Politècnica de València (Espanya)  
Institut Méditerranéen de la Qualite (França)  
Conseil Regional Provence Alpes Cote d'Azur (França)



**PROJECTES FINANÇATS PEL GOVERN  
ESPANYOL**

**I PEL GOVERN DE LES ILLES BALEARS**



**DEPARTAMENT DE BIOLOGIA**



**Referència:** SAF2001-0839. Programa nacional de salut.

**Títol:** *Modulación farmacológica de la presión arterial mediante lípidos que alteran la estructura de la membrana.*

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [ESCRIBÁ RUIZ, Pablo Vicente](#).

**Categoria:** TU (àrea de coneixement: Biologia Cel·lular).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació
<a href="#">Escribá Ruiz, Pablo Vicente</a>	TU	0.5
<a href="#">Barceló Mairata, Francesca M.</a>	TU	0.5
<a href="#">Saus Sarrià, Carles</a>	As.	0.5
<a href="#">Alemany Alonso, Regina</a>		1
<a href="#">Benet, Mikhail</a>		1
<a href="#">Capó, Damiana</a>		1
<a href="#">Kitatja, Klara</a>		1
<a href="#">Serghini, Khadija</a>		1
<a href="#">Prades, Jesús</a>		1
<a href="#">Herrera, Maria Teresa</a>		1

**EDP del grup investigador de l'entitat sol·licitant:** 8.5.

### Summary

In the present project, we propose the elucidation of a pivotal mechanism of peripheral membrane protein and cell membrane interaction. Propagation of messages is such an important phenomenon that a half of our genome is devoted to this task. In addition, the proteins that will be studied here (G protein-coupled receptors) constitute about 80% of the known hormone and neurotransmitter receptors. For this reason, the study of G protein-membrane interaction mechanisms has a great relevance. On the other hand, these receptors control a wide variety of important physiological functions, so that important human pathologies are associated with the abnormal function of these receptors. This fact makes more relevant the knowledge of their functional properties. In addition to the contribution to basic knowledge, the discovered mechanism can be used for the treatment of human pathologies. In this project we will study the hypotensive effects of a variety of lipid molecules, capable to modulate blood pressure through the new mechanism of action discovered. Finally, new molecules with potential pharmacological interest for clinical treatment of blood pressure will be designed and synthesized. Blood pressure control is very important, since hypertension is the main risk factor for developing cardiovascular pathologies. Moreover, cardiovascular pathologies constitute the main cause of death in occidental societies.

**Referència:** SAF2000-0164-C02-02. Programa nacional de salut.

**Títol:** *Estudio del efecto de fármacos opiáceos sobre la viabilidad neuronal y su relación con el desarrollo de la tolerancia al efecto antinoincectivo.*

**Centre:** Departament de Biologia. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** OLMOS BONAFÈ, Gabriel.

**Categoria:** TU (àrea de coneixement: Biologia Cel·lular).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Olmos Bonafè, Gabriel Iglesias Durán, Montserrat Minteig Florensa, Gerard Segura Ginard, Miguel F.	TU	Única

**Nombre total d'investigadors de la UIB:** 1.

**Keywords:** opioid drugs, morphine, heroine, metadone, tolerance, analgesia, pain, neurotoxicity, apoptosis, neuroprotection, cell culture.

### **Summary**

The development of opioid tolerance (decrease in antinociceptive efficacy) is related to the activation of the N-methyl-D-aspartate receptor which induces increased cytoplasmic calcium levels in the neurone and activation of calcium-dependent nitric oxide synthase. It is known that this morphine exposure to cells induces apoptosis or increases their susceptibility to drugs that stimulate apoptosis. This research project is designed to assess the *in vitro* effects of opioid drug exposure on the pathways related with neuronal viability, the potential neuronal damage after chronic *in vivo* treatment and the relationship with the development of tolerance to the antinociceptive effect. The results of this study will help to design new approaches to reduce or protect from the potential neuronal damage after chronic opioid drug exposure and/or block or attenuate tolerance.

**Referència:** BOS2000-1000. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Dinámica de los haplotipos mitocondriales en poblaciones naturales de Drosophila subobscura: aspectos genético-poblacionales, ecológicos y moleculares.*

**Acrònim:** mtDNA.

**Classificació UNESCO:** 2409.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** CASTRO OCÓN, José Aurelio.

**Categoria:** TU (àrea de coneixement: Genètica).

**Inici:** 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Castro Ocón, José Aurelio	TU	Compartida
Ramon Juanpere, Misericòrdia	TU	Compartida
Picornell Rigo, Antònia	TEU	Compartida
Oliver Llamas, Pere	Aj. EU	Única
Terrasa Pont, Bàrbara	As.	Única

**Nombre total d'investigadors de la UIB:** 5.

**Keywords:** *Drosophila subobscura*, haplotypes, mitochondrial DNA, linkage disequilibrium, chromosomal arrangements, DNA sequencing, biological fitness.

### Summary

In most natural poblations of *Drosophila subobscura* studied it has been found that there are two frequent haplotypes of mitochondrial DNA, I and II, which differ by a synonymus change in a target of the restriction enzyme *HaeIII*, as well as a series of less common haplotypes (less than 5%) that are different in time and location. The results obtained up to now have not solved yet the populational dynamics of these haplotypes in nature, and, although a superiority of the haplotype II over I in populational cages was initially found, this result has not been confirmed in current experiments. The cytonuclear disequilibrium experiments with haplotypes and enzymatic nuclear markers have not been significant. On the contrary, the association with chromosomal arrangements seems to be so. The hypothesis we are carrying out now is that in order to explain the presence of the most common haplotypes and the less frequent ones in nature, this must be studied from a population-genetics, ecologics and molecular point of view that could help to explain their dynamics. For this reason, in the present project we establish the following objectives: 1.- Annual dynamics of the mitochondrial haplotypes in a natural population of *Drosophila subobscura*. 2.- Effect of the environment on the haplotype distribution. 3.- Study of the fitness of the less common haplotypes. 4.- Reaction norm of the population cages with temperature. 5.- Association of mitochondrial haplotypes and chromosomal arrangements. 6.- Association of the mitochondrial haplotypes with nuclear STRs-like markers. 7.- Analysis of the nucleotide sequence in a 5 subunit region of the NADH dehydrogenase.

**Referència:** BOS2000-1123-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Taxonomía, filogenia y ecología de Salinibacter.*

**Acrònim:** CASAL-1.

**Classificació UNESCO:** 2414.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [ROSSELLÓ MORA, Ramon.](#)

**Categoria:** Científic titular del CSIC.

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Rosselló Mora, Ramon</a> <a href="#">Antón Botella, Josefa</a>	Científic titular	Única Única

**Nombre total d'investigadors de la UIB:** 1.

*Keywords:* prokaryotes, bacteria, extremely halophilic organisms, taxonomy, genomics, ecology.

### **Summary**

This project involves a taxonomic, genomic, and autoecologic study of the new taxon *Salinibacter*, included in the Bacteria Domain. We have recently described the occurrence of such bacteria in crystallizer ponds from solar salterns of the West Mediterranean and East Atlantic. Unexpectedly, this bacteria accounted for up to 30% of the total prokaryotic population. *Salinibacter* is the first extremely halophilic bacteria whose ecological importance has been reported. Additionally, its phylogenetic affiliation shows that it is fairly remote from those bacteria described so far. In this regard, the combined study of physiology, ecology and genomics would help to improve the understanding of the organisms belonging to the domain Bacteria, as well as the mechanisms of haloadaptation. Furthermore, given the extremophilic nature of *Salinibacter*, likely the study of their physiology may lead to the recognition of new compounds of biotechnological interest.



**Referència:** REN2000-0282/GLO. Ministeri de Ciència i Tecnologia.

**Modalitat:** P2. Projecte d'investigació bàsica orientada.

**Títol:** *Estructura poblacional y variabilidad genética en coleópteros endémicos de las islas Canarias pertenecientes a diferentes ambientes.*

**Acrònim:** CANBIO.

**Classificació UNESCO:** 2409-03.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** JUAN CLAR, Carles.

**Categoria:** TU (àrea de coneixement: Genètica).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Juan Clar, Carles	TU	Compartida
Petitpierre Vall, Eduard	CU	Compartida
Contreras Díaz, Hermans G.	B	Única
Moya Mesa, Óscar	Tèc.	Única

#### **Investigadors d'altres entitats**

Oromí Masoliver, Pedro	Universitat de La Laguna
Fragoso Jerez, Rosario	Universitat de La Laguna

**Nombre total d'investigadors de la UIB:** 4.

**Keywords:** genetic variability, biodiversity, *coleoptera*, endemic beetles, Canary Islands, laurel forest, mitochondrial DNA, PCR, DNA sequencing, phylogenetics, conservation.

#### **Summary**

The main goal of this project is to determine the effects of humid forest fragmentation on organisms with limited geographic distribution. We will use populations of carabid and tenebrionid beetles endemic to the Canary Islands as a model system. Also, we want to relate the historical (phylogeny and colonization patterns) and ecological factors (specialization to hypogean life and to different food resources) with the evolutionary success, genetic variability and population structure of these insects. The effect of the laurel forest regression on the decrease of biodiversity and in relation to conservation policies of this important habitat will be preferentially studied. To undertake these objectives, we will use DNA sequences of mitochondrial and nuclear markers obtained from individuals collected in populations of Tenerife, La Gomera, La Palma and El Hierro islands for population and phylogeographic analyses. This study should provide a basis from which to understand the genetic variability and biodiversity in a perspective of habitat fragmentation in insular ecosystems. We expect the results will have a broad application strategies in a wide number of organisms.

**Referència:** BFI2000-0306. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Biología y regulación por opiáceos de receptores para imidazolinás.*

**Acrònim:** BRORI.

**Classificació UNESCO:** 3209-09.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanoves.

**Investigador responsable:** [GARCÍA SEVILLA, Jesús A.](#)

**Categoria:** CU (àrea de coneixement: Farmacologia).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">García Sevilla, Jesús A.</a>	CU	Única
<a href="#">Miralles Socias, Antoni</a>	TU	Única
<a href="#">Esteban Valdés, Susana</a>	TU	Compartida
<a href="#">Saus Sarrià, Carles</a>		Compartida
<a href="#">Gómez Bellvert, Cristina</a>		Compartida

**Nombre total d'investigadors de la UIB:** 3.

*Keywords:* imidazoline receptors, opiate addiction, MAP kinases,  $\beta$ -carbolines, neuroprotection.

### **Summary**

The imidazoline receptors are novel ill-defined molecular entities, but with a great physiological/physiopathological and farmacological/therapeutic potentials. The aim of this project (a follow-up of DGICYT 94-0002 project) are, on the one hand, to characterize and eventually clone these receptors, and on the other hand, to unravel their participation in opiate addiction and their interaction with endogenous  $\beta$ -carbolines. It is proposed to prepare various probes (mainly antibodies) directed against purified imidazoline receptors, which will be used to asses the cloning of these receptors through cDNA libraries and to characterize the molecular nature of these receptors. Moreover, it is proposed to study the effects of selective  $I_2$  ligands on the MAP kinase signalling, in various models of opiate addiction, to assess wether these drugs are able to counteract the negative effects of opiate drugs on this signal transduction system. Finally, it is proposed to study the eventual participation of  $\beta$ -carbolines, as neuromodulators of imidazoline receptors, in the processes of opiate addiction. The results of this project will contribute to unravel the nature of imidazoline receptors and their involvement in the complex mechanisms of opioid tolerance and dependence, as well as the eventual potential of  $I_2$ -selective ligands as neuroprotectors.

**Referència:** REN2000-1236/TECNO. Ministeri de Ciència i Tecnologia.

**Modalitat:** P3. Projecte d'investigació aplicada.

**Títol:** *Selección de especies leñosas y diseños de rehabilitación paisajística de riberas para la depuración de aguas residuales.*

**Acrònim:** DENDRODEPURACIÓN

**Classificació UNESCO:** 250811, 330806, 330811.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** MARTÍNEZ TABERNER, Antoni.

**Categoria:** TU (àrea de coneixement: Ecologia).

**Inici:** 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Martínez Taberner, Antoni	TU	Única
Ramon Pérez de Rada, Guillem	TU	Compartida
Morey Andreu, Miquel	CU	Compartida
Vadell Adrover, Jaume	TEU	Compartida
Moyà Niell, Gabriel	TU	Compartida
Sampol Barceló, Pere		Compartida
Cañellas Serrano, Nicolau		Compartida
Salgot Marçay, Miquel		Compartida
Romero Bosch, Joan J.		Compartida
Ocón Buira, Rosa		Compartida
Garcia Mas, Francesc		Compartida

**Nombre total d'investigadors de la UIB:** 5.

**Keywords:** waste waters, water purification, trees, riverbanks, landscape restoration, purification efficiency, environmental quality.

### Summary

The mediterranean basin is one of the world's sites where the recycling of waste waters is most advanced. The European Union is financing diverse projects in relation to this. On the other hand, there is intense activity at local level correctly manage and recycle such scarce resource as water. The Dendropurification, as waste water improvement by means of trees, is a poorly tested method which may be applied to tertiary water treatment and which also benefits the environment, landscape quality and water table levels. It is thus of special importance to areas dedicated to tourism. This project propose the use of secondary waste waters for the restoration of temporary streams and drainage ditch banks with autochthonous trees previously selected for their capacity for purification. Seepage waters, where levels of pathogenic micoorganism are reduced by the filtering action of the soil and nutrient salts by root uptake, will reappear in the watercourses or replenish the water table with an improved quality. This general objective will be structured in two ways: firstly by an analysis under controlled conditions of plant growth and ion accumulation, particularly CL, Na and nutrients and secondly by a study of nutrient cycling applied to different tree species combinations growing in either restored or field environmental conditions.

**Referència:** BFI2001-2475-C02-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Exclusión, detoxificación y compartimentación como mecanismos básicos de resistencia al estrés iónico en las plantas.*

**Centre:** Departament de Biologia. Edifici Guillem Colom Casasnovas.

**Investigadora responsable:** CABOT BIBILONI, Catalina.

**Categoria:** TU (àrea de coneixement: Biologia Vegetal).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Cabot Bibiloni, Catalina	TU	1
Bennàsar Roig, Antoni	CEU	0.5
Llorens Garcia, Lleonard	TU	1
Gil Vives, Llorenç	Aj. EU	1
García Oliverors, María C.	B	1

**EDP del grup investigador de l'entitat sol·licitant:** 4.5.

*Keywords:* ABA, ATP-ase, exclusion, halophyte, heavy metal, ion stress, metallophyte, phytoremediation, protective substances, resistance, root exudate, salinity, subcellular compartmentation, tolerance, toxicity.

### Summary

Knowledge of ion stress resistance mechanisms is fundamental for improving plant productivity in regions with salinity problems ( $\text{Na}^+$  and  $\text{Cl}^-$  toxicity), acid soils ( $\text{Al}^{3+}$  toxicity), or sites affected by industrial pollution or toxic spills (heavy metal ions). There is substantial experimental evidence showing that mechanisms that allow plants to perform in environments with a high activity of toxic ions are based on three fundamental strategies: exclusion, detoxification and compartmentation. However, the different biochemical and physiological processes that, in an ion-specific manner, underlie these basic mechanisms are poorly characterized. The main objective of this coordinated project is the study of these mechanisms by using different model plants with clearly distinct behaviours. In subproject 1, tropical varieties of maize that differ in Al resistance will be used to study the exclusion of Al via root exudate analysis and to ascertain the subcellular compartmentation mechanisms with micromanipulation techniques. For the experiments that address the relative importance of exclusion and internal des-toxification of heavy metals (Cu, Ni, Zn) ecotypes of *Silene*, *Alyssum* and other metallophytes with a potential for phytoremediation will be used. Subproject 2 examines the NaCl exclusion and compartmentation mechanisms for two types of models: *Phaseolus vulgaris*, a salt sensitive glaucophyte, and two species of the more salt resistant genus *Medicago* (*M. arborea* and *M. citrina*) that also clearly differ in their response to salt stress. Investigations will mainly center on the plasmalemma ATP-ase using kinetic studies, electrophoresis and Western-blot techniques. The study of the importance of heavy metal exclusion and compartmentation in the cuticle and epidermal cells, with the prospect of application to the phytoremediation of arid or semi-arid areas affected by aerial contamination (aerosols, fumes and particulates) will be examined in several species that inhabit an area exposed to pollution sources emitted by airline fuel exhaust. The coordinative character of the project will allow a fluent and continuous exchange of scientific information and experimental techniques between the partners.

**Referència:** AGL2001-1285-C03-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de recursos y tecnologies agroalimentàries.

**Títol:** *Utilización de indicadores fisiológicos para la aplicación del riego en vid: regulación de la fotosíntesis y del reparto de asimilados y efectos de la calidad del fruto.*

**Acrònim:** EFICALVID.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** MEDRANO GIL, Hipólito.

**Categoria:** CU (àrea de coneixement: Biologia Vegetal).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Medrano Gil, Hipólito	CU	0.5
Bennàsar Roig, Antoni	CEU	0.5
Vadell Adrover, Jaume	TEU	0.5
Escalona Lorenzo, José M.	As.	1
Alorda Martorell, Maria	As.	0.5
Bota Salort, Josefina	B	1
Sampol Trujillo, Bartomeu	B	0.5
Flexas Sans, Jaume	B	0.5

#### Investigadors d'altres entitats

García-Escudero Domínguez, Enrique	CIDA (La Rioja)
Zaballa Ogueta, Olga	CIDA (La Rioja)

**EDP del grup investigador de l'entitat sol·licitant:** 5.

**Keywords:** grapevine, *Vitis vinifera L.*, drought, moderate irrigation, photosynthesis, assimilate partitioning, sap flow, quality, leaf senescence, genetic variability.

#### Summary

The present project is based on previous knowledge, acquired during the development of previous projects on the effects of water stress in grapevine (*Vitis vinifera L.*) physiology. This new project has two aspects: a basic and an applied one. In its basic aspect, it is intended to improve the knowledge about the physiological responses of grapevines to water stress and moderate irrigation, as well as their modulation as a function of the studied cultivar and rootstock. Specifically, the following processes will be studied: hydraulic conductivity and embolism, stomatal regulation by embolism and abscisic acid, non-stomatal inhibition of photosynthesis (photophosphorylation, Calvin cycle and mesophyll resistance), assimilate partitioning between different plant parts, early leaf senescence and abscission, yield, grape quality (specially focussed on colour compounds), and wine quality. In a more applied aspect, it is intended to use different physiological markers to meliorate the application of moderate irrigation, with the aim of optimising the balance between fruit yield and quality. Specifically, the utilisation of sap flow meters and dendrometers will allow a continuous monitoring of plant water expenses, which will be used to control the irrigation schedule. In one of the subprojects, such a control will be supported as well by the establishment of a stomatal conductance threshold, derived from previous studies, in order to maximise water use efficiency and grape quality.

**Referència:** VIN00-013. Programa nacional d'alimentació.  
**Modalitat:** Acció estratègica de millora de la qualitat i la competitivitat dels vins.  
**Títol:** *Selección clonal y saneamiento de variedades de vid de Baleares.*  
**Centre:** Departament de Biologia. Edifici Guillem Colom Casasnovas.  
**Investigador responsable:** MEDRANO GIL, Hipólito.  
**Categoria:** CU (àrea de coneixement: Biologia Vegetal).  
**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>
Medrano Gil, Hipólito	CU
Bota Salort, Josefina	B
Sampol Trujillo, Bartomeu	B
Escalona Lorenzo, José M.	

**Nombre total d'investigadors de la UIB:** 3.

### **Summary**

Local grapevine varieties are increasing their interest because they provide peculiar 'regional' characteristics to the wine. For this reason, the genetic improvement of these varieties are matter of interest and, in that way, the selection of clones from current populations with typical characteristics and good sanitary, productivity and quality levels is necessary. For Balearic Islands, the varieties 'Prensal Blanc o Moll', (white wine), Callet and Manto Negro (black wine) are the most widely used in local wineries and also are part of the authorised varieties in the two 'Denominaciones de Origen' of the Island. The present project will try to obtain selected clones with high quality and productivity as well as to achieve an ampelographic description of such varieties according to the international rules (OIV).

**Referència:** REN2001-3438-C07-02/HID. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de recursos naturals.

**Títol:** *Estado ecológico de los ríos mediterráneos en ambientes insulares. Regionalización ecológica, estaciones de referencia y métodos predictivos de evaluación de calidad.*

**Acrònim:** GUADALMED2-Insulares.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [MOYÀ NIELL, Gabriel](#).

**Categoria:** TU (àrea de coneixement: Ecologia).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Moyà Niell, Gabriel</a>	TU	0.5
<a href="#">Ramon Pérez de Rada, Guillem</a>	TU	0.5
<a href="#">Aguiló Ribas, Josep Antoni</a>	As.	1

#### **Investigadors d'altres entitats**

[Pardo Gamundí, Isabel](#) [Universitat de Vigo](#)

**EDP del grup investigador de l'entitat sol·licitant: 2.**

*Keywords:* ecological status, mediterranean streams, multimetric indexes, predictive index, macroinvertebrates, reference stations.

#### **Summary**

The European Union Water Framework Directive is now in its final step. The last version (CE 41/99, approved by the council in October 22<sup>nd</sup> 1999) will ask to all the countries to elaborate maps of the Ecological Status of freshwater ecosystems, including streams and rivers. The ecological status is based on the determination of water quality using ecological indicators. The Guadalmed working group is presently studying the application of several ecological indicator's systems in 12 mediterranean stream watersheds, from the Besòs river in Barcelona to river Guadalfeo in Granada, including some temporary streams in Majorca Island. We have focused the effort in the combination of 4 multimetric indexes: habitat, riparian vegetation, macrophytes and macroinvertebrates, together with water physicochemical parameters. Our present results are still not conclusive, as we are in the second year of sampling and collection of data, but some advanced aspects cannot be studied in the Guadalmed1 project and will be the objective of this new proposal Guadalmed2.

**Referència:** REN2001-3506-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de recursos naturals.

**Títol:** *Evolución de las especies vegetales y efectos de la fragmentación en las islas continentales: aspectos ecológicos y funcionales.*

**Acrònim:** EVOLUCIÓN E INSULARIDAD.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** MUS AMÉZQUITA, Maurici.

**Categoria:** TEU (àrea de coneixement: Botànica).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Mus Amézquita, Maurici	TEU	1
Medrano Gil, Hipólito	CU	0.5
Rita Larrucea, Joan	TU	0.5
Bibiloni Oliver, Gabriel	As.	1
Galmés Galmés, Jeroni	B	1
Gulías León, Javier	Tèc.	1

**EDP del grup investigador de l'entitat sol·licitant: 5.**

### Summary

The project deals, for the first time in Spain, with one of the main issues concerning the Conservation of Biodiversity and Natural Resources: that of understanding the evolutionary origin, distribution and ability to survive of those endemic plant species inhabiting continental islands in the Mediterranean Basin. The approach followed is based on a comparative analysis of several plant species with similar distribution range but contrasting life-history traits:

- (i) Two species that show both similar distribution range and dispersal ability, but occurring in different habitats: *Senecio rodriguezii* and *Crepis triasii*.
- (ii) Three outcrossing species that show both similar distribution range and levels of fragmentation, but with a limited ability to disperse: *Digitalis minor*, *Hippocrepis balearica* and *Rhamnus ludovici-salvatoris*. While the last one does not seem to show any kind of differentiation throughout its range, *H. balearica* and *D minor* show well-differentiated and characterized morphs throughout the archipelago.

The specific questions addressed are: (i) Which are the patterns of distribution of the genetic variability and gene flow among populations? (ii) Which is the structure and dynamics of fragmented populations, and which is the relative importance of abiotic factors that best explain the ecophysiological behaviour which might be relevant for the extinction of the species concerned? (iii) Which is the degree of agreement in the phylogeography of the endemic species that have similar distribution ranges but different dispersal abilities and levels of fragmentation? (iv) Which is the genetic variability for those traits concerning dispersal ability and physiological adaptation?.

The aims of this project are designed to match and complement the objectives addressed in the European Project (*Plant Dispersal*, EVK2-199-00246), and will allow to assess which type of analogies can be established between the consequences of insularity and the effects of habitat fragmentation in continental landscapes.



**Referència:** BFI2002-00772. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Efectos del déficit hídrico sobre el metabolismo fotosintético y respiratorio de las plantas.*

**Acrònim:** FORESEC.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** RIBAS CARBÓ, Miquel.

**Categoria:** INVESTIGADOR CONTRACTAT.

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Ribas Carbó, Miquel	Investigador	1
Flexas Sans, Jaume	TEU	1
Cifre Llompart, Josep	As.	1

#### Investigadors d'altres entitats

Baiges Blanco, Isabel Maria      Universitat Rovira i Virgili

**EDP del grup investigador de l'entitat sol·licitant:** 3.

#### Summary

This proposal is based on foregoing knowledge obtained from the development of previous projects and the sum of different experiences. In particular, one of the researchers of this project has a large experience on plant respiratory processes and the use of stable isotope techniques as physiological indicators; the second scientist is a specialist in studies of metabolic responses of plants to water stress; the third one is an expert in statistics and experimental design and the fourth scientist is on identification and characterization of the aquaporins' gene expression. Based in the combination of this broad interdisciplinary knowledge, this proposal intends to attain new insights on the regulation of plant metabolism in response to water stress conditions. Specifically, we intend to study the regulation of the mesophyll conductance under stress conditions, process in which the aquaporins might be involved, and its significance on the co-regulation of photosynthesis respiration. This project has a double standpoint, basic and applied. In its basic aspect, the conformation of the regulation of the mesophyll conductance under water stress conditions, process in which the aquaporins might be involved, and its significance on the co-regulation of photosynthesis and respiration.

This project has a double standpoint, basic and applied. In its basic aspect, the conformation of the regulation of the mesophyll conductance under water stress conditions would promote an important conceptual change in the comprehension of the photosynthetic response to drought, contributing to the solution of a long-standing controversy on the preponderance of the stomata and/or metabolic effects on the regulation of photosynthesis under water stress. In its applied aspect, the information derived from this project will allow the use of some physiological parameters as indicators to improve the efficiency of irrigation, and the knowledge of the coregulation of photosynthesis and respiration at the whole plant level will provide a way to improve the existing models that predict plant growth and production under different ambients.

**Referència:** BOS2001-0303. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Sistemática, ecología y evolución de Pseudomonas stutzeri.*

**Classificació UNESCO:** 2414.

**Centre:** Departament de Biologia.

**Investigador responsable:** LALUCAT JO, Jordi.

**Categoria:** CU (àrea de coneixement: Microbiologia).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Lalucat Jo, Jordi	CU	0.5
García-Valdés Pukkits, Elena	TU	1
Bosch Zaragoza, Rafael	TEU	1
Bennàsar Figueras, Antoni	As.	1
Alonso Frau, Diana	B	1

**EDP del grup investigador de l'entitat sol·licitant:** 4.5.

*Keywords:* *Pseudomonas stutzeri*, phylogeny, ecology, evolution, naphthalene, degradation, microdiversity, population genetics.

### Summary

*Pseudomonas stutzeri* is found very frequently in natural environments. Characteristic of the species is the enormous metabolic potential: in the carbon cycle, due to the huge amount of substrates that can be metabolized, specially for the ability to transform or degrade contaminants; in the nitrogen cycle for the ability of certain strains to fix dinitrogen and for being a very active denitrifier. Taxonomically the species is distributed in 9 genomic groups, phylogenetically close related. Main objectives of the project are: 1) Characterization of the genetic microdiversity of the species; 150 collection strains and new relevant isolates will be studied. 2) Determine the genetic structure of the species through MLST. 3) Quantify the abundance of the species in natural environments using traditional and molecular microbiological methods. 4) The evolution of metabolic pathways in *P. Stutzeri* and in the genus *Pseudomonas*, including the naphthalene degradation as a model. 5) To develop a theoretical model on the evolution of the species.

**Referència:** RTA 02-014. Programa nacional de recursos i tecnologies agràries.

**Títol:** *Estudio bioecológico, incidencia y caracterización del nematodo dorado de la patata (Globodera sp) en las Islas Baleares. Estrategias de control integrado.*

**Classificació UNESCO:** 2401, 3108.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigadora responsable:** [ALEMANY FERRÀ, Aina](#).

**Categoria:** TU (àrea de coneixement: Zoologia).

**Inici:** 2002. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoría</b>	<b>Dedicació</b>
<a href="#">Alemany Ferrá, Aina</a> <a href="#">Andrés Yeves, Marifé</a> <a href="#">Martínez Beringola, M. Luisa</a> <a href="#">Durà Blasco, Antoni</a> <a href="#">Rallo Garcia, Joan</a> <a href="#">Mayol Colom, Bartomeu</a> <a href="#">Martínez Beringola, M. L.</a> <a href="#">Salto Jáudenes, M. Teresa</a> <a href="#">Alonso Frau, Raquel</a>	TU	compartida

**Nombre total d'investigadors a la UIB:** 1.

**Keywords:** bioecology, *Globodera*, pathogenic characterization, potato golden nematode, solarization

### **Summary**

Potato cyst nematode (PCN) *Globodera sp.* is one of the most important nematode pests in the world causing a decline of 90 % potato productions in some cases. Sa Pobla-Muro is a main area in potato productions of Majorca island and PCN is the most expensive pest to control by chemical applications.

The aims of this research are first of all to know distribution and epidemiology of *Globodera sp.* in local area by doing soil and plant analysis. The study of biology and population dynamics is also interesting to know the adaptation of the pest to Balearic conditions. This study will be carried out in two varieties of potatoes, specially in a short cycle Maris Peer variety, may be acting as a trap cropping by being harvested very early. Another important subject in order to carry out an appropriate management of this pest is to know the different PCN pathotypes living in Majorca island. This study will be carried out in CSIC Madrid (Ciencias Medioambientales) laboratories. Finally alternative non-polluting methods to control PCN will be studied, like lower chemicals ap.

**Referència:** SAF2003-00232. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional en biomedicina.

**Títol:** *Minerval: un nuevo y potente fármaco antitumoral.*

**Acrònim:** MUNYPFA.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [ESCRIBÁ RUIZ, Pablo Vicente](#).

**Categoria:** TU (àrea de coneixement: Biologia Cel·lular).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Escribá Ruiz, Pablo Vicente</a>	TU	0.5
<a href="#">Besalduch Vidal, Joan</a>		0.5
<a href="#">Barceló Mairata, Francesca M.</a>	TU	0.5
<a href="#">Gutiérrez García, Antonio Manuel</a>		0.5
<a href="#">Barturen Fernández, Fernando</a>		0.5
<a href="#">Rodríguez Diaz-Pavón, José</a>		0.5
<a href="#">Ventayol Bosch, Pere</a>	Tèc.	1
<a href="#">Vögler, Oliver</a>	B	1
<a href="#">Nagy, Tünde</a>	B	1
<a href="#">Borchert, Gudrun</a>	B	1
<a href="#">Baamonde Calzada, Carmela</a>	B	1
<a href="#">Castro Marrero, Jesús</a>	B	1
<a href="#">Terés Jiménez, Silvia</a>	B	1
<a href="#">Casas Rodríguez, Jesús</a>	B	1
<a href="#">Martínez Serra, Jorge</a>	B	1

**EDP del grup investigador de l'entitat sol·licitant:** 8.

### Summary

During the last few years we have discovered a new cell signalling mechanism, in which the plasma membrane structure is involved. Moreover, we have discovered that this cellular mechanism is associated with the antitumor activity of certain drugs, such as anthracycles and HMBA. From the knowledge of the cell signalling and antitumoral mechanisms, we have designed molecules that showed marked antitumor activities. 2-Hydroxy-9-octadecenoic acid (Minerval) alters the cell membrane structure, which modulates the cellular localization and activity of protein kinase C. This alteration induces an increase in cytosolic concentrations of p21<sup>Cip1</sup>, an antiproliferative protein that induces cell cycle arrest and decreases in the levels of various cyclins and cdks in transformed cells. In this project we propose an in-depth study of the cellular and antitumoral mechanisms of this molecule (patented by our group in Spain and in the rest of the world) and to determine the action spectrum of this new drug. For this purpose, different experimental models will be used, such as cell lines and animal models of cancer. The research on the mechanisms of action of Minerval will be assessed, among other experimental approaches, by genomic analyses. Our preliminary results indicate that Minerval induces reversion of various types of tumor processes. In addition, the lack of important side-effects, its low toxicity and the oral administration of this drug suggest that this molecule can be used in human therapies. The results derived from this project may bring important advances in human health and basic knowledge.

**Referència:** REN2003-00024. Ministeri de Ciència i Tecnologia.

**Modalitat:** Recursos naturals.

**Títol:** *Islas en el interior de islas: identificación de unidades evolutivas en insectos amenazados endémicos de Canarias.*

**Acrònim:** CEICAN.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** JUAN CLAR, Carles.

**Categoria:** TU (àrea de coneixement: Genètica).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Juan Clar, Carles	TU	0.5
Petitpierre Vall, Eduard	CU	0.5
Contreras Díaz, Hermans G.	B	1
Moya Mesa, Óscar	Tèc.	1

#### Investigadors d'altres entitats

Oromí Masoliver, Pedro	Universitat de La Laguna
Fragoso Jerez, Rosario	Universitat de La Laguna
Arechavaleta Hernández, Manuel J.	CCAA de Canarias

**EDP del grup investigador de l'entitat sol·licitant:** 3.

#### Summary

The Canary archipelago constitutes one of the 25 'hot spots' of world-wide biodiversity. Of the enormous existing diversity in the islands, practically a fifth of the 6700 species of terrestrial invertebrates are endemic beetles. Numerous beetles and some grasshoppers are threatened or in danger of extinction in the Canary Islands by different causes. In the present project we focus on the study of endemic species of these groups which are particularly fragile. Fragility is produced either by their limited dispersal ability, food specialisation, or irreversible adaptation to the subterranean life, many species or taxa being considered as paleo-endemisms. Conservation does not only require to protect biodiversity, but also to obtain a knowledge of the evolutionary processes that generated it, delimiting what to conserve. Nowadays, the methodological and potential of molecular genetic analyses allows to test different hypotheses and to establish evolutionary conservation units in species or fragmented populations. The main objectives of the project refer to the study of genetic variability, evolutionary relationships and identification of conservation units in hypogean species of *Wolltinerfia*, *Trechus* and related genera (*Coleoptera*, *Carabidae*) and also in the highly endangered taxa of the endemic genus *Acrostira* (*Orthoptera*). This will be achieved using DNA sequences and phylogenetic/population based analyses.

**Referència:** REN2003-03667. Ministeri de Ciència i Tecnologia.

**Modalitat:** Recursos naturals.

**Títol:** *Filogenia molecular de la subfamília Chrysomelinae (Coleoptera, Chrysomelidae).*

**Acrònim:** FILCHRYS.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** [PETITPIERRE VALL, Eduard](#).

**Categoria:** CU (àrea de coneixement: Genètica).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Petitpierre Vall, Eduard</a>	CU	0.5
<a href="#">Juan Clar, Carles</a>	TU	0.5
<a href="#">Tous Pascual, Maria Esperança</a>	B	1

#### **Investigadors d'altres entitats**

[Gómez-Zurita Frau, Jesús](#) [Natural History Museum of London](#)

**EDP del grup investigador de l'entitat sol·licitant: 2.**

#### **Summary**

The higher taxonomic categories of the subfamily *Chrysomelinae*, tribes, subtribes and even some genera, are subjects of discussion and there are opposite views among the different authors. We propose a sequencing of four or five gene fragments, mitochondrials and nuclears, in roughly 70-100 species of nearly 30 representative genera of the subfamily, in order to achieve consistent phylogenetic results. A combined phylogenetic analysis using these four or five gene markers together, would allow to test the validity of the suggested higher taxa, their evolutionary interrelationships, and maybe also their biogeographic origin, with an especial emphasis in the possible Gondwanian roots of the group. All the Iberian and Balearic genera and a significant part of their species will be studied in this project, which will lead to a much better knowledge of our fauna and may provide useful tools towards their conservation too. This project is an enlargement of the previous ones, devoted to set up the molecular phylogeny and the possible intrageneric trends of chromosomal evolution in *Timarcha*, *Chrysolina* and *Cyrtonus*, genera of a complex taxonomy and all of them belonging to this same subfamily.

**Referència:** REN2003-08432-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Recursos naturals.

**Títol:** *La evolución en condiciones de insularidad: estudio genético y demográfico de la biodiversidad de las poblaciones de lagartijas baleares.*

**Acrònim:** INSULAEVOL.

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigadora responsable:** RAMON JUANPERE, Misericòrdia.

**Categoria:** TU (àrea de coneixement: Genètica).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Ramon Juanpere, Misericòrdia	TU	1
Picornell Rigo, Antònia	TEU	1
Castro Ocón, José Aurelio	TU	0.5

**EDP del grup investigador de l'entitat sol·licitant:** 2.5.

### Summary

The main aims of the project are the determination of the molecular diversity existing in the different lizard populations of *Podarcis lilfordi* and *Podarcis pityusensis* from Balearic archipelago, by means the study of the sequence variability of six mitochondrial DNA regions and nuclear gene c-mos. Also, the maximum information about the size, density and structure of each population that live in the principal island and the different islets of the archipelago will be obtained.

DNA sequences will permit to make the phylogenetic inference and the determination of the genetic variability, both items are indispensable to know the evolutionary pattern for the species in Balears and in their relation with the others species of the genera *Podarcis*. This information will be important to know the response of the species to an environmental with adverse conditions. This project aims to incorporate not only molecular data, but also that obtained from ecological studies of these insular populations. It will focus primarily on demographic aspects of each population, including size and basic age and sex structure. It will also include a morphometric study which incorporates data from all the studied populations, and uses all available museum specimens. The comparison of molecular and morphometric data will allow us to reach decisive conclusions on the systematic status of the two species and their numerous populations. However, more importantly it will also allow us to establish the primary processes that have led to the considerable biodiversity in such an apparently very short evolutionary time. The combination of molecular and demographic data will allow a precise evaluation of the situation of each population, providing a sound scientific basis for political decisions on conservation priorities.

**Referència:** PI031218. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.  
**Títol:** *Estudio farmacológico y molecular del efecto del minerval sobre la presión arterial.*  
**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.  
**Investigadora responsable:** [ALEMANY ALONSO, Regina](#).  
**Categoria:** INVESTIGADORA CONTRACTADA.  
**Inici:** 2003.                    **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">Alemany Alonso, Regina</a>	Investigadora
<a href="#">Delgado Ramis, Carlos</a>	Col.
<a href="#">Egea Merlos, Carolina</a>	B
<a href="#">Baamonde Calzada, Carmela</a>	B
<a href="#">Terés Jiménez, Silvia</a>	Col.

### **Summary**

Among the several causes to develop severe cardiac pathologies, hypertension is a major risk factor, the treatment of which is one of the main aims of cardiovascular therapies. However, it has been shown that the treatment of high blood pressure is not enough to increase life span in patients with cardiovascular pathologies, and that the control of two or more risk factor is also necessary. Recently, we have designed, synthesized and patented a drug, Minerval, that is able to regulate 3 cardiovascular risk factors: hypertension, overweight and lipoprotein profile in serum. This drug has been developed based on a new mechanism of action, consisting in the control of cellular signals through the regulation of the lipid membrane structure. Minerval and its derivatives are capable of modulating the membrane structure which alters the propagation of cellular signals. The regulation of the membrane propensity to form hexagonal phases ( $H_{II}$ ) regulates the cellular localization and activity of certain membrane proteins, such as heterotrimeric G proteins and protein kinase C (PKC). Preliminary results showed that the administration of Minerval reduces blood pressure and body weight without apparent side-effects. This project proposes the pharmacological and molecular study of Minerval to evaluate its effect on blood pressure and its use for treatment of cardiovascular pathologies. For this purpose, we will first study the effect of Minerval on vascular tone and blood pressure in different experimental models. Afterwards, it will be performed an in-depth study of the molecular bases and signaling mechanisms modulated by this compound at the central and peripheral levels and in cell cultures. This study will include the genomic analysis of different tissues (vascular and neural). Likewise, the possible toxicity of this drug and its effect on body weight will be investigated.



**Referència:** 67/2003. Conselleria de Salut i Consum del Govern de les Illes Balears.  
**Modalitat:** Ajudes per a activitats relacionades amb la salut.  
**Títol:** *Aïllament i caracterització molecular del paràsit Leishmania present a l'Illa de Mallorca.*  
**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.  
**Investigador responsable:** MIRANDA CHUECA, Miguel Ángel.  
**Categoria:** TEU (àrea de coneixement: Zoologia).  
**Inici:** 2003.                    **Fi:** 2004.

**Referència:** 69/2003. Conselleria de Salut i Consum del Govern de les Illes Balears.  
**Modalitat:** Ajudes per a activitats relacionades amb la salut.  
**Títol:** *Estudi de les vies de senyalització intracel·lular implicades en els efectes protectors dels fàrmacs opiacis en el dany isquèmic i en la pèrdua de la massa muscular.*  
**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.  
**Investigador responsable:** OLMOS BONAFÈ, Gabriel.  
**Categoria:** TU (àrea de coneixement: Biologia Cel·lular).  
**Inici:** 2003.                    **Fi:** 2003.

### Participacions a altres projectes

**Referència:** REN2003-01176. Ministeri de Ciència i Tecnologia.

**Títol:** *Influencia de los factores ambientales sobre la estrategia reproductora y evolución de las larvas de atún rojo (Thunnus thynnus L. 1758) y especies afines en aguas de Baleares.*

**Investigador responsable:** [ALEMANY LLODRÀ, Francesc X.](#)

**Centre:** Centre Oceanogràfic de Balears.

**Investigadores de la UIB:**

[Moreno Castillo, Isabel.](#)

**Categoria:** CU (àrea de coneixement: Zoologia).

Deudero Company, Salut.

**Categoria:** Aj. U (àrea de coneixement: Zoologia).

**Inici:** 2003. **Fi:** 2006.

**Referència:** OT00-037-C17-05. Ministeri de Ciència i Tecnologia.

**Títol:** *Tipificación, cartografía y evaluación de los pastos españoles.*

**Investigador responsable:** [RALLO GARCIA, Joan.](#)

**Centre:** Conselleria d'Agricultura i Pesca del Govern Balear.

**Investigador de la UIB:** [Medrano Gil, Hipólito.](#)

**Categoria:** CU (àrea de coneixement: Biologia Vegetal).

**Inici:** 2002. **Fi:** 2003.

**Referència:** PI030632. Fons d'Investigacion Sanitària. Ministeri de Sanitat i Consum.

**Títol:** *Mecanismos celulares y moleculares implicados en la degeneración de motoneuronas. Modulación por oxígeno.*

**Investigadora responsable:** [LLADÓ VICH, Jerònia.](#)

**Centre:** Hospital Universitari Son Dureta.

**Investigador de la UIB:** [Olmos Bonafè, Gabriel.](#)

**Categoria:** TU (àrea de coneixement: Biologia Cel·lular).

**Inici:** 2003. **Fi:** 2006.

**DEPARTAMENT DE BIOLOGIA FONAMENTAL  
I CIÈNCIES DE LA SALUT**



**Projecte coordinat núm.:** BFI2000-0988-C06-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol del projecte coordinat:** *Bases genético-moleculares de la regulación del peso corporal y la obesidad.*

**Acrònim:** GENOBES.

**Classificació UNESCO:** 320602, 230221, 230204.

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [PALOU OLIVER, Andreu](#).

**Categoria:** CU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2000.                   **Fi:** 2003.

**Subprojecte 2:** BFI2000-0988-C06-02.

**Títol del subprojecte:** *Efecto termogénético de nutrientes en el control del peso corporal.*

**Acrònim:** NUTRITERM.

**Investigadora responsable:** [SERRA VICH, Francesca](#).

**Categoria:** CEU (àrea de coneixement: Nutrició i Bromatologia).

**Subprojecte 3:** BFI2000-0988-C06-03.

**Títol del subprojecte:** *Caracterización del sistema de la leptina en el tracto gastrointestinal.*

**Acrònim:** GASTRILEP.

**Investigadora responsable:** [PICÓ SEGURA, Catalina](#).

**Categoria:** CEU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Subprojecte 4:** BFI2000-0988-C06-04.

**Títol del subprojecte:** *Dimorfismo sexual en la regulación adrenérgica de la termogénesis.*

**Acrònim:** DISRAT.

**Investigadora responsable:** [ROCA SALOM, M. del Pilar](#).

**Categoria:** TU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Subprojecte 5:** BFI2000-0988-C06-05.

**Títol del subprojecte:** *Cambios termogénéticos durante la biogénesis y desarrollo mitocondrial.*

**Acrònim:** CAMTER.

**Investigador responsable:** [GARCÍA PALMER, Francisco José](#).

**Categoria:** TU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Subprojecte 6:** BFI2000-0988-C06-06.

**Títol del subprojecte:** *Regulación termogénica a nivel mitocondrial.*

**Acrònim:** TERMIT.

**Investigadora responsable:** [GIANOTTI BAUZÀ, Magdalena](#).

**Categoria:** CEU (àrea de coneixement: Bioquímica i Biologia Molecular).

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Palou Oliver, Andreu	CU	Compartida
Serra Vich, Francesca	TEU	Única
Picó Segura, Catalina	CEU	Única
Roca Salom, M. del Pilar	TU	Única
García Palmer, Francisco José	TU	Única
Gianotti Bauzà, Magdalena	CEU	Única
Bonet Piña, M. Lluïsa	CEU	Única
Lladó Sampol, Isabel	TEU	Única
Proenza Arenas, Ana María	TEU int.	Única
Quevedo Coli, Santiago S.	As.	Única
Oliver Oliver, Jordi	TEU int.	Única
Pablo Cànaves, Josep A.	As.	Única
Conde Riera, Pere B.		Única
Vilimelis Montsó, Josepa	As.	Única
Veny Riera, Guillem		Única
Balaguer Covas, Jaume	As.	Única
Guardiola Serrano, Francesca	As.	Única

**Nombre total d'investigadors de la UIB:** 15.

*Keywords:* obesity, thermogenesis, leptin, UCPs, obesity genes, mitochondria, regulation by nutrients.

### Summary

This co-ordinated project is aimed to contribute to the knowledge of the genetic and molecular bases of body weight control and obesity. In the last 5 years, basic research in this field has lived a bust, with milestones such as the cloning of the ob gene and the identification of its products, leptin, as a key hormone in the control of food intake (as well as thermogenesis) through the CNS, and the decoding of the thermogenic systems, which determines the energy efficiency of nutrient metabolism. Our group, with a continuous interest in the field dating back 15 years, has been at the centre of this huge activity. Among our more recent contributions are: 1) the discovery that some nutrients can regulate the expression of genes related to thermogenesis and obesity, 2) the discovery of an association between certain gene polymorphisms and obesity and 3) the discovery that leptin, which is produced mainly in adipose tissues, is also produced in the human stomach (results in press). These contributions are the foundations of three of the subprojectes presented here, the goals of which are: to further study the effects and mechanisms of action of already identified regulatory nutrients and to identify new putative regulatory nutrients, to establish possible associations between new gene polymorphisms and obesity and to investigate the possible role of leptin as a short-term satiating signal, characterising leptin expression in the gastrointestinal tract. In close association, another subproject deals with the study of the molecular and physiological bases of the sexual dimorphism in the regulation of thermogenesis and the mobilisation of fat stores, which has been previously reported by our group and could be related to the well known gender differences in fat

distribution. Finally, two subprojects go further in the characterisation of the distinct thermogenic capacity and activity of the different mitochondrial subpopulations, and its possible implication in body weight disorders. This project is connected to other European activities, since, with complementary objectives, we have already established collaborations with the most important groups in the field, in the framework of COST action 918 (participated by 17 European Countries and managed by the co-ordinator of the present project) and of other projects requested to the V Framework Programme. This co-ordinated project is the natural continuity of our previous efforts in a field that has a great and increasing scientific impact, as well as important economic and social implications.

**Referència:** FIS01-1379. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

**Títol:** *Aproximación molecular a la obesidad.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigador responsable:** PALOU OLIVER, Andreu.

**Categoria:** CU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2001. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>
Palou Oliver, Andreu	CU
Bonet Piña, M. Lluïsa	CEU
Picó Segura, Catalina	CEU
<b>Roca Salom, M. del Pilar</b>	<b>TU</b>
Serra Vich, Francesca	CEU
Garcia Palmer, Francisco José	TU
Gianotti Bauzà, Magdalena	CEU
Lladó Sampol, Isabel	TEU
Proenza Arenas, Ana María	TEU int.
Oliver Oliver, Jordi	TEU int.
Pablo Cànaves, Josep A.	As.
Quevedo Coli, Santiago S.	As.
Conde Riera, Pere B.	
Vilimelis Montsó, Josepa	As.
Veny Riera, Guillem	
Balaguer Covas, Jaume	As.
Guardiola Serrano, Francesca	As.
Ribot Riutort, Joan	B
Miralles Barrachina, Olga	
Cabello Vives, Mercedes Y.	B
Oliver Vara, Paula	B
Moreiro Socias, José	
Rodríguez Guerrero, Ana M.	B
Rodríguez Padrona, Enrique	B
Felipe Legaz, Francisco	B
Ramis Morey, Joana M.	B
Monjo Cabrer, Marta	B
Rodríguez Cuenca, Sergio	
Pujol Holgado, Maria E.	B
Justo López, Roberto	

**Nombre total d'investigadors de la UIB:** 24.

### Summary

This project is aimed to contribute to the knowledge of the genetic and molecular bases of body weight control and obesity. In the last 5 years, basic research in this field has lived a burst, with the cloning of the ob gene and the identification of its product, leptin, as a key hormone in the control of food intake (as well as thermogenesis), and the decoding of the



thermogenic system, which determines the energy efficiency of nutrient metabolism. Our group, with a continuous interest in the field dating back 15 years, has been at the centre of this huge activity with notable contributions. The present proposal is based in our knowledge and expertise in the field. The main goals of the project are: 1) to establish possible associations between new gene polymorphisms and obesity; 2) to investigate the possible role of leptin as a short-term satiating signal, characterising leptin expression and function in the gastrointestinal tract; 3) to further study the effects and mechanism of action of candidate regulatory nutrients; 4) to study the molecular and physiological bases of the sexual dimorphism in the regulation of thermogenesis and the mobilisation of fat stores; and 5) to characterise the thermogenic capacity and activity of different mitochondrial subpopulations, and their possible implication in body weight disorders.

This project is connected to other European activities, since, with complementary objectives, we have already established collaborations with the most important European groups in the field, in the framework of COST action 918 (participated by 17 European countries and managed by the principal investigator of the present project) and other requested at the VFWP.

**Referència:** BFI2002-04583-C02-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Melatonina, triptófano, edad y sus implicaciones en los ciclos sueño-vigilia de temperatura corporalen la tortola collariza Streptopeliarisoria.*

**Acrònim:** MELTIPRESU.

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigadora responsable:** ESTEBAN VALDÉS, Susana.

**Categoria:** TU (àrea de coneixement: Fisiologia).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Esteban Valdés, Susana	TU	0.5
Rial Planas, Rubén Víctor	CU	0.5
Nicolau Llobera, Cristina	TEU	0.5
Gamundí Gamundí, Antoni	TEU int.	0.5

**EDP del grup investigador de l'entitat sol·licitant:** 2.

### Summary

The circadian control over most physiological functions is well recognized, being the wake-sleep and the immune function rhythms two paradigmatic examples. It is also known that melatonin is a key factor relating them. However, age causes important changes, reducing both sleep efficiency and immune capacity, factors which are accompanied with deep changes in melatonin secretion. Our previous research performed in the turtle dove (*Streptopelia risoria*) showed a positive correlation between the seric concentration of melatonin and the phagocytic function. In vitro studies also performed in our laboratory showed that melatonin, both at physiological and pharmacological concentrations, have a stimulant effect over incubated phagocytes. In addition, we have recently found that the circadian secretion rhythm of melatonin vanishes in old turtle doves. On the other hand, it is well known that the sleep suffers deep changes with age, being poor sleep one of the most common complains of old age in humans. In this respect, the powerful hypnotic and body cooling effects of melatonin are well known, the cooling further increasing the hypnogenic effects. On the other hand, in order to frame the evolution of sleep from reptiles to mammals and birds, it is felt that the avian sleep needs additional study, most specially after the new developments in the sleep of primitive mammals. This project aims at studying sleep and immunity in the turtle dove used as a model of the circadian changes produced by age. The correlation between tryptophan and melatonin with the circadian sleep, activity-inactivity and immune cycles will be studied as well as their eventual reversion after the administration of exogenous melatonin and tryptophan.

**Referència:** PI02-1339. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

**Títol:** *Papel de los radicales libres en la homeostasis redox. Implicaciones patológicas sobre el metabolismo energético.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [GARCÍA PALMER, Francisco José.](#)

**Categoria:** TU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">García Palmer, Francisco José</a>	TU
<a href="#">Roca Salom, M. del Pilar</a>	TU
<a href="#">Gianotti Bauzà, Magdalena</a>	CEU
<a href="#">Lladó Sampol, Isabel</a>	TEU
<a href="#">Proenza Arenas, Ana María</a>	TEU
<a href="#">Elorza Guerrero, Miguel Ángel</a>	
<a href="#">Sampol Mayol, Antònia</a>	
<a href="#">Balaguer Covas, Jaume</a>	As.
<a href="#">Monjo Cabrer, Marta</a>	B
<a href="#">Pujol Holgado, Maria E.</a>	B
<a href="#">Justo López, Roberto</a>	B
<a href="#">Rodríguez Cuenca, Sergio</a>	B
<a href="#">Frontera Borrueco, Margalida</a>	B

**Nombre total d'investigadors de la UIB:** 11.

### **Summary**

Nowadays, the radical oxygen species (ROS) constitute a subject of increasing interest, since many physiological and pathological responses are mediated by changes in the redox status of the cell. These molecules present a great toxicity and the main form to palliate their harmful effect is to neutralize them by means of the action of antioxidant systems.

The goal of the present project is to study redox status regulatory mechanisms with the aim of designing nutritional strategies in order to avoid the harmful effects induced by the excessive production of ROS during the aging process, as well as the enhancing effect that overfeeding produces on ROS production.

Methodology will include experiments performed both in vivo, with experimental animals, and in vitro, using primary cultures from different types of animal tissues as well as human cell lines. Experimental design includes the study of mitochondrial function (morphology, respiratory chain, uncoupling proteins, etc.) and oxidative stress (antioxidants and prooxidants) associated to aging in overfeeding and caloric restriction conditions, and the effect of antioxidant supplementation.

Given the involvement of uncoupling proteins in oxidative stress control, the observed differences between genders and the different roles that mitochondrial subpopulations seem to play in the energy status; it seems logical that these subpopulations participate in the regulation of ROS production in a differential way, and even that sexual hormones may play a certain role in this regulation.

**Referència:** PI02-1593. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

**Títol:** *Desarrollo de alimentos funcionales a partir de la almendra como complemento de la dieta.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** [TUR MARÍ, Josep Antoni.](#)

**Categoria:** TU (àrea de coneixement: Fisiologia).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">Tur Marí, Josep Antoni</a>	TU
<a href="#">Pons Biescas, Antoni</a>	TU
<a href="#">Fuentespina Vidal, Emilia</a>	
<a href="#">Llompарт Alabern, Isabel</a>	
<a href="#">Aguiló Pons, Antoni</a>	
<a href="#">Tauler Riera, Pedro J.</a>	B
<a href="#">Cases Porcel, Núria</a>	B
<a href="#">Riesco Prieto, Maria del T.</a>	
<a href="#">Córdoba Martínez, Alfredo</a>	

**Nombre total d'investigadors de la UIB:** 4.

### **Summary**

To perform physical activity yields obvious benefits but also oxidate stress together with negative consequences on health. Antioxidant nutrients are part of the first level of defense in front of oxidation, containing vitamin E and C, carotenoids, cystein, glutation, phenolic derivatives, and also secondary antioxidants as phytic acid. To intake antioxidant rich diets has been recommended in order to prevent oxidative stress, but lot of food must be intake to achieve the apropiate antioxidant concentrations to prevent oxidative stress. However, the sinergistic effect of antioxidant and their positive effects on enzymatic antioxidant defenses may be useful to design foods with low antioxidant contents, but the antioxidant properties together would be higher than antioxidant individual activities. Our research team has designed a new almond-based, a typical mediterranean fruit, isotonic and energetic beverage rich on antioxidant vitamins of easy assimilation, due to high unsaturated fatty acids contents of almond.

The aim of this project is to evaluate the biological activity and bioassimilation of antioxidant contents of the almond-based beverage in front of oxidative stress associated to physical activity and its effects on the enzymatic antioxidant defenses; this purpose is going to be achieved by means of three concrete objectives: to know the effects of continuous intake of the beverage on the antioxidant defenses, to know the acute effects of the antioxidant contents of the beverage on the post-exercise recovering, and to know the imporvement of antioxidant nutrients assimilation due to their intake through the almond-based beverage. After previous works, our team is devoted to hope that the designed almond-based beverage, as dietary supplement, would be useful to enjoy a positive synergy of the practice of physical activity and the moderate intake of antioxidant nutrients, in front of not desired effects of oxidate stress associated to exercise. Accordingly, another useful tool will be achieved to increased the community health.

**Referència:** G03/028. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

**Modalitat:** Xarxes Temàtiques d'Investigació Cooperativa.

**Títol:** *Bases moleculares y fisiopatológicas en el tratamiento de la obesidad.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigador responsable:** PALOU OLIVER, Andreu.

**Categoria:** CU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2002.                   **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>
Palou Oliver, Andreu	CU
Picó Segura, Catalina	CEU
Bonet Piña, M. Lluïsa	CEU
Serra Vich, Francesca	CEU
Ribot Riutort, Joan	TEU
Oliver Vara, Paula	TEU
Rodríguez Guerrero, Ana M.	Aj. U
Miralles Barrachina, Olga	As.
Quevedo Coli, Santiago S.	As.
Ramis Morey, Joana M.	B
Felipe Legaz, Francisco	B
Sánchez Roig, Joana	B
Santwichler, Sandra	Tèc.

**Referència:** BFI2003-04439. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Aproximación nutrigenómica funcional a la regulación del peso corporal.*

**Acrònim:** NUTRIGEN.

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigador responsable:** PALOU OLIVER, Andreu.

**Categoria:** CU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Palou Oliver, Andreu	CU	0.5
Serra Vich, Francesca	CEU	0.5
Picó Segura, Catalina	CEU	0.5
Bonet Piña, M. Lluïsa	CEU	0.5
Oliver Vara, Paula	TEU int.	0.5
Ribot Riutort, Joan	TEU int.	0.5
Rodríguez Guerrero, Ana M.	Aj. U	0.5
Miralles Barrachina, Olga	As.	0.5
Ramis Morey, Joana M.	B	0.5
Rodríguez Parrona, Enrique	B	0.5
Felipe Legaz, Francisco	B	0.5
Sánchez Roig, Joana	B	0.5
Fuster Roca, Maria Antònia	B	0.5
Gelabert Valls, Maria	Tèc.	0.5

#### Investigadors d'altres entitats

Roman Piñana, Juana María	Hospital Universitari Son Dureta
Moreiro Socias, José	Hospital Universitari Son Dureta
Pareja Bezares, Antonio	Fundació Hospital Son Llàtzer
Balliu Badia, Pere Ramon	Hospital Universitari Son Dureta
Soro Gonsalvez, José Antonio	Hospital Universitari Son Dureta

**EDP del grup investigador de l'entitat sol·licitant:** 7.

#### Summary

The project intends to contribute to the knowledge of the genetic and molecular basis involved in the control of energy balance and obesity and its regulation by nutrients. It is the continuation of the tasks of a consolidated research group, continuously supported by national and european grants during last 17 years and, in particular, it is intended to face the likely integration of the group in a European Research network of Excellence in Nutrigenomics. The social-economical interest of the subject is noticeable because of the high incidence of obesity in our society and because the development of specific functional foods for this population has a vast potential. The hypothesis behind this project is that selected nutrients (we already have identified some fatty acids and derivatives, carotenoids, retinoic acid and, likely, vitamin D) may play an important role in the

regulation of energy balance promoting or preventing the onset of obesity and its medical complications. The objectives of the project are:

1. To study the effects of specific nutrients of the thermogenic system and the adipogenic process, their mechanism of action and their impact on whole body adiposity.
2. To characterize the effect of selected nutrients and/or derivatives on the expression and secretion of some adipocytokines and its relation with the medical complications of obesity, in particular, the insulin resistance.
3. To characterize the gastric leptin system and its function on the control of food intake in the short/medium term and/or on nutrient absorption; and research conducted to test the efficacy of leptin as a nutritional supplement to avoid overweight in the adult life.
4. To study the differential expression of genes in adipose tissue depots of lean and obese humans and its eventual reversion upon body weight normalization. To analyze its potential relation to specific genetics variants.
5. To develop a transcriptomic and proteomic approach to the effect of selected nutrients on adipose tissue and skeletal muscle samples.

**Referència:** CAL02-084-C5-3. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional d'alimentació.

**Títol:** *Estudio del mecanismo de formación de acrilamida en alimentos transformados. Evolución a lo largo del proceso de fabricación industrial.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigadora responsable:** [PICÓ SEGURA, Catalina](#).

**Categoria:** CEU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2002. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">Picó Segura, Catalina</a>	CEU
<a href="#">Palou Oliver, Andreu</a>	CU
<a href="#">Bonet Piña, M. Lluïsa</a>	CEU
<a href="#">Serra Vich, Francesca</a>	TEU
<a href="#">Oliver Vara, Paula</a>	TEU int.
<a href="#">Ribot Riutort, Joan</a>	TEU int.
<a href="#">Rodríguez Guerrero, Ana M.</a>	Aj. U



## Participacions a altres projectes

**Referència:** SAF2002-00371. Ministeri de Ciència i Tecnologia.

**Títol:** *Mecanismos de acción de fármacos intercalantes: efectos diferenciales sobre la transcripción y el ciclo celular.*

**Investigador responsable:** PORTUGAL MINGUELA, José.

**Centre:** Institut de Biologia Molecular de Barcelona (CSIC).

**Investigadora de la UIB:** Barceló Mairata, Francesca M.

**Categoria:** TU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2002.                      **Fi:** 2005.

**Referència:** G03/140. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

**Modalitat:** Xarxes Temàtiques d'Investigació Cooperativa.

**Títol:** *Papel de los poliformismos génicos en la respuesta a una dieta cardiosaludable en pacientes con alto riesgo de enfermedad cardiovascular.*

**Centre:** IB-SALUT.

**Investigador responsable:** FIOL SALA, Miquel.

**Inici:** 2002.                      **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>
Gianotti Bauzà, Magdalena	CEU
Roca Salom, M. del Pilar	TU
García Palmer, Francisco José	TU
Lladó Sampol, Isabel	TEU
Proenza Arenas, Ana María	TEU
Oliver Oliver, Jordi	TEU



**DEPARTAMENT DE CIÈNCIES DE L'EDUCACIÓ**

**Referència:** BSO2000-0949. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Diseño e implementación de un dispositivo metodológico para sistemas de enseñanza flexible mediante aplicaciones y servicios telemáticos.*

**Acrònim:** DIMESEF-TEL.

**Classificació UNESCO:** 5802.

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** SALINAS IBÁÑEZ, Jesús M.

**Categoria:** TU (àrea de coneixement: Didàctica i Organització Escolar).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Salinas Ibáñez, Jesús M.	TU	Compartida
Bibiloni Coll, Antoni	TEU	Compartida
Pérez Garcias, Adolfina	TEU	Compartida
Urbina Ramírez, Santos	Aj. EU	Compartida
Morlà Garcias, M. Miquela	Aj. EU	Única
de Benito Crosetti, Bárbara	Tèc.	Compartida
Oliver Ribas, Miquel	Tèc.	Compartida

**Nombre total d'investigadors de la UIB:** 7.

*Keywords:* flexible learning, tele-teaching, real time applications, internet, videoconference, computer mediated communication, virtual training environment, distributed hypermedia, lifelong training.

### **Summary**

The basic objectives of this project refer to the correct use of the Information and Communication Technologies in the teaching and learning process. And more exactly in the Campus Extens project of the University of Balearic Islands. Campus Extens is to offer masters, postgraduate courses and inservice and preservice education to people of Menorca and Ibiza through videoconference systems, hypermedia distributed materials, computer mediated communications, etc.

In this context is planned the identification of the correct integration of the telematic tools in the education and teacher training. Refers to the organization of a methodological system to implement a tele-teaching system of the Campus Extens, the design and development of materials and the validation of methodologies and pedagogic models.

**Referència:** SEC2000-1620. Ministeri de Ciència i Tecnologia.

**Modalitat:** P2. Projecte d'investigació bàsica orientada.

**Títol:** *Análisis y optimización de los itinerarios formativos para favorecer la calidad de vida de las personas con discapacidad.*

**Acrònim:** FORDIS.

**Classificació UNESCO:** 5802, 6102.

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** MUNTANER GUASP, Joan Jordi.

**Categoria:** CU (àrea de coneixement: Didàctica i Organització Escolar).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Muntaner Guasp, Joan Jordi	CU	Compartida
Forteza Forteza, M. Dolors	TEU	Compartida
Rosselló Ramon, M. Rosa	TEU	Compartida
Verger Gelabert, Sebastià	Aj. EU	Compartida
Ferrer Cerdà, Elena	As.	Compartida

**Nombre total d'investigadors de la UIB:** 5.

*Keywords:* transition, handicapped, occupational integration, social integration, quality of life.

### **Summary**

At present nobody questions that the occupational integration of the handicapped persons is an indispensable requirement for the full normalization. Equally, nobody casts doubt on that the adequate professional training, promoting to the maximum the capacities of the handicapped persons, it is the key to improve their situation in the occupational world and consequently the social integration. Nevertheless, in spite of the training proposals adopted by the educational system, exists a vacuum and discontinuity among the obligatory education and the different formative itineraries that prepare for the active life. This study not only intends to analyze these itineraries but also to outline action proposals in order to adjust the formative offer that make possible that the handicapped persons could live a so full life as to them will be possible. As well as in the different educational stages is underlined the importance of a comprehensive curriculum in the professional training of handicapped persons this conceptualization acquires, if fits, a special relevancy. First of all because the transition process to the adult life must answer to a detailed planning and coordinated by an interdisciplinary equipment, on the base of an individualized approach of a needs of handicapped persons. From the premise of the fact that only as of a professional training of agreed quality to the characteristics and possibilities of the handicapped persons is possible the integration of these in the occupational market, the position of this investigation has as end last to guide the work of the professionals towards the community integration of the handicapped persons.

**Referència:** BSO2002-02542. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *La educación intercultural en las Illes Balears. Propuesta didáctica para la educación primaria.*

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** VALLESPIR SOLER, Jordi.

**Categoria:** TU (àrea de coneixement: Teoria i Història de l'Educació).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Vallespir Soler, Jordi	TU	1
Oliver Trobat, Miquel F.	TEU	0.33
Casero Martínez, Antonio	As.	0.5
Rincón Verdera, Juan Carlos	TEU	1
Domingo Palomares, Herminio	CEU	0.5
Palou Sampol, Miquel		1

**EDP del grup investigador de l'entitat sol·licitant:** 4.33.

### Summary

The present research project is focused on the evaluation of the social and educational background and on the analysis of the needs as a previous step in order to put forward the educational innovation in the field of the intercultural education. It is located in the borders of the social and cultural reality of the Balearic Islands Community, which is one of the most special human environments of the Spanish country, due the arrival of immigrants –with very diverse origins–, which has been supported and increased by the development of the tourist in the recent times. The research, after analysing the last reports and surveys that have been done on the field, will be focused on the description and analysis of the social and demographic profiles of the immigrant population of the Balearic Islands; this social and educational profile of the immigrant population schooled at the primary education; an evaluation of the organisational and curricular characteristics –concerning the intercultural education– of the public and private primary school centres in the Balearic Islands, and the attitudes of the diverse educational agents with respect to the multicultural phenomenon. This project will continue by formulating a proposal of educational intervention focused, mostly, on the scholar institution (primary education levels) which will include strategies addressed to several administrations, institutions, and social-cultural groups and scenarios responsible of the reception and care of the immigrant population. In this research its expected to combine qualitative and quantitative methodology. The qualitative perspective will be based on the desk research and analysis of the document provide by the educational instiutions (content analysis). The quantitative perspective will be covered by quasi-structured interviews (direction and orientation teams) and questionnaires (students, teachers and parents), which will be statistically analysed.

**Referència:** BSO2000-0663-C04-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Asociaciones juveniles, educación y socialización (1900-1976). Un estudio comparativo entre Cataluña, Valencia y Baleares.*

**Classificació UNESCO:** 550607.

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** SUREDA GARCIA, Bernat.

**Categoria:** CU (àrea de coneixement: Teoria i Història de l'Educació).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Sureda Garcia, Bernat	CU	Compartida
Pastor Homs, Maria	TU	Única
Comas Rubí, Francesca	TEU int.	Única
Vallespir Soler, Jordi	TU	Compartida

**Nombre total d'investigadors de la UIB:** 4.

### **Summary**

In Spain, as in other European countries, the last years of the 19th century and the first of the 20th saw the appearance of a series of educational initiatives and movements aimed at promoting youth organisations with the purposes of instruction and socialisation. These initiatives, advanced by the state, the Catholic church, or civil society, are characterised by concession of greater participation and leadership to the children and youths themselves, and by a greater degree of autonomy from adult organisations, unlike the children's and youth associations of the 19th century. This phenomenon grew throughout the 20th century as youths became a social group whom political and ideological factions wished to control. This project intends to study comparatively the characteristics of this phenomenon in Catalonia, Valencia and the Balearics, pointing out mutual influences as well as similarities and differences, while analysing the relations of these movements with those of similar characteristics that arose in other European countries.

**Referència:** SEC2003-04206. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de socioeconomia.

**Títol:** *Modelos emergentes en entornos virtuales de educación superior. Estudio de elementos tecnológicos, organizativos, de enseñanza-aprendizaje en entornos virtuales universitarios.*

**Acrònim:** MEEVES.

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** SALINAS IBÁÑEZ, Jesús M.

**Categoria:** TU (àrea de coneixement: Didàctica i Organització Escolar).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Salinas Ibáñez, Jesús M.	TU	0.5
Urbina Ramírez, Santos	TEU	0.5
Negre Bennàssar, Francesca	As.	0.5
Pérez Garcias, Adolfinia	TEU	0.5
Ordina Pons, Catalina	As.	0.5
de Benito Crosetti, Bárbara	As.	0.5
Bibiloni Coll, Antoni	TEU	0.5
Fernández Coca, Antonio	TEU	0.5
Rosselló Vaquer, Joan Josep	B	0.5
Pazos Arciniega, María	B	0.5
Martín González, Antonio	B	0.5
Gallardo Pérez, Antonio	B	0.5
Torres Estarellas, Aina Maria	B	0.5
Torrandell Serra, Isabel	Tèc.	0.5
Arrabal Cormenzana, Marina	Tèc.	0.5
Hidalgo Taltavull, Núria	Tèc.	0.5
Riera Forteza, Bartomeu	Tèc.	0.5
Palencia Martínez, Manuel	Tèc.	0.5

#### Investigadors d'altres entitats

Cabero Almenara, Julio      Universitat de Sevilla  
 Barroso Osuna, Julio      Universitat de Sevilla

#### EDP del grup investigador de l'entitat sol·licitant: 9.

The essential objectives of this project concern the adequate exploitation of on line learning environments in teaching-learning processes. In this framework, validity of new didactics strategies and pedagogic models that explain teaching ñ learning processes in these environments require the action and integration of teaching ñ learning models suitable for e-learning, the definition and formal description, and research regarding the processes involved. The aim is to modificate the instructional focus, but also paying adequate attention to technological elements and determining factors, to the organizational models, to diverse communicative models and teaching ñ learning process schedule. The study of all this elements interconnected all together and the revision of the connections will help us to understand and to apply emergent approaches to create effective learning environments in an every time more connected world.



**Referència:** BSO2003-08717. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Prevención del consumo de drogas en la familia: programa de competencia parental para drogodependientes en tratamiento.*

**Acrònim:** PROCOPAD.

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigadora responsable:** [ORTE SOCIAS, M. del Carme](#).

**Categoria:** TU (àrea de coneixement: Teoria i Història de l'Educació).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Orte Socias, M. del Carme</a>	TU	1
<a href="#">Ballester Brage, Lluís</a>	TU	1
<a href="#">March Cerdà, Martí X.</a>	CU	1
<a href="#">Fernández Bennàssar, M. Carme</a>	CEU	1
<a href="#">Oliver Torelló, Josep L.</a>	TEU	1
<a href="#">Touza Garma, M. del Carmen</a>	TEU	1

#### **Investigadors d'altres entitats**

<a href="#">Mestre Moyà, M. Lluïsa</a>	<a href="#">Hospital Universitari Son d'ureta</a>
<a href="#">Fernández Coll, Cristina</a>	<a href="#">Projecte Home</a>

**EDP del grup investigador de l'entitat sol·licitant:** 6.

#### **Summary**

The aim of this project is to create a programme than can be used by professionals working in drug-abuse treatment centres, so that it can be used in the rehabilitation of drug addicts in matters concerning their family lives. More specifically, it will be used to reinforce their parental skills and, at the same time, to avoid the development of maladjusted forms of behaviour in their children.

## Participacions a altres projectes

**Referència:** BSO2003-04301. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Motivación deportiva y deportividad: interacciones y efectos sobre el compromiso o el abandono en futbolistas jóvenes.*

**Acrònim:** MOT DEP Y FAIR.

**Classificació UNESCO:** 610608, 610799.

**Investigador responsable:** [CRUZ FELIU, Jaume.](#)

**Centre:** Universitat Autònoma de Barcelona.

**Investigadors de la UIB:**

[Palou Sampol, Pere.](#)

**Categoria:** TEU (àrea de coneixement: Educació Física i Esportiva).

**Dedicació (EPD):** 1.

[Ponseti Verdaguer, F. Javier.](#)

**Categoria:** TEU (àrea de coneixement: Educació Física i Esportiva).

**Dedicació (EPD):** 0,5.

[Garcia Mas, Alexandre.](#)

**Categoria:** TU (àrea de coneixement: Psicologia Bàsica).

**Dedicació (EPD):** 0,5.

[Borràs Rotger, Pere Antoni.](#)

**Categoria:** P. Col. (àrea de coneixement: Educació Física i Esportiva).

**Dedicació (EPD):** 1.

**Inici:** 2003.                   **Fi:** 2006.

**DEPARTAMENT DE CIÈNCIES DE LA TERRA**



**Referència:** BTE2002-04552-C03-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *El modelado kárstico y la evolución morfológica y sedimentaria del litoral en las Baleares, Valencia y Cerdeña como resultado de las oscilaciones de nivel marino.*

**Acrònim:** KALIT.

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** FORNÓS ASTÓ, Joan Josep.

**Categoria:** TU (àrea de coneixement: Estratigrafia).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Fornós Astó, Joan Josep	TU	1
Ginés Gracia, Ángel	As.	1
Ginés Gracia, Joaquín	As.	1
Gelabert Ferrer, Bernadí	TEU	1
Giménez Garcia, Jordi	Aj. U	0.5
Villanueva Bohigas, Gemma	Aj. EU	0.5
Gómez Pujol, Lluís	B	1
Balaguer Huguet, Pau	B	1

**EDP del grup investigador de l'entitat sol·licitant:** 7.

### Summary

The coordinate project that we present is a consequence of the close collaboration maintained during the last decade between some members of the Departments of Earth Sciences of the University of the Balearic Islands (UIB), Geography of the University of Valencia (UV), and Cartography, Geodesy and Topography of the Polytechnic University of Valencia (UPV) around a common research subject: the relationship between karstic landforms, littoral sedimentation, fluvial systems and Pleistocene/Holocene sea level changes.

The carbonate composition of the main part of the Mediterranean littoral, where are located the Balearics, the island of Sardinia and the Valencia coast, is an adequate scenery for developing pluridisciplinary investigations focused on littoral geomorphology and, more particularly, on coastal karst morphogenetics. Several research programmes have been independently devoted in the past to topics such as the study of paleo sea-level related speleothems, beach-dune systems present at the littoral as well as several geomorphological aspects as the peculiar 'cala'-type landscape, abrasion platforms or other features present at the sea-cliffs which characterize the coast of these zones.

Within this framework, it is of interest to carry out an integrated investigation of littoral morphogenetic processes controlled by pleistocenic and holocenic Mediterranean sea oscillations; this would contribute to a better understanding of both the recent sea-level history and the geomorphological and sedimentary evolution of associated phenomena. The main subjects to be approached in the proposed project are as follows: a) Sampling of the phreatic speleothem alignments that record paleo sea-levels below the current Mediterranean level, by means of speleo-diving techniques. The isotope dating of the phreatic speleothem samples, in order to determine a eustatic curve that will provide data, mainly, on negative sea-level stabilizations connected with cold climatic events; b)

Correlation along the Western Mediterranean with other data from Sardinia and Valencia coasts; c) Correlation of the chronological data obtained on the geomorphological evolution of both littoral endokarst and fluvio-torrential systems which originate the 'cala'-type coast and the infillings of valleys associated with them as well as the "albufera" infillings; d) Analysis of the role that play the tectonic structure in the littoral landscape and the tectono-eustatic evolution of the studied areas; e) Comparison between coastal morphogenesis on the Balearic Islands and in carbonate littorals of eastern Iberia, and establishment of common and/or differential trends in the tectono-eustatic evolution of both areas.

This research project will be an adequate mean of bringing out substantial information on a poorly known topic in the study of the Western Mediterranean Quaternary: the paleo sea-levels lower than the present one, the chronology of the events, and its implications on the littoral morphogenetics.

The interesting results obtained in previous projects in Balearic Islands (especially in Minorca) must be tested in other environmental systems: the valencian area. In Minorca the *calas* are the distal part of the fluvial valleys submerged during of the Holocene transgression, which circular shape is due to doline collapse associated to the changes in the sea level. The same process provokes upstream the formation of dry valleys with an entrenched meander pattern. Although the factors concerning the karst landforms and fluvial model evolution of Balearic Island aren't the same as valencian country, they can be compared: paleolevels sea registered by speleothems can be determined in this area from the lagoon sedimentary record, eolianites and geoarchaeology; limestone platforms and entrenched dry valleys also exist in the prelittoral area. Similarities and differences between the two areas will become evident with the following objectives: a) Eustatic curve will be elaborated for the valencian coast from the pre-existent bibliography. Correlation between lagoons and *calas* sedimentary records will be expected because the two environments have been affected by similar processes; b) Characterization of the Pleistocene/Holocene eolianites. An inventory of outcrops on valencian and Balearics coast will be done in order to study their sedimentary and genetic features. Outcrops located on the Torreblanca beach barrier, deserve an special interest inasmuch as over there is placed a Bronze settlement that excavated grain reservoirs in this formations. This area is the main scope of an interdisciplinary study that is being realized in collaboration with a group of archaeologist from the Valltorta Museum; c) Formation of entrenched dry valleys. Although the alluvial rivers has been studied for many years around the world, the formation of entrenched dry valleys, on a karstified limestone platform, is little known. Preliminary results obtained in previous projects in Mallorca and Minorca suggest an important relationship between *calas* and *barrancos* (dry valleys) with the karst evolution. Base level changes provoked by uplift or sea level changes started upstream entrenchment by collapse of dolines, that improve meander bends. Balearic model will be tested on valencian coastal and prelittoral areas in order to establish similarities and differences. The Valltorta Barranc, an inner gorge entrenched on limestone, where steeped-walls were covered by one of the most important assemblage of neolithic pictures, and the Caroig Platform have been selected to improve the most relevant factors for entrenchment and formation of a meander pattern.

The whole of objectives underlined will be carried out using classical methods (geomorphological surveys, field works, sedimentology, stratigraphy) and new technologies as GIS. In that sense, we will attempt to supply methods and procedures of automatized analysis –using Digital Terrain Models and systems of digital imagery processing –to the

geomorphological investigation of limestone territories. This part of the project tries to provide morphometrical informations on existing landforms, obtained in an automatized and systematic way; these methodologies will allow us an increasing swiftness in the data collection, together with a greater objectivity of the results that must make easier the comparisons between different geographical areas. The envisaged works are directed to three main objectives: (1) the morphometrical analysis of limestone platforms, using Digital Terrain Models; (2) the automatic detection of particular landscape trends which have some geomorphological significance, by means of aerial photography and satellite imagery; and (3) the achievement of a map of homogeneous geomorphological microunits in the limestone platforms studied, utilizing classification techniques of digital images. Objectives 1 and 2 will try to attain an accurate and systematic characterization of the geomorphological trends of the investigated areas. In order to achieve this purpose, it must be necessary to generate analytical tools that run on a GIS, and to check the obtained results both on the field and with the other experts participating in the project. The third objective consists in attaining the generation of geomorphological maps with known accuracy standards. This scope requires the implementation of a methodology that allows an adequate exploitation of the obtained results, coming from classic geomorphological analysis coupled together with the application of digital classification techniques.

To obtain goods results, the collaboration between groups of the University of Balearic Islands, University of Valencia and Politechnic University of Valencia become absolutely necessary. The effort made in the last decade has been reflected by an elevated number of papers published in journals and congresses and should be continued in the future. The group interdisciplinarity (geologists, geographers, engineers, speleologists, archaeologists) has allowed to have an enriching and plural vision of the processes and forms involved.

**Referència:** BSO2000-1207. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació no orientada.

**Títol:** *Cambio rural y productivismo. Las repercusiones de la reforma de la PAC de 1992 en las islas Baleares.*

**Acrònim:** POST-CHANGE.

**Classificació UNESCO:** 540402.

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [SALVÀ TOMÀS, Pere A.](#)

**Categoria:** CU (àrea de coneixement: Geografia Humana).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Salvà Tomàs, Pere A.</a>	CU	Única
<a href="#">Binimelis Sebastián, Jaume</a>	TEU	Única
<a href="#">Ginard Bujosa, Antoni</a>	TEU	Única
<a href="#">Picornell Bauzà, Climent</a>	TU	Única
<a href="#">Seguí Pons, Joana Maria</a>	TU	Única
<a href="#">Ramonó Molinas, Jerònia</a>	Tèc.	Compartida
<a href="#">Martínez Reynés, Maria R.</a>	As.	Compartida

**Nombre total d'investigadors de la UIB:** 7.

*Keywords:* ACP, rural change, post-productivism, Balearic islands.

### **Summary**

They are tried to analyze the repercussions of the CAP in the rural spaces of the Balearic Islands, mainly the consequences of the Reformation McSharry of 1992. The situation of the society and the rural space of the islands will study verifying the diverse mechanisms of adjustment of the agrarian active population before the communitarian norm of the Nineties, which have suppressed the take effect of the post-productivistas expositions.



**Referència:** BTE2001-0372-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement (PGC).

**Títol:** *Análisis comparativo entre plataformas carbonatadas: la arquitectura de facies en función de los campos de producción de sedimento y de acomodación.*

**Acrònim:** PRODAC.

**Classificació UNESCO:** 250619.

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** POMAR GOMÀ, Lluís.

**Categoria:** CU (àrea de coneixement: Estratigrafia).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Pomar Gomà, Lluís	CU	1
López García, José María	As.	0.5

#### **Investigadors d'altres entitats**

Mateos Ruiz, Rosa      Instituto Geológico-Minero de España

**EDP del grup investigador de l'entitat sol·licitant:** 1.5.

*Keywords:* carbonates, platforms, shelves, facies architecture.

#### **Summary**

Depositional profile and facies architecture develop in response to sediment flux and the available space for sediment accumulation (accommodation). In terrigenous systems, these two parameters are independent. In carbonates, however, they are highly interdependent: (1) Sediment input (carbonate production) highly depends on biological systems and, consequently on intrabasinal conditions (nutrients, temperature, salinity, etc). (2) Sediment dispersal depends on the production loci and on the interaction between the amount and type of sediment being produced and the hydraulic energy; additionally biological processes (binding, baffling, framework construction) and even cementation frequently modify it. (3) Accommodation is not an independent factor with respect to sediment input: type, efficiency and area of the carbonate factory depend on sea-level changes and sea-floor morphology. The base level for sediment to accumulate (accommodation) depends on the type and locus of sediment being produced. The aim of this project is to establish the relationships between carbonate production, accommodation changes and facies architecture in four examples of carbonate platforms and shelves from the Lower Cretaceous (Iberian range), Upper Cretaceous and Paleogene of the southern-Pyrenees, and Upper Miocene of Menorca (Balearic Islands). Carbonate production in these examples to different types of biota, climate and geodynamic context.

**Referència:** REN2001-0281. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de recursos naturals.

**Títol:** *Caracterización hidrológica y transporte de sedimentos bajo diferentes usos del suelo en la cuenca del torrent de na Borges (Mallorca).*

**Acrònim:** NA-BORGES.

**Classificació UNESCO:** 250507, 250801, 250806.

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** GARCÍA GARCÍA, Celso.

**Categoria:** TEU (àrea de coneixement: Geografia Física).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
García García, Celso	TEU	0.5
Servera Nicolau, Jaume	TEU	0.5
Pons Buades, Guillem Xavier	TEU int.	0.5

#### Investigadors d'altres entitats

Sala Sanjaume, Maria	Universitat de Barcelona
Ubeda Cartaña, Xavier	Universitat de Barcelona
Sánchez-Mateos Rubio, María	Direcció G. de Recursos Hídrics

**EDP del grup investigador de l'entitat sol·licitant:** 1.5.

*Keywords:* hydrological response, sediment transport, land-use, experimental basin, flood risk, Mallorca.

#### Summary

The project has the main aim of study the hydrological response of the *torrent na Borges* (Mallorca) through the experimental research on runoff production under different types of land use, calculating flood frequency discharges, establishing flood risk areas, and computing the sediment yield of the basin. The drainage basin of the *torrent na Borges* (327 km<sup>2</sup>) will be used as experimental basin for the study of the main hydrological and geomorphological processes. The field and laboratory work will permit to achieve the following objectives:

- Analysis of the hydrological response of the basin. The purpose is to know the behaviour of different types of land use (irrigated lands, crops, abandoned fields, shrubs and wood) to rainfall and how each type contributes to runoff. Using rainfall frequency estimation and applying hydrological models and field data, will be calculated infiltration capacity, runoff and the final flood discharge.
- Establish the flood risk areas for different magnitude and frequency discharges. A hydraulic study will be carried out along the fluvial network and the different flood frequency discharge levels will be represented in a flood-risk mapping. The area existent of inundation is determined by taking each flooded river point in turn and using a Digital Terrain Model (DTM) to identify contiguous areas of its catchment that are lower or equal to the flood surface elevation.
- Compute sediment yield of the basin for different flood frequency. This objective will be achieved using sediment transport measurements during floods and total sediment transport equations.

**Referència:** REN2001-2865. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de recursos naturals.

**Títol:** *Análisis de la irregularidad pluviométrica a diferentes escalas temporales en la península ibérica y Baleares, y sus conexiones regionales.*

**Classificació UNESCO:** 2502.

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** GRIMALT GELABERT, Miquel.

**Categoria:** TU (àrea de coneixement: Geografia Física).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Grimalt Gelabert, Miquel	TU	0.5
Laita Ruiz de Asúa, M. Mercedes	TEU	0.5
Ordinas Garau, Antoni	As.	1
Rosselló Geli, Joan	As.	0.5
Segura Cortés, Pere	As.	1

**EDP del grup investigador de l'entitat sol·licitant:** 3.5.

### **Summary**

The aim of the project is to improve our knowledge of rainfall irregularity and variability over the Spanish peninsula and Balearic Islands, from the daily to the centennial scale, paying special attention to the Peninsula-Balearic connexions.

With this objective, an instrumental daily (with 40 observatories, 1951-90) and monthly (with 50 observatories covering more than a century) database will be constructed together with an historical database (proxy-data) over Catalonia and the Balearic Islands.

The main goals of the proposal are: to assess the yearly, seasonally and monthly rainfall irregularity by means of temporal irregularity indices; to analyze the daily rainfall irregularity by means of temporal irregularity indices; to analyze the daily rainfall persistence and concentration; to assess the fractal distribution of precipitation; to define an index of variability, irregularity, persistence and fractality, and its regional distribution over the area of study, as well as to analyze the connexions patterns; to study the plurisecular evolution of rainfall irregularity, and to define future scenarios of precipitation over the Western mediterranean. The results obtained will improve our knowledge of the WeMO and the evolution of the probability of dry and rainy sequences, will fix rainfall anomalies hazards depending on the regions and will be used to determine rainfall variability trends. As a result, and from another point of view, the results could be applied to define rainfall hazards, soil degradation and hydrological policies.

**Referència:** BSO2001-3302-C02-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació no orientada.

**Títol:** *Gestión turística del patrimonio natural y cultural, y desarrollo local en espacios de interior en las Islas Baleares.*

**Acrònim:** Gestur-Patrimonio IB.

**Classificació UNESCO:** 540104.

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [BLÁZQUEZ SALOM, Macià](#).

**Categoria:** TU (àrea de coneixement: Anàlisi Geogràfica Regional).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Blázquez Salom, Macià</a>	TU	1
<a href="#">González Pérez, Jesús M.</a>	TU int.	0.5
<a href="#">Seguí Llinàs, Miquel</a>	TEU	0.5
<a href="#">Artigues Bonet, Antoni A.</a>	TEU	0.5
<a href="#">Cors Iglesias, Martí</a>	Aj. EU	1
<a href="#">Novo Malvárez, Margarita</a>	As.	0.5

**EDP del grup investigador de l'entitat sol·licitant:** 4.

### Summary

This research is aimed to analyse, from social sciences and especially from geographic perspective, the results of the tourism as local development factor. Also to determine the basis, potentialities and preventions of the management and setting in value of the heritage (cultural and natural), for tourist uses and activities in the inland areas of two autonomous communities: Balearic Islands and Catalonia. In Balearic Islands the tourism is an almost exclusive activity, while Catalonia presents a diversified economy with an outstanding role of the tourism. In both the tourist systems are in need of bigger competitiveness, for it reason, its inland districts and municipalities are being developed as new tourist sceneries, fact that agrees the necessity that these areas have of joining new activities for its revival. The study of two community –Catalonia and Balearic Islands- which is the basis of the application of a Coordinated Project with two Subprojects, which will allow to detect the results in every case of the processes that are studied, its similitudes and differences and its evaluation to formulate the development strategies more suitable.

**Referència:** Ministeri de Foment.

**Modalitat:** Ajudes a la investigació 2002 en l'àrea de transports.

**Títol:** *Construcción de un sistema experto para la planificación y gestión territorial de zonas aeroportuarias.*

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigadora responsable:** [SEGUÍ PONS, Joana Maria](#).

**Categoria:** CU (àrea de coneixement: Geografia Humana).

**Inici:** 2002.      **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">Seguí Pons, Joana Maria</a>	CU
<a href="#">Ruiz Pérez, Maurici</a>	Tèc.
<a href="#">Martínez Taberner, Antoni</a>	TU
<a href="#">Spadaro, Amedeo</a>	TU
<a href="#">Gamir, Agustín</a>	
<a href="#">Guaita Mas, Francesc</a>	As.
<a href="#">Ramon Molinas, Jerònia</a>	Tèc.
<a href="#">Martínez, Rosa</a>	As.
<a href="#">Ramos, David</a>	
<a href="#">Escalas, Félix</a>	
<a href="#">Alcover, Bartomeu</a>	

### **Summary**

The aim of the project is the design and development of an expert systems, built over a Geographic Information System, for planning and management airport zones. The system will be oriented:

- – to know the geographic configuration of the airport zones and its influence
- – to support the tasks of planners and managers of airport zones
- – to improve the territorial integration of airport, minimizing negative impacts.

A territorial diagnostic of five Spanish airports will be developed (Madrid 'Barajas', Barcelona 'El Prat', Palma 'Son Sant Joan', Málaga and Las Palmas 'Gando') including the influenced areas in contact with them. A Geographic Information System will be built with environmental, social, economic, and infrastructure variables of the airport zones. Many analytical processes will be applied over the GIS database in order to characterize the economic activity, environmental problems and social aspects of airport zones. Finally an expert system will be developed to edit and update information of the Database and to support analysis activities of planners and managers of airport zones.

**Referència:** BSO2003-01844. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Hacia el sector ganadero sostenible? La ganadería en Mallorca en el tránsito del desarrollismo al postproductivismo.*

**Acrònim:** GSDP.

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [BINIMELIS SEBASTIÁN, Jaume](#).

**Categoria:** CEU (àrea de coneixement: Geografia Humana).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Binimelis Sebastián, Jaume</a>	CEU	1
<a href="#">Ginard Bujosa, Antoni</a>	TU	1
<a href="#">Ordinas Garau, Antoni</a>	TEU	1
<a href="#">Salvà Tomàs, Pere A.</a>	CU	1

**EDP del grup investigador de l'entitat sol·licitant:** 4.

**Referència:** BSO2003-09472. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Estrategias de cooperación y desarrollo territorial sostenible en Baleares.*

**Acrònim:** ECDTB.

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** BRUNET ESTARELLAS, Pere Joan.

**Categoria:** TU (àrea de coneixement: Geografia Humana).

**Inici:** 2003. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Brunet Estarellas, Pere Joan	TU	1
Miranda González, Miguel Ángel	As.	1
Artigues Bonet, Antoni A.	TEU	0.5
González Pérez, Jesús M.	TEU	0.5
Novo Malvárez, Margarita	As.	0.5
Almeida García, Fernando	As.	1

**EDP del grup investigador de l'entitat sol·licitant:** 4.5.

### Summary

The aim of this project is identify and select best alternatives to promote strategies of spatial cooperation at local level paying special attention to rururban partnerships, because its relevance to sustentable, balanced and polycentric spatial development.

It will achieved in three phases. First identification and analysis of municipalities associations (registered, recognized or latent). Between them will be choosen these that are looking for polycentrism principle through parternarial planning of spatial development according to specificities and needs of every territory. Cases selected, in turn, must represent whole regional typologies of rural-urban spatial patterns recognized in ESDP document. In the second stage them will be studied to recognize all kind of cooperation ways in order to sustentable spatial development planning. For this territories a report will be made to answer to the follow questions: what is made in this territory, what it is used to, who mobilize it, which means is developped with, who is related to, who play a leading part in these relations and what kind are of results will be discussed jointly and a typology of situations at spanish level will be established. Finally, in third phase it will be analysed how are developed these partnership relations: wich are the most relevant requirements to induce its succes and the most important stranlings and possible choices of solution too. Research of cases and Benchmarking will be the most important methodologies used in this phase, paying special attention to study of local actors, mainly public administration. Evaluation and consensus of alternatives by means of Delphi Method, joint discussion of results in every subproject at national level also as presentation of recommendations end the research work.

The positive effects to achieve the main proposed not only are reduced to the attainment of a long term goal: sustentable spatial development. In a direct way will contribute to strengthen a new territorial culture and new ways of planning, more adequates to new criteria of eligibility in the context of the future european regional policy after 2006.

### Participacions a altres projectes

**Referència:** REN2003-07906. Ministeri de Ciència i Tecnologia.

**Modalitat:** Recursos naturals.

**Títol:** *Sistemas de indicadores en la planificación sostenible del turismo: los recursos de agua en áreas turísticas litorales.*

**Acrònim:** AGUATUR.

**Investigadora responsable:** [VERA REBOLLO, José Fernando](#).

**Centre:** Universitat d'Alacant.

**Investigador de la UIB:** [Rullan Salamanca, Onofre](#).

**Categoria:** TU (àrea de coneixement: Anàlisi Geogràfica Regional).

**Inici:** 2003.                      **Fi:** 2006.



**DEPARTAMENT DE CIÈNCIES HISTÒRIQUES  
I TEORIA DE LES ARTS**

**Referència:** BHA2000-1335. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Sociedades prehistóricas y cambio paleoecológico en ecosistemas insulares. El paradigma balear.*

**Acrònim:** ARQUEOBALEAR.

**Classificació UNESCO:** 55045, 550501.

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigador responsable:** GUERRERO AYUSO, Víctor Manuel.

**Categoria:** TU (àrea de coneixement: Prehistòria).

**Inici:** 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Guerrero Ayuso, Víctor Manuel	TU	Única
Calvo Trias, Manuel A.	Aj. EU	Única
Villanueva Bohigas, Gemma	Aj. EU	Única
Gomés Hachero, José S.		Compartida
Gual Cerdó, Joana M.		Compartida
López Pons, Antoni		Compartida
Costa Ribas, Benjamí		Compartida
Ensenyat Alcover, Josep F.		Compartida
Pons Homar, Gabriel		Única
Coll Conesa, Jaume		Compartida
Fornès Bisquerra, Joan F.		Única
Garcia Rosselló, Jaume		Única
Salvà Simonet, Bartomeu		Única
Quintana Abraham, Carles A.		Única

**Nombre total d'investigadors de la UIB:** 3.

*Keywords:* Balearic islands, palaeoecology, biogeography, prehistoric societies.

### Summary

The project aims to establish the impact that prehistoric groups with different degree of development have had on the insular ecosystem of the Balearic Islands. One of the main goals of the project will be to ascertain the principal changes that have occurred in the local vegetation through time, including how the introduction of domesticated species has affected the existing flora and how these plants have been cultivated. Another important aspect of the project is to determine when domestic animals were introduced in the islands, to study the development of stockbreeding throughout prehistory (c. 6500-2000 BP) as well as other complementary subsistence means (fishing, hunting and gathering). The project will also focus on the use of non biological resources, their transformation, supply and exchange.

**Referència:** BXX2000-1463. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Imaginería y retablo en Mallorca (época medieval y moderna). Bases científico-técnicas para su conservación.*

**Acrònim:** IRMC.

**Classificació UNESCO:** 550602-2301.

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigadora responsable:** GAMBÚS SAIZ, Mercè.

**Categoria:** TU (àrea de coneixement: Història de l'Art).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Gambús Saiz, Mercè	TU	Única
Genestar Julià, Catalina	TU	Única
Palou Franco, Josefina	TU	Única
Sabater Rebassa, Sebastiana	TEU	Única
Sastre Moll, Jaume		Compartida
Reig Morro, Antònia		Compartida

**Nombre total d'investigadors de la UIB:** 4.

*Keywords:* itarpiece, sculpture, painting, polychromy, pigment/binding media determination, FTIR, SEM, TG, DTA conservation/restoration, catalogue/finger-prints of works of art.

### **Summary**

The proposed research project establishes a line of continuity with a project which is actually being carried out in the scientific-technical study of alterpieces in Majorca during modern times, in this case incorporating statues is a specific object of study and extending the chronology to medieval times.

The main aim of this project is, with an interdisciplinary approach, to draw up scientific-technical bases for the conservation of alterpiece and statue heritage in Majorca, which corresponds, to medieval and modern times. With this in mind we propose a scheme based on the conservation and restoration of a series of works by means of dialogue between art historians, archivists, chemists and restorers which would enable us to establish a diagnosis before hand and to supervise all the processes related to the protection of the art heritage studied all included at the memory.

**Referència:** BHA2001-0770. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *La Comisión Provincial de Monumentos Históricos y Artísticos de Baleares (1844-1987)*.

**Acrònim:** CPMB.

**Classificació UNESCO:** 550602.

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigador principal:** MORATA SOCIAS, Josep.

**Categoria:** TU (àrea de coneixement: Història de l'Art).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Morata Socias, Josep	TU	Única

*Keywords:* art history, protection of historical and artistic heritage, Balearic Isles, 19<sup>th</sup> and 20<sup>th</sup> centuries.

### **Summary**

The target of this project is to analyse the history of the Country Monuments Commission of the Balearic Isles, starting at the moment of its establishment in 1844 until the moment of its dissolution in 1987. Different changes in the objectives and composition of the Commission succeeded in its life but always remained as the institution responsible for the conservation and protection of the historical and artistic heritage in the region. This work intends to study the commission composition characteristics, the bureaucracy complexity and the economic difficulties. It will be made in order to explain the results that made possible the conservation of an important and relevant part of the heritage of the Balearic region; and in the other hand, to show the failures and to know the encountered difficulties.

**Referència:** BHA2002-03177. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa sectorial de promoció general del coneixement.

**Títol:** *Diccionario de partidos políticos, organizaciones patronales y sindicales de las Islas Baleares en el siglo XX.*

**Acrònim:** DPPS.

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigador responsable:** SERRA BUSQUETS, Sebastià.

**Categoria:** TU (àrea de coneixement: Història Contemporània).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Serra Busquets, Sebastià	TU	1
Marimon Riutort, Antoni	TU	1
Duran Pastor, Miquel	CU	1

#### **Investigadors d'altres entitats**

Matas Pastor, Joan Josep

Cuesta Labernia, Maurici

Pons Bosch, Jordi

Company Matas, Arnau

Buades Juan, Josep Maria

**EDP del grup investigador de l'entitat sol·licitant:** 3.

#### **Summary**

The basic objectives are the analysis of the strategies, the members and the behaviour of political organizations, employer's association and work unions all through the 20<sup>th</sup> century, namely in their most complex articulation.

The history of each of this organizations will be covered its foundation to its discrepance or – if it applies – to the present time, if still in existence.

Their evolution and collaboration in key historical dates analysed. Therefore, paying a method to the following: the situation at the beginning of the 20<sup>th</sup> century, the twenties, the pre-civil ward period, the sixties, the democratic transition and the Autonomous Communities system.

A part from paying a meta to socio-political aspects we will go in detail in two relevant socio-economic aspects much as the effects of mass tourism and the transition from emigration to immigration.

The systematic analysis of the political organizations, employer's associations and working unions will also deal with the economic development and socio-cultural changes in the society in Majorca, Minorca, Ibiza and Formentera.

When making the dictionary both qualitative and quantitative aspects will be balanced although strategies, specific guidelines and achievements will be given priority.

**Referència:** BHA2002-00352. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa sectorial de promoció general del coneixement.

**Títol:** *Élites de poder y grupos sociales en la Mallorca Moderna.*

**Acrònim:** EDPGS.

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigador responsable:** JUAN VIDAL, Josep.

**Categoria:** CU (àrea de coneixement: Història Moderna).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Juan Vidal, Josep	CU	1
Deyà Bauzà, Miquel Josep	TEU	1
Vaquer Bennàssar, Onofre	As.	1
Coll Coll, Aina Maria	Aj. EU	1
Sánchez Nievas, Enrique	B	1

**EDP del grup investigador de l'entitat sol·licitant:** 5.

### **Summary**

The study of the power elites existing in Mallorca during de Modern Age proposes to comprise a collection of biographies of people connected with the exercise of power, including not only representatives of the high royal administration within the island kingdom but also members of the reigning administration. On the one part viceroys, captain generals, royal magistrates, commissioners, regents and Royal Court judges, and on the monarchy, circulated around the various kingdoms of the Crown of Aragon, the Crown of Castile and the Crown of Italy. It is interesting to reveal their family relationships, social interactions and the relation between their kinship, their economic interests and their aspirations to power.

The primary objectives will be, by means of the cross-referencing of documentary sources, to identify those people who occupied positions of great importance in the kingdom, determining their "cursus honorum", their economic relations, their heritage, their patronage and political customers as well as other mechanisms whereby the enjoyment of power was assured to them for a determined length of time in modern age Mallorca.

**Referència:** BHA2002-03783. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa sectorial de promoció general del coneixement.

**Títol:** *La acción de la Administración y de la Iglesia en el proceso de dotación de servicios públicos en España (1845-1930). Un análisis regional.*

**Acrònim:** SP.

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigadora responsable:** MOLL BLANES, Isabel.

**Categoria:** CU (àrea de coneixement: Història Contemporània).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Moll Blanes, Isabel	CU	0.5
Salas Vives, Pere	As.	1
Fullana Puigserver, Pere	As.	0.5
Gallego Caminero, Gloria	TEU	1

**EDP del grup investigador de l'entitat sol·licitant:** 4.

### **Summary**

The aim of the project points toward the analysis of public and private developments, in the provision of Social Welfare in rural Spain along 19th and early 20th centuries. In the context of theoretical proposals, like Sen's quality of life, and the changing role of local, and national governments, non-governmental organisations, and individual healers in mortality reduction. The empirical bases of the study are organised in order to collect as much information as possible, not only on public and private provision against misfortune, but on the provision on services regarding the possibility to guarantee citizenship right's of good health, and access to cultural improvements. The main idea consist on testing the existence of those services before the rise of Welfare State, and see if its responsibility was due to the Spanish government—local and national- or to private organisations like the Catholic Church. The project focuses a rural Mediterranean region with the lowest infant mortality rates among all the Spanish provinces, featuring also a quite important agrarian development. That means the possibility to test the relationship between mortality reduction and public policies, as well as between mortality reduction and economic development.

**Referència:** BHA2003-04785. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Sociedad y organización fiscal: los impuestos indirectos en el Reino de Mallorca (siglos XIV-XVI).*

**Acrònim:** SOFIS.

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigador responsable:** CATEURA BENNÀSSER, Pau.

**Categoria:** CU (àrea de coneixement: Història Medieval).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Cateura Bennàsser, Pau	CU	1
Morelló Baget, Jordi	Aj. U	0.5
Fernández González, M. Carmen	TU	1
Navarro Gómez, Ricardo	Aj. U	1
Tudela Villalonga, Luis	Tèc.	1
Sánchez Nieves, Enrique	B	0.5

#### **Investigadors d'altres entitats**

Urgell Hernández, Ricard  
Maíz Chacón, Jorge

Govern Balear  
UNED

**EDP del grup investigador de l'entitat sol·licitant: 5.**

#### **Summary**

Indirect fiscal policy is the key of Majorcan's kingdom financial system. So it was understood in 1405, on consigning all the indirect taxation to the paying of interests national debt from the kingdom. Knowing why was so, it makes us to study its nature, qualities and measures and also politicians, economics and social involved elements.

- 1) The technical structure: a) indirect consumer taxes; b) indirect commercial taxes; c) the method of receipt and collection.
- 2) The legal structure: a) the applicable regulation and its development; b) a legal study of leasehold contracts.
- 3) The political, social and financial dimension: a) indirect taxes and the role of the Crown; b) municipalities' fiscal policy and the social repercussions; c) indirect taxes in the income structure of municipal treasuries.



## Participacions a altres projectes

**Referència:** BHA2002-03830. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa sectorial de promoció general del coneixement.

**Títol:** *La arquitectura fantástica en España. La creación espontánea, entre el surrealismo, el po y el art brut.*

**Investigadora responsable:** [RAMÍREZ DOMÍNGUEZ, Juan Antonio](#).

**Centre:** Universitat Autònoma de Madrid.

**Investigador de la UIB:** [Seguí Aznar, Miquel](#).

**Categoria:** CU (àrea de coneixement: Història de l'Art).

**Inici:** 2003.                    **Fi:** 2006.



**DEPARTAMENT DE CIÈNCIES MATEMÀTIQUES I  
INFORMÀTICA**



**Referència:** TIC2002-02172. Ministeri de Ciència i Tecnologia.

**Modalitat:** Tecnologies de la informació i les comunicacions.

**Títol:** *Representación y tratamiento de imágenes: aplicación al análisis del movimiento en secuencias de video, imágenes en color y extracción de la información 3D.*

**Acrònim:** RTIMC3D.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** COLL VICENS, Bartomeu.

**Categoria:** TU (àrea de coneixement: Matemàtica Aplicada).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Coll Vicens, Bartomeu	TU	1
Rocha Cárdenas, Jairo	TEU	0.5
Prohens Sastre, Rafael Jaume	TU	0.5
Lisani Roca, Josep Lluís	TEU	1
Sbert Juan, Catalina	TU	1
Petro Balaguer, Ana Belén	Aj. EU	1

**EDP del grup investigador de l'entitat sol·licitant:** 5.

### Summary

Based on the description of the images provided by the geometry of their topographic map, which we have studied in the current project, we seek for the optimization of the developed algorithms (meaningful information) and for the application of the general method to specific problems.

The main goals of the proposed project are:

1. Optimization of the set of features given by the level lines, for the simplification of the tree structure of the topographic map, both for grey level and color images. Potential applications are, on the one hand, the analysis of the motion for a set of shapes (mosaic reconstruction from a video sequence), and, on the other hand, for color images, the extraction of features applied to an e-commerce software product.
2. Concerning the 3D scene reconstruction problem, we have two goals: automatic camera calibration from images correspondences between pieces of level lines, and depth information extraction (3D sketch) from video sequences.
3. Software development and integration of the developed algorithms in a public, distribution free, software platform, already under construction. This will improve the feedback between the theoretical research and the practical problems.

**Referència:** BFM2000-1113-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Modelos formales y lógicos en computación biomolecular.*

**Acrònim:** MOBIOCO.

**Classificació UNESCO:** 1201, 1203, 1199, 2415.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** [ROSSELLÓ LLOMPART, Francesc A.](#)

**Categoria:** CEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Rosselló Llompart, Francesc A.</a>	CEU	Única
<a href="#">Alberich Martí, Ricard</a>	TEU	Única
<a href="#">Casasnovas Casasnovas, Jaume</a>	CEU	Compartida
<a href="#">Llabrés Segura, Mercè</a>	TEU	Única
<a href="#">Miró Julià, Josep J. A.</a>	TU	Única

**Nombre total d'investigadors de la UIB:** 5.

*Keywords:* biomolecular computing, rewriting systems, fuzzy logic, cryptology.

### **Summary**

Biomolecular computing is the computing paradigm where information is encoded in nucleic acid and protein molecules and is processed by means on biochemical operations on these molecules. The goal is to contribute to the following three aspects of biomolecular computing:

- i) The development of formal rewriting models of the nucleic acids' and proteins' non-linear structure.
- ii) The analysis of biomolecular computing processes by means of fuzzy logic and the implementation of different logic and arithmetic gates within this paradigm.
- iii) The use of biomolecular computing in cryptology.

**Referència:** BSO2000-1413. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Mortalidad infantil y condiciones de vida en las Baleares (1876-1936)*.

**Acrònim:** MI.

**Classificació UNESCO:** 520404.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** BUJOSA HOMAR, Francesc.

**Categoria:** CU (àrea de coneixement: Història de la Ciència).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Bujosa Homar, Francesc	CU	Única
Moll Blanes, Isabel	TU	Única
Sureda Garcia, Bernat	CU	Compartida
Fernández Bennàssar, M. Carme	CEU	Compartida

**Nombre total d'investigadors de la UIB:** 4.

*Keywords:* infant mortality, health conditions, education, quality of life, economic development.

### **Summary**

This project develops the findings of a previous one (health, education and culture as factors concerning the decline of infant mortality, Mallorca 1860-1930), by the analysis of the geographical patterns of infant mortality in two different contexts: the city of Palma (and inside the city too) and the rural area of Mallorca. Next, we shall relate those patterns to the forms how medical care is organized, as well as health, education and hygiene services, making a distinction between Palma (and within Palma), and the rest of the Island, as well as between public and private services. One of the aims of the project consist on to test if the supply of public services is more relevant than the economic growth, regarding the infant mortality decline. And also, to see the proportion of population with the capability to enjoy the benefits of these services. We can work with a set of data from the previous project, but it is necessary to enlarge it with more information about the city of Palma. Besides, we are going to get more data on demography, health, education and hygiene questions.

**Referència:** BFM2000-1114. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Funciones de agregación y ecuaciones funcionales. Estudio teórico y aplicaciones a la fusión de información.*

**Acrònim:** FAEF.

**Classificació UNESCO:** 1203.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** [MAYOR FORTEZA, Gaspar](#).

**Categoria:** CU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2000.

**Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Mayor Forteza, Gaspar</a>	CU	Única
<a href="#">Calvo Sánchez, Tomasa</a>	TU	Compartida
<a href="#">Casasnovas Casasnovas, Jaume</a>	CEU	Compartida
<a href="#">Torrens Sastre, Joan</a>	CEU	Única
<a href="#">Montserrat Antich, Miquel</a>	TU	Única
<a href="#">Mas Grimalt, Margarida</a>	TEU	Única
<a href="#">Suñer Llabrés, Jaume</a>	TEU	Única
<a href="#">Martín Pelayo, Javier</a>	Aj. EU	Única

**Nombre total d'investigadors de la UIB:** 8.

*Keywords:* aggregation functions, t-norms, uninorms, t-operators, means, multi-dimensional, aggregation functions, discrete measures and integrals, generalized natural numbers and fuzzy numbers, functional equations, functional equations related to idempotency, distribuity and modularity, measures of dispersion, optimization, fusion of information.

### Summary

In this projecte we intent to give a new impulse to the theory and applications of the Aggregation Functions, meaning functions/operators which allow to (functionally) modelize the action of "aggregating" several inputs in order to produce a unique output. In the same way, it will be strengthened the use of technics for solving Functional Equations to obtain solutions to problems derived from the study mentioned above. It is worth to emphasize our interest in finishing the study and characterization of associative aggregation functions (like t-norms, uninorms and t-operators) defined on ordered sets, as well as non-associative ones (like quasi-linear means and weighted ordered means) defined in various domains. In particular, previous studies related to (non-associative) aggregation functions of a multi-dimensional nature are going to be finished, as well as the study of discrete measures which determine (non-associative) aggregation functions with interesting properties through integrals (like Choquet or Sugeno). With regard to applications, it is intended to obtain final results corresponding to the determination of aggregation functions like weighted means with maximum dispersion (entropy) of its weighting list, subjected to restrictions which can be related for example to a degree of optimism ('orness'). In this section, it will be dealt as well with the practical problem of the fusion of imprecise information through the aggregation of fuzzy numbers, in particular of those representing generalized natural numbers.



**Referència:** TIC2001-0931. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de tecnologies de la producció i les comunicacions.

**Títol:** *Análisis y síntesis del movimiento humano mediante técnicas de visión y animación por ordenador.*

**Acrònim:** ADAN.

**Classificació UNESCO:** 120318.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** PERALES LÓPEZ, Francisco José.

**Categoria:** TU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2001.

**Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Perales López, Francisco José	TU	1
González Hidalgo, Manuel	TU	0.5
Mir Torres, Arnau	TU	0.5
Mas Sansó, Ramon	TU	0.5
Colom Muntaner, Guillem	TEU	1
Mascaró Oliver, Miquel	TEU	1
Abasolo Guerrero, María José	Visitant	1
Buades Rubio, Josep M.	Aj. EU	1
Amengual Alcover, Esperança	Aj. EU	0.5
Igelmo Ganzo, Ángel	CEU	1
Fontanet Nadal, Gabriel	TEU	0.5
Palmer Rodríguez, Pere A.	TEU	0.5
Mascaró Portells, Miquel	TEU	0.5
Bibiloni Coll, Antoni	TEU	0.5
Tous Duran, Pere	As.	1

#### Investigadors d'altres entitats

Escoda Saloni, Josep	Centre d'Alt Rendiment de Sant Cugat
Balius Matas, Xavier	Centre d'Alt Rendiment de Sant Cugat
Aguiló Pons, Antoni	Conselleria d'Educació i Cultura
La Fuente, Diego	EPTRON, SA

**EDP del grup investigador de l'entitat sol·licitant:** 11.

#### Summary

The aim of the proposed project is the design of an integrated system which would enable us to carry out multiple studies on human motion by computer. The system proposed is based on an existing model which allows for the modelization, analysis and simulation of human motion at different levels. Our fundamental aim is -in a reasonable amount of time and, if possible, in real time for some applications- to obtain a 3D model of the person or persons by means of a sequence of grey and/or colour images taken from different viewpoints. With this information we aim to carry out different tasks such as: realistic animation of a person, biomechanical study of sports or dance movements, recognition of

a person (face and movements), integration of a virtual humanoid with real characters, interaction in a person and humanoid immersed environment, robot tracking of a person, etc. This project is the continuation of an existing system (TIC98-0302) in which the main current techniques are brought together in order to carry out the processes of analysis and synthesis of human motion in a common environment.

**Referència:** DPI2001-2311-C03-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de disseny i producció industrial.

**Títol:** *Plataformas de experimentación en robótica submarina.*

**Acrònim:** PERSUB.

**Classificació UNESCO:** 331913, 220990, 331102, 530603, 120304.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** OLIVER CODINA, Gabriel.

**Categoria:** TU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Oliver Codina, Gabriel	TU	1
Garí Ruíz, Rut	Aj. EU	1
González Cid, Yolanda	TEU int.	0.5
Llamosí Casas, Albert	CU	1
Ortiz Rodríguez, Alberto	TEU	0.5
Proenza Arenas, Julián	TEU	0.5
Rigo Vadell, Joan	As.	0.33
Rocha Cárdenas, Jairo	TEU int.	0.5
Valverde Garcia, Llorenç	CU	0.5
Antich Tobaruela, Javier	Aj. EU	0.5
Burguera Burguera, Antoni	Aj. EU	0.5
Rodríguez-Navas, Guillermo	Aj. EU	0.5

#### Investigadors d'altres entitats

Bernat Nicolau, Guillem                      University of York

**EDP del grup investigador de l'entitat sol·licitant:** 7.33.

#### Summary

The current project is basically oriented towards the know-how transfer, as well as basic research aspects and to define the future technological transfer in the field of underwater robotics, as a natural result of the last year's research financed through the CICYT program. The main objectives can be summarised in two blocks:

1. The first block tackles the aspects related to scientific research and know-how transfer. Our proposal consists on putting at the disposal of the scientific community the underwater facilities funded by the CICYT, including the water pool and the underwater vehicles that have been developed by our university. All these resources would be available through Internet to any other university, research centre or private company working on artificial intelligence, automatic control, autonomous navigation, underwater robotics, etc. This part of the project involves research in the fields of artificial intelligence oriented towards autonomous navigation. This approach is based on advanced sensors such as computer vision or inertial navigation systems. Teleoperatio-based communication aspects through Internet will also be tackled.
2. Along with the objectives desecribed above, the present underwater vehicles should be adapted to the requirements of these new objectives, allowing the development of the culture medium to allow the Spanish technology on this field to shortly be on the market.

**Referència:** TIC2001-0287. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de tecnologies de la informació i les comunicacions.

**Títol:** *Demostrador adaptatiu reconfigurable de un WLAN para entornos interiores.*

**Acrònim:** DARWIN.

**Classificació UNESCO:** 332505.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** [FEMENIES NADAL, Guillem](#).

**Categoria:** TU (àrea de coneixement: Enginyeria Telemàtica).

**Inici:** 2001.

**Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Femenies Nadal, Guillem</a>	TU	1
<a href="#">Huguet Rotger, Llorenç</a>	CU	0.5
<a href="#">Ferrer Gomila, Josep Lluís</a>	TEU	0.5
<a href="#">Furió Caldentey, Ignasi</a>	TEU	1
<a href="#">Carrasco Martorell, Lorenza</a>	TEU int.	1
<a href="#">Payeras Capellà, Magdalena</a>	Aj. EU	0.5
<a href="#">Vidal Planas, Josep Lluís</a>	TEU int.	1
<a href="#">Mut Puigserver, Macià</a>	As.	0.5

**EDP del grup investigador de l'entitat sol·licitant:** 6.

*Keywords:* WLAN, UMTS, smart antennas, OFDM, MAC, DLC, handover, security.

### Summary

The primary goal of DARWIN is the definition, analysis, simulation and demonstration of a high performance adaptative WLAN (Wireless LAN) providing wireless access to packet switching networks (IP, ATM, UMTS,...). All the subsystems of an equalization, decoding approach, etc., will be jointly optimized. The system will not be optimized in advance but it will adapt itself as a function of the user needs and the changing characteristics of the environment. This is a step towards a software radio, which is presently too far in the future due to technological problems, and goes beyond the state-of-the-art of current mobile communication systems. The project will concentrate on following issues: physical (PHY) and medium access control (MAC) layers, data link control (DLC) protocols, mobility management and security aspects. Another goal of DARWIN will be to go deeply into the theoretical analysis of space-time signal processing schemes, both in base stations and mobile terminals, beamforming techniques for SDMA, coding/decoding schemes including turbo coding, turbo-TCM, space-time codes, multidimensional rotations, MAC protocols, etc. that could be applied to third and fourth generation mobile communications systems (3G/4G). The simulation platform will be based on the use of software tools to perform high-level simulations. Once debugged, these simulation programs will be translated to the VHDL language. Having the VHDL description of the system, an integrated design of programmable logic will be used to implement the system demonstrator. The DARWIN demonstrator will contain six subsystems, namely two mobile terminals (TM), two base stations (EB), ATM switch and control station. This architecture allows for the implementation of two radio cells and, therefore, allows for the evaluation of handover protocols. The radio links and, thus, the integration of physical (PHY), media access control (MAC), data link control (DLC) and network control sublayers with the DARWIN protocol stack, will be simulated using standard DSP, FPGA and/or ASIC boards controlled by using either PCs or a workstation.

**Referència:** TIC2001-1374-C03-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de tecnologies de la informació i les comunicacions.

**Títol:** *Análisis de las prestaciones de los entornos web.*

**Classificació UNESCO:** 120318.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador principal:** PUIGJANER TREPAT, Ramon.

**Categoria:** CU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Puigjaner Trepato, Ramon	CU	0.5
Serra Cifre, Bartomeu Jaume	CU	0.5
Galmés Obrador, Sebastià	TEU	0.5
Vidal Rodríguez, Damià	TEU int.	0.5
Juiz García, Carlos	TEU int.	0.5
Santamaría Pérez, M. Luisa	TEU	0.5
Servera Rullan, Guillem	As.	1
Lladó Matas, Catalina	Aj. EU	0.5
Erice Ruiz, M. Carmen	TEU	0.5
Sola Venteo, Antonio	As.	1
Mañas Florit, Josep	As.	1

**EDP del grup investigador de l'entitat sol·licitant:** 7.

*Keywords:* performance analysis, workload characterisation, benchmarking, web environments.

### Summary

The growing of internet has led to the development of new services and applications, a e-commerce and multimedia application all of them characterised by a high degree of complexity, heterogeneity and interactivity. Web servers are faced to the increasing number of fast, secure, reliable and highly available service requirements. For giving an answer to these requirements, web servers' design and management should be based on a precise knowledge of their workload. However, workload characterisation requires the existence of real traces of request generated by the different Internet services. After the characterisation of the workload, different predictive performance evaluation techniques can be used. In this case we will use benchmarking and modelling. The Transaction Processing Performance Council (TPC) has defined the TPC-W, the first benchmark oriented to web environments (servers), that simulate e-commerce activities. The goal of the TPC benchmarks is to provide the industry with relevant and objective performance data. The benchmark results are very dependent on the workload, on the specific requirements, design and implementation of the application. So, the TPC-W should not replace an application specific benchmark if important decisions should be based on its measurements. This is the reason for developing a configurable and parametrised benchmark for evaluating the web server's performance when they are processing workloads different to those defined by the TPC-W. as for e-learning, e-work, e-mail, etc. From the statistical workload characterisation it is intended to develop a workload generator to be used as input to a generic model of a web server. This model will be used in the study of alternative web and proxy architectures.

**Referència:** BFM2003-05308. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Funciones de agregación sobre cadenas acotadas. Normas triangulares discretas. Aspectos teóricos y aplicaciones.*

**Acrònim:** FASCA.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** [MAYOR FORTEZA, Gaspar](#).

**Categoria:** CU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Mayor Forteza, Gaspar</a>	CU	1
<a href="#">Aguiló Pons, Isabel</a>	TEU	1
<a href="#">Suñer Llabrés, Jaume</a>	TEU	1
<a href="#">Martín Pelayo, Javier</a>	COL.	1
<a href="#">Garí Ruíz, Rut</a>	Aj. EU	0.5

#### **Investigadors d'altres entitats**

<a href="#">Calvo Sánchez, Tomasa</a>	Universitat d'Alcalá
<a href="#">Muel Muel, Enriqueta</a>	Universitat d'Alcalá
<a href="#">Lázaro García, Jesús</a>	Universitat d'Alcalá

**EDP del grup investigador de l'entitat sol·licitant:** 4.5.

#### **Summary**

In this project our general aim is the study of aggregation functions on bounded chains. In particular, our main interest is the study of triangular norms defined on countable bounded chains. From some results obtained in the finite case, we plan a characterization of families of aggregation functions defined on infinite countable bounded chains. An objective to be included also in this work is the study of multidimensionality of aggregation functions (associative or not), in particular for means and ordered means. On the other hand, given the great interest of the information aggregation topics, we deal with practical aspects in this framework as for instance the problem of data fusion with some kind of imprecision: fusion of fuzzy numbers, etc. In general, we face the problem of the adequate choice of aggregation operators in the construction of intelligent systems.

**Referència:** TIC2003-06293. Ministeri de Ciència i Tecnologia.

**Modalitat:** Tecnologies de la informació i les comunicacions.

**Títol:** *Modelado de prestaciones de sistemas de tiempo real.*

**Acrònim:** MOPRESIT.

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** PUIGJANER TREPAT, Ramon.

**Categoria:** CU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Puigjaner Trepato, Ramon	CU	0.5
Juiz García, Carlos	TEU	0.5
Galmés Obrador, Sebastià	TEU	0.5
Lladó Matas, Catalina	TEU	0.5
Guerrero Tomé, Carlos	COL.	0.5
Anciano Martín de la F., Juan L.	Tèc.	0.5

#### Investigadors d'altres entitats

Rodeño Arraez, Miguel Jesús	Universitat d'Alcalá
Alcaraz Carrasco, Salvador	Universitat Miguel Hernández
Galiano Ibarra, Vicente	Universitat Miguel Hernández
Gilly de la Sierra, Katja	Universitat Miguel Hernández
García Crespí, Federico	Universitat Miguel Hernández
Pomares Padilla, Alejandro	Universitat Miguel Hernández
Garrido Abenza, Pedro P.	Universitat Miguel Hernández
Migallón Gomis, Héctor F.	Universitat Miguel Hernández

**EDP del grup investigador de l'entitat sol·licitant:** 3.

#### Summary

Designing real time systems needs to consider the non-functional requirements of temporal type, if possible since the first phases of the design. If not, the fulfilment of the requirements is just verified after the implementation. If they are not met, it is necessary to go back and reprogram and even redesign the system. This project intends to develop a tool allowing the prediction, since the first phases of the design what will be the temporal behaviour of the system and, in this way, reduce the risk of erroneous decisions taken during the design. Obviously, for doing this prediction, it is necessary to complement the design information with other concerning the temporal behaviour of the system, which will be included in the system as annotations. In order to experiment the design best annotation way, two notably different design approaches will be used: MASCOT and UML. The first one, originated for the design of hard real-time systems, is a method oriented to the data flow and based on activities interchanging information through interchange data areas. The second one, result of merging a set of diagrams proposed by several authors, allows the description of the different dimensions needed for the design of real-time systems of great size. From the annotated designs in these two methods, we intend to that the tool derives queuing network models able to be processed by simulation methods and, if possible, by analytical methods.

### Participacions a altres projectes

**Referència:** BFF2000-0841. Ministeri de Ciència i Tecnologia.  
**Modalitat:** Programa nacional de promoció general del coneixement.  
**Títol:** *Textos especializados y terminología: selección y recuperación automática de la información.*  
**Acrònim:** TEXTERM.  
**Investigadora responsable:** CABRÉ CASTELLVÍ, M. Teresa.  
**Centre:** Universitat Pompeu Fabra.  
**Investigadora de la UIB:** Delgado Domínguez, Adelaida.  
**Categoria:** TEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).  
**Inici:** 2001.                    **Fi:** 2003.

**Referència:** TIC2000-1191. Ministeri de Ciència i Tecnologia.  
**Modalitat:** Programa nacional de tecnologies de la informació i de les comunicacions.  
**Títol:** *Sistema de recuperación de información con control terminológico y discursivo.*  
**Acrònim:** RICOTERM.  
**Investigadora principal:** LORENTE CASAFONT, Mercè.  
**Centre:** Universitat Pompeu Fabra.  
**Investigadora de la UIB:** Delgado Domínguez, Adelaida.  
**Categoria:** TEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).  
**Inici:** 2001.                    **Fi:** 2003.

**Referència:** VII.19. CYTED.  
**Títol:** *Recuperación de información y bibliotecas digitales.*  
**Acrònim:** RIBIDI.  
**Investigador principal:** BAEZA-YATE, Ricardo.  
**Centre:** Universitat de Xile.  
**Investigadora de la UIB:** Delgado Domínguez, Adelaida.  
**Categoria:** TEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).  
**Inici:** 2001.                    **Fi:** 2003.

**Referència:** TIC2001-1143-C03. Ministeri de Ciència i Tecnologia.  
**Modalitat:** Programa nacional de tecnologies de la informació i de les comunicacions.  
**Títol:** *Mejora de los procesos para la toma de decisiones en la gestión de proyectos de ingeniería del software.*  
**Acrònim:** ARGO.  
**Investigador principal:** DOLADO COSÍN, José Javier.  
**Centre:** Universitat del País Basc.  
**Investigadora de la UIB:** Mas Pichaco, Antònia.  
**Categoria:** TEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).  
**Inici:** 2001.                    **Fi:** 2004.



**DEPARTAMENT DE DRET PRIVAT**



**Referència:** BJU2000-0280. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *La protección de los consumidores en los contratos de alojamiento turístico.*

**Acrònim:** PC CAT.

**Classificació UNESCO:** 560502.

**Centre:** Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** COCA PAYERAS, Miquel.

**Categoria:** CU (àrea de coneixement: Dret Civil).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Coca Payeras, Miquel	CU	Única
Munar Bernat, Pedro A.	TU	Única
Llodrà Grimalt, Francesca	Aj. EU	Compartida
Verdera Izquierdo, Beatriz	Aj. EU	Compartida

**Nombre total d'investigadors de la UIB:** 4.

*Keywords:* protection of the consumers, turistic acommodation.

### **Summary**

The project aims to study some of the most legal aspects to protect the consumers in the turistic acommodation contracts. The first field of research analyse the protection system of the spanish normative. The second fiel fo research refers to the European Community normative an to try to harmonize the contract of this sector. Finally, the third aspect that is going to be developed is a concret study of the last legal spanish normative (Act 42/1998, of 15 december, about time-sharing and Act 7/1998, of 13 April, of contract terms and others acts that will be promulgate, RD 515/1989, of information in the contract of letting.

**Referència:** BJU2000-0974. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *La adaptación del derecho de familia propio de las islas Baleares a la nueva realidad social.*

**Acrònim:** ADF IB.

**Classificació UNESCO:** 560502.

**Centre:** Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

**Investigadora responsable:** [FERRER VANRELL, M. Pilar](#).

**Categoria:** TU (àrea de coneixement: Dret Civil).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Ferrer Vanrell, M. Pilar</a>	TU	Única
<a href="#">Vila Ribas, M. del Carme</a>	TU	Compartida
<a href="#">Llodrà Grimalt, Francesca</a>	Aj. EU	Compartida
<a href="#">Verdera Izquierdo, Beatriz</a>	Aj. EU	Compartida

**Nombre total d'investigadors de la UIB:** 4.

*Keywords:* economic matrimonial rules, living more uxorio, single family.

### **Summary**

This project deals with the analysis of the regulation of the family law and it has the objective of studying the adaptation of the family law of the Balearic Islands to the new reality in this issues. In this project we begin the study of the sentence of the *Tribunal Superior de Justicia de las islas Baleares*, of the 3th September of 1998, where the Court studies the article 1320 of the Spanish Civil Code.

**Referència:** BJU2002-00499. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional d'I+D orientada.

**Títol:** *Estudio interdisciplinar de las responsabilidades de los proveedores de información en internet. Problemas de segunda generación: los límites de la neutralidad tecnológica.*

**Acrònim:** RPII.

**Centre:** Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** CAVANILLAS MÚGICA, Santiago José.

**Categoria:** CU (àrea de coneixement: Dret Civil).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació
Cavanillas Múgica, Santiago José	CU	1
González de Alaiza, José Javier	Aj. U	0.33
Payeras Capellà, Magdalena	TEU int.	0.33
Feliu Álvarez de Sotomayor, Silvia	Aj. U	0.33
Garau Sobrino, Federico F.	TU	0.33
Huguet Rotger, Llorenç	CU	0.33
Tur Faúndez, María Nélica	TU	0.33
Grimalt Servera, Pedro	TU	0.33
Quintero Olivares, Gonzalo	CU	0.33
Iglesias Portela, M. José	B	1

#### Investigadors d'altres entitats

Valero Torrijos, Julián

Universitat de Murcia

**EDP del grup investigador de l'entitat sol·licitant:** 4.64.

#### Summary

The research project starts with the existence of a specific regulation of the liability of electronic intermediaries in the LSSICE (presently it is a Draft Law, however and without any doubts, it will be already Law at the moment of the beginning of this project). The purpose of this research project is not to analyse such system of liability, that has been already discussed enough, but to deal with the so-called "problems of second generation". The limited liability of electronic intermediaries (mere conduit, caching and hosting) relies on its technological neutrality. The aim of this project is to mark the borders of such "technological neutrality" and to analyse the liabilities of all those services of the information society which are placed further than those borders.

The approach to the above issues, not only in its delimitation but also in its system, will be interdisciplinary. The detection and description of the "border" services of the information society (portals, vortals, electronic agents, search engines increasingly intelligents, directories, etc.) will be developed with the participation of experts in Computers and Telecommunications. The analysis of its legal system will be multilateral, as it could imply: a) criminal, civil and patrimonial liability of the Public Administration; b) application of special systems of liability (intellectual property rights, rights of the legal status of a person, data protection, consumer protection, industrial property rights and unfair competition, etc.); c) the existence of involvements referred to International Private Law, concerning competent jurisdiction as well as applicable law.

**Referència:** SEC2002-04384-C02-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programas nacionales de I+D orientada.

**Títol:** *El nuevo derecho concursal español.*

**Acrònim:** NDCE.

**Centre:** Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** [ALCOVER GARAU, Guillem](#).

**Categoria:** CU (àrea de coneixement: Dret Mercantil).

**Inici:** 2002.                    **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Alcover Garau, Guillem</a>	CU	0.5
<a href="#">Mateo Hernández, José Luis</a>	TEU int.	1
<a href="#">Flaquer Riutort, Joan</a>	TU	0.5
<a href="#">Martínez Cañellas, Anselm M.</a>	TEU int.	1
<a href="#">Arbona Femenia, Miquel</a>	As.	1
<a href="#">Oliver Barceló, Santiago</a>	As.	1
<a href="#">Nadal Gómez, Irene</a>	Aj. U	0.5
<a href="#">Conde Tejón, Antonio</a>	Aj. U	1

**EDP del grup investigador de l'entitat sol·licitant:** 6.5.

**Referència:** BJU2002-04544-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Reforma del proceso penal español.*

**Acrònim:** REFPROCPEN.

**Centre:** Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

**Investigadora responsable:** [TAPIA FERNÁNDEZ, Isabel.](#)

**Categoria:** CU (àrea de coneixement: Dret Processal).

**Inici:** 2002.                   **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Tapia Fernández, Isabel</a>	CU	1
<a href="#">Nadal Gómez, Irene</a>	Aj. U	0.5
<a href="#">López Simó, Francisco</a>	TU	1
<a href="#">Arrom Loscos, Rosa</a>	CEU int.	1

**EDP del grup investigador de l'entitat sol·licitant:** 3.5.

**Referència:** BJU2003-01998. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Aspectos jurídicos de los medios de pago en el comercio electrónico.*

**Acrònim:** EPIS.

**Centre:** Departament de Dret Privat. Edifici Gaspar Melchor de Jovellanos.

**Investigadora responsable:** MARTÍNEZ NADAL, Apol·lònia.

**Categoria:** TU (àrea de coneixement: Dret Mercantil).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Martínez Nadal, Apol·lònia	TU	1
Ferrer Gomila, Josep Lluís	TU	0.5
Flaquer Riutort, Joan	TU	0.5
Pons Irarazábal, Fèlix	As.	1

**EDP del grup investigador de l'entitat sol·licitant:** 3.

### Summary

The effective development of electronic commerce requires of sure and suit payment instruments. On one hand, it is necessary generate trust and security for persons of electronic commerce, specially in the phase of payment, because users are afraid of non authorised uses of their payment instruments. So it is necessary the study fof juridical consequences of this non authorised uses of traditional payment instruments such as credit and debit cards, and it's also necessary the juridical analysis of technical systems established to give security to these traditional instruments in electronic commerce (mainly protocols SSL and SET).

On the other hand, it's necessary the existence of payment instruments adapted to the features and requirements of electronic commerce (because traditional instruments as payment cards can be sometimes unsuit). So, from a technical and commercial point of view, new payment instruments are offered: electronic money, micropayments and even electronic checks. These new instruments generate, from a juridical point of view, new questions (validity, juridical nature, rights and obligations of parts, liability, ...) that we will try to solve in this study.

In fact, the aim of this project is the study of juridical problems of payment instruments in electronic commerce, in order to resolve the possible doubts and uncertainties generated by the use of the different (traditional or new) instruments in this new context of electronic contracting. And the final objective is generate security, essential for the effective development of electronic commerce.



# **DEPARTAMENT DE DRET PÚBLIC**



**Referència:** BJU2002-00559. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Derechos humanos, responsabilidad internacional y seguridad colectiva: intersección de sistemas.*

**Acrònim:** DHRISCIS.

**Centre:** Departament de Dret Públic. Edifici Gaspar Melchor de Jovellanos.

**Investigadora responsable:** [HUESA VINAIXA, M. Rosario.](#)

**Categoria:** CU (àrea de coneixement: Dret Internacional Públic i Relacions Internacionals).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació
<a href="#">Huesa Vinaixa, M. Rosario</a>	CU	1
<a href="#">Rupérez Cornell, Pilar</a>	TEU int.	1
<a href="#">Janer Torrens, Joan David</a>	TU int.	1
<a href="#">Capellà Roig, Margalida</a>	Aj. EU	1

#### Investigadors d'altres entitats

<a href="#">Torres García, Carmen I.</a>	Universitat de Castilla-La Mancha
<a href="#">Forcada Barona, Ignacio</a>	Universitat de Castilla-La Mancha
<a href="#">Fernández Tomás, Antonio</a>	Universitat de Castilla-La Mancha
<a href="#">Sánchez Legido, Ángel</a>	Universitat de Castilla-La Mancha
<a href="#">Ortega Terol, Juan Miguel</a>	Universitat de Castilla-La Mancha
<a href="#">Martínez Carmena, María</a>	Universitat de Castilla-La Mancha
<a href="#">Quel López, Francisco J.</a>	Universitat del País Basc
<a href="#">Soroeta Liceras, Juan</a>	Universitat del País Basc
<a href="#">Bollo Arocena, María D.</a>	Universitat del País Basc
<a href="#">Ferrer Lloret, Jaume</a>	Universitat d'Alacant

**EDP del grup investigador de l'entitat sol·licitant:** 4.

#### Summary

The project's aim is to identify the areas of coincidence, intersection or collision of the three international systems which come into play when there is a serious and massive violation of human rights or humanitarian international law. Those systems are: individual's international criminal responsibility, State's international responsibility and the coercive action under Chapter VII of the UN Charter. The aim of the project is to study and identify the problems implied by the coexistence of this three systems within the international legal framework, both from a legal and technical point of view; the analysis of malfunctions, its causes and consequences; the interference and interactions among systems and the raising of proper solutions, taking into account the safeguard of international security and the need to promote the concepts of Justice and Rule of Law at international level. The project plans to analyse the most recent developments in the three areas mentioned above and the existing points of coincidence. The most important objectives are the analysis of the problems which have arisen, the simultaneousness of State and individuals responsibility, the incidence of the competences of the UN Security Council over the mechanisms of effectiveness of State and individual responsibility, and the scope of institutional and non-institutional coercion and the existing restraints in order to protect human rights.



**DEPARTAMENT D'ECONOMIA APLICADA**



**Referència:** SEC2002-01512. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Análisis de la fidelidad y de la estacionalidad como puntos críticos de la fase de post-estancamiento de los destinos turísticos maduros de sol y playa.*

**Acrònim:** AFEDM.

**Centre:** Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

**Investigadora responsable:** [JUANEDA SAMPOL](#), [C. Nativitat](#).

**Categoria:** CU (àrea de coneixement: Economia Aplicada).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Juaneda Sampol, C. Nativitat</a>	CU	1
<a href="#">Sansó Rosselló, Andreu</a>	TU	1
<a href="#">Riera Font, Antoni</a>	TU	1
<a href="#">Sard Bauzà, Maria</a>	TEU int.	1
<a href="#">Cladera Munar, Magdalena</a>	Aj. EU	1
<a href="#">Alegre Marín, Joaquín</a>	TU	1
<a href="#">Rosselló Nadal, Jaume</a>	TEU int.	1
<a href="#">Sansó Rosselló, Andreu</a>	TU	0.33
<a href="#">Pou Garcias, Llorenç</a>	TEU int.	1

**EDP del grup investigador de l'entitat sol·licitant:** 8.33.

### Summary

Some of the mediterranean sun and sand tourist resorts, like the Balearic Islands, are often presented as cases of environmental and economic decline. Their history is linked to mass holiday resorts and to policies based on price competition. As a result of the appearance of a new type of consumer (more aware of environment issues, more sophisticated, and with a taste for more tailor-made products), these tourists resorts are considered to be in a post-stagnation phase, characterised by the progressive disappearance of their competitive advantages. We believe that the analysis of the weaknesses and strengths of the sun and sand model is a necessary first step to a guide for the design of public policies and business strategies to facilitate its survival. In this project, two key elements of the tourist demand are analysed: loyalty and demand seasonality. On one hand, loyalty to a particular holiday resort can be thought of as one of the basic elements of the success of any tourism model. On the other hand, seasonality imposes important limitations on the tourism structure, together with a high pressure on natural resources. Therefore, it is particularly important to find out which are the seasonal characteristics of tourism and to analyse the possibilities of enhancing tourism demand out of high season. A better understanding of the behaviour of new consumers should help the detection of new market segments which, in turn, will prove useful to the reorientation of the sun and sand model. Without any doubt, loyalty and demand seasonality are two crucial issues to the study of that behaviour. Even though the analysis proposed here is based on the particular case of the Balearic Islands, the lessons obtained from it will provide a useful tool for the future planning of the tourism policy of other Mediterranean tourist resorts.

**Referència:** SEC2002-02606. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Microsimulación y análisis de las políticas públicas: redistribución e incentivos.*

**Acrònim:** INCRESIM.

**Centre:** Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** SPADARO, Amedeo.

**Categoria:** TU (àrea de coneixement: Economia Aplicada).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Spadaro, Amedeo	TU	0.5
Rosselló Villalonga, Joan Carles	TU int.	1
Tugores Ques, Maria	TU int.	0.5
Oliver Rullan, Francesc	Aj. EU	1
Cardona Coll, Daniel	TU int.	0.5
Parera Nicolau, M. Antònia	Aj. EU	0.5

#### Investigadors d'altres entitats

del Rey Canteli, Elena	Universitat de Girona
Badenes Plá, Núria	Universitat Complutense de Madrid
Arrondel Arrondel, Luc	DELTA

**EDP del grup investigador de l'entitat sol·licitant:** 4.

#### Summary

Since the 1970s there has been a growing concern in Western societies regarding the performance and the re-design of tax-benefit systems. At the same time the process of European integration activates by itself forces that lead to the harmonisation of country-specific taxation systems. The task of designing, governing and evaluating these processes requires specific data-sets and modelling tools. This proposal has two main objectives. The first one is to homogenize internationally the construction of tax-benefits models for EU countries including, in a robust way, agent's behaviour reactions previously estimated on household budget surveys. The second one is to evaluate, using the behavioural micro simulation models previously developed, fiscal and social policies in Spain and to compare it with others EU countries.



**DEPARTAMENT D'ECONOMIA DE L'EMPRESA**



**Referència:** BEC2001-2552-C03-03. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Estructura organizativa y gobierno de la empresa española.*

**Classificació UNESCO:** 531103.

**Centre:** Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** [CRESPÍ CLADERA, Rafael](#).

**Categoria:** CU (àrea de coneixement: Organització d'Empreses).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Crespí Cladera, Rafael</a>	CU	1
<a href="#">Lozano Arnica, Gonzalo</a>	TU	1
<a href="#">Munar Muntaner, Esperança</a>	CEU	1
<a href="#">Calveras Maristany, Aleix</a>	TU	1
<a href="#">Solà Belda, Carles</a>	TU	1
<a href="#">Pascual Fuster, Bartomeu</a>	TU	1
<a href="#">Alemany Hormaeche, Margalida</a>	TEU	1
<a href="#">Deyà Tortella, Bartomeu</a>	TEU	1
<a href="#">Orfila Sintès, Francina M.</a>	Aj. dr	1
<a href="#">Rivas Yarza, Pedro Antonio</a>	TEU	1
<a href="#">Massot Perelló, M. Magdalena</a>	TEU	1
<a href="#">Bru Martínez, Lluís</a>	TU int.	1

**EDP del grup investigador de l'entitat sol·licitant:** 12.

*Keywords:* organizational design, property issues, financing, corporate governance, competitiveness.

### Summary

This research programme focuses on the study on the study of Spanish enterprises and it deals, from a microeconomic perspective, with different organizational factors that might favor their competitiveness. We combine empirical analysis with theoretical models already contrasted in economic analysis. The efficiency and competitiveness of our enterprises are conditioned, among other factors, by the organizational solutions which the enterprises themselves adopt for their internal configuration, the legal norms in use where the enterprises carry out their activity and, specially, the regulations related to the financial and labour markets. This complexity has been in the past the main reason for developing various lines of complementary research in these fields, which we intend to continue in this project and extend to the analysis of some related topics. Specifically, we propose to continue the analysis in depth of the consequences that different financial and corporate governance structures have on firm's efficiency, human resource management or the protection that legal norms offer to the creditors. Furthermore, we pretend to extend our analysis to include also topics such as the organization of R&D activities, or the implementation of organizational changes that allow the enterprise to better adapt to the important technological changes it has to face nowadays.



**DEPARTAMENT DE FILOGIA CATALANA I  
LINGÜÍSTICA GENERAL**



**Referència:** BFF2000-1268. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Edición del Llibre de Déu, de Ramon Llull.*

**Acrònim:** ELDRLL.

**Classificació UNESCO:** 6202, 7204, 5506.

**Centre:** Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

**Investigador responsable:** [ROSSELLÓ BOVER, Pere](#).

**Categoria:** TU (àrea de coneixement: Filologia Catalana).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Rosselló Bover, Pere</a>	TU	Única
<a href="#">Ensenyat Pujol, Gabriel</a>	TU	Única
<a href="#">Bonner, Anthony</a>		Compartida
<a href="#">Alomar Canyelles, Antoni Ignasi</a>	As.	Única
<a href="#">Mesquida Cantalops, Joan Antoni</a>	TEU	Compartida
<a href="#">Amengual Bunyola, Guillem A.</a>	As.	Única

**Nombre total d'investigadors de la UIB:** 5.

*Keywords:* lullism, edition of texts.

### **Summary**

Preparation of a critical edition of the *Llibre de Déu*, by Ramon Llull, which consist of three works: *Llibre del és de Déu*, *Llibre de la coneixença de Déu* and *Llibre de Déu*.

**Referència:** BFF2001-0362. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Análisis y edición del Bolletí del Diccionario de la Lengua Catalana (1901-1936).*

**Acrònim:** BDLC.

**Classificació UNESCO:** 570503.

**Centre:** Departament de Filologia Catalana i Lingüística General. Edifici Ramon Llull.

**Investigador responsable:** DOLS SALAS, Nicolau.

**Categoria:** TEU (àrea de coneixement: Filologia Catalana).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Dols Salas, Nicolau	TEU	1
Miralles Monserrat, Joan	CU	0.33
Grimalt Gomila, Josep Antoni	TU	0.33

**EDP del grup investigador de l'entitat sol·licitant:** 1.66.

*Keywords:* linguistics, lexicography, romance languages.

### Summary

First initiated by Antoni M. Alcover in 1901, the *Bolletí del Diccionario de la Lengua Catalana* was envisaged as a to circulate ideas between the editor and fieldworkers. The dictionary, finally published in 1962 as *Diccionari Català-Valencià-Balear* collected both vocabulary and aspects of folk culture from all over Catalan-speaking areas. Forms, meanings, sources, etymologies, pronunciation, sayings, dialects and cultural information intending to complete general understanding of words are included in this work. For its length (10 volumes with 9737 pages), conception and quality this dictionary is well known as one of the most outstanding works in romance lexicography. The *Bolletí del Diccionario de la Lengua Catalana* is especially interesting on two different grounds: (i) the information it provides on data collection and selection, and (ii) for the large amount of information it supplies on major trends in early century linguistics, mainly because of articles included for fieldworkers training and for theoretical discussion it can be worth taking into accounts that this first spanish journal on philology conveys a good number of contributions signed by foreign philologists like Bernard Schädel, Jean Joseph Saroihandy, Wilhelm Meyer-Lübke, Alfred Morel-Fatio, among others. It is in this project to investigate methodological issues that led to the production of the *Diccionari Català-Valencià-Balear*, among with its theoretical foundations through a thorough analysis of the *Bolletí del Diccionario de la Lengua Catalana*. The aims and methodology that we propose below are expected to implement resources for the investigation of individuals involved either in fieldwork related to or the edition of the dictionary, as well as to increase knowledge of it sources (both archives and literary sources investigated during fieldwork). Another benefit of this project will be a critical edition of theoretical articles appeared in the journal under investigation. An important advantage point for researchers in this project is the fact that the Alcover-Moll legacy (including the whole of dictionary files and the correspondence generated by the *Bolletí*) has recently been placed in their university.



**DEPARTAMENT DE FILOLOGIA ESPANYOLA,  
MODERNA I LLATINA**



**Referència:** BFF2000-1068. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Estudio y edición crítica de las obras teatrales inéditas de Diego de Torres Villarroel (Salamanca, 1694-1770).*

**Classificació UNESCO:** 6202.

**Centre:** Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

**Investigador responsable:** [GARAU AMENGUAL, Jaume](#).

**Categoria:** TU (àrea de coneixement: Literatura Espanyola).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Garau Amengual, Jaume</a>	TU	Única
<a href="#">Madroñal Duran, Abraham</a>	TU int.	Única
<a href="#">Monterrubio Prieto, Juan Miguel</a>	TEU	Única
<a href="#">Servera Baño, Josep</a>	CU	Única

**Nombre total d'investigadors de la UIB:** 4.

**Keywords:** critical edition, Diego de Torres Villarroel, plays.

### **Summary**

The aim of this project is to carry out a study, catalogue and critical edition of the works by Diego Torres de Villarroel (Salamanca, 1694-1770), which remain unstudied, unpublished or practically unknown. An important part of this project will consist in the study of this author's short plays including short farces such as *El duende*, or *El médico sordo y el vecino gangoso* and the following one-act farces *El poeta*, *Los gitanos*, *La peregrina*, *El valentón*, *La tabernera de la puerta de Vilamayor* or *La ronda del uso*, in addition to other works such as *La zarzuela del juicio de París*, *El hospital en que Amo se cura*, *Juguetes de Talía* (Salamanca, 1738) and such curious predictions as *La casa del ensayo de las comedias* (Madrid, 1755).

**Referència:** BFF2003-06288. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Estudio de la oratoria del padre Jerónimo de Florencia (1565-1633) y edición crítica de sus sermones y oraciones fúnebres.*

**Acrònim:** ESOJEFLOREDCRISER.

**Centre:** Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

**Investigador responsable:** [GARAU AMENGUAL, Jaume](#).

**Categoria:** TU (àrea de coneixement: Literatura Espanyola).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Garau Amengual, Jaume</a>	TU	1
<a href="#">Servera Baño, Josep</a>	CU	1
<a href="#">Monterrubio Prieto, Juan Miguel</a>	TU	1

#### **Investigadors d'altres entitats**

[Cerdán Amorós, Francis](#) [Université de Toulouse Le Mirail](#)

**EDP del grup investigador de l'entitat sol·licitant:** 3.

#### **Summary**

The objective of this project is to undertake a study, cataloguing and critical edition of the previously unstudied sermons and funeral prayers of the Court preacher Jerónimo de Florencia (1565-1633). An important portion of this study will be dedicated to the analysis of the sermons found in Marial (1625), in panegyric sermons such as that delivered on the occasion of the beatification of Teresa de Jesús (1615) or his justly famous funeral prayers dedicated to García de Loaisa, Archbishop of Toledo (1599), to Queen María de Austria (1603), to Queen Margarita de Austria (1611), to King Felipe III (1621), to the Count of Lemos (1622) and to the Duke of Monteleón (1622). With the study of this singular and important body of work, i attempt to contribute to our understanding of sacred oratory during the reign of Felipe IV, from the perspective of a preacher very close to the seat of power.

**Referència:** BFF2001-0916. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Los textos como fuente de información pragmática: estudio de la gestualidad en la antigüedad romana.*

**Acrònim:** TFIPEGAR.

**Classificació UNESCO:** 5705.

**Centre:** Departament de Filologia Espanyola, Llatina i Moderna. Edifici Ramon Llull.

**Investigadora responsable:** [FORNÉS PALLICER, M. Antònia](#).

**Categoria:** TU (àrea de coneixement: Filologia Llatina).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Fornés Pallicer, M. Antònia</a>	TU	0.5
<a href="#">Bosch Juan, M. Carme</a>	CU	0.5

#### **Investigadors d'altres entitats**

<a href="#">Quetglas Nicolau, Pere J.</a>	Universitat de Barcelona
<a href="#">Cabré Lunas, Laura</a>	Universitat de Barcelona
<a href="#">Espinilla Buisán, Empar</a>	Universitat de Barcelona
<a href="#">González Páez, Carmen</a>	Universitat de Barcelona
<a href="#">Nofre Maíz, Montserrat</a>	Universitat de Barcelona
<a href="#">Puig Rodríguez-Escalona, Mercè</a>	Universitat de Barcelona
<a href="#">Iranzo Abellán, Salvador</a>	Universitat de Barcelona

**EDP del grup investigador de l'entitat sol·licitant:** 1.

*Keywords:* linguistics, latin, pragmatics, gesture.

#### **Summary**

This project deals with pragmate positioning and, specifically, with gesture. It intends to analyze as completely as possible, gesture in the Roman world. This research aims to establish a corpus when includes the descriptive literary and the iconographic fields, which are well differentiated. Taking these data as starting point, it will be possible to reveal the existence of gesture, to define it and to classify it.

**Referència:** BFF2003-02586. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Edición de poéticas y de materiales para el estudio de la recepción de la poesía española entre 1939 y 2000.*

**Acrònim:** EPYMERPE.

**Centre:** Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

**Investigador responsable:** [DÍAZ DE CASTRO, Francisco J.](#)

**Categoria:** TU (àrea de coneixement: Literatura Espanyola).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Díaz de Castro, Francisco J.</a>	CU	0.5
<a href="#">del Olmo Iturriarte, Almudena</a>	TU	0.5
<a href="#">Payeras Grau, Maria</a>	TU	0.5

#### **Investigadors d'altres entitats**

<a href="#">Jiménez Millán, Antonio G.</a>	Universitat de Màlaga
<a href="#">Rovira Planas, Pere</a>	Universitat de Lleida
<a href="#">Lanz Rivera, Juan José</a>	Universitat del País Basc
<a href="#">Celma Valero, María del Pilar</a>	Universitat de Valladolid
<a href="#">Iravedra Valea, Araceli</a>	Universitat de Granada

**EDP del grup investigador de l'entitat sol·licitant:** 1.5.

**Referència:** BFF2003-04415. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Edición de materiales para el análisis de la autorrepresentación de la mujer en la poesía española (1939-1959).*

**Acrònim:** EMAPAUMU.

**Centre:** Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.

**Investigadora responsable:** [PAYERAS GRAU, Maria](#).

**Categoria:** TU (àrea de coneixement: Literatura Espanyola).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Payeras Grau, Maria</a>	TU	0.5
<a href="#">Díaz de Castro, Francisco J.</a>	CU	0.5
<a href="#">del Olmo Iturriarte, Almudena</a>	TU	0.5

**EDP del grup investigador de l'entitat sol·licitant:** 1.5.

### Participacions a altres projectes

**Referència:** BFF2001-1593. Ministeri de Ciència i Tecnologia.

**Títol:** *Principales aspectos de la entonación del discurso en español. Estudio experimental de las unidades prosodicas del discurso y sus funciones.*

**Investigadora responsable:** [ELORDIETA ALCIBAR, Gorka](#).

**Centro:** Universitat del País Basc.

**Investigadora de la UIB:** [Romera Ciria, Maria Magdalena](#).

**Categoria:** Aj. U (àrea de coneixement: Llengua Espanyola).

**EDP:** 1.

**Inici:** 2001.                    **Fi:** 2004.

**Referència:** BFF2001-2988. Ministeri de Ciència i Tecnologia.

**Títol:** *Creación de una base de datos de combinaciones léxicas en el inglés científico.*

**Investigadora responsable:** [VERDAGUER CLAVERA, Isabel](#).

**Centro:** Universitat de Barcelona.

**Investigadora de la UIB:** [Juan Garau, Maria](#).

**Categoria:** TU (àrea de coneixement: Filologia Anglesa).

**EDP:** 0.5.

**Inici:** 2001.                    **Fi:** 2004.

**Referència:** BFF2001-0820. Ministeri de Ciència i Tecnologia.

**Títol:** *Los efectos de la movilidad (estancia en el país de lengua meta) en la competencia oral y escrita de los estudiantes de inglés universitarios: la variación en la adquisición y en el aprendizaje de la lengua inglesa a niveles avanzados.*

**Investigadora responsable:** [TURELL JULIÀ, M. Teresa](#).

**Centro:** Universitat Pompeu Fabra.

**Investigadora de la UIB:** [Juan Garau, Maria](#).

**Categoria:** TU (àrea de coneixement: Filologia Anglesa).

**EDP:** 0.5.

**Inici:** 2001.                    **Fi:** 2004.



**DEPARTAMENT DE FILOSOFIA I TREBALL  
SOCIAL**



**Referència:** BSO2000-1116-C04-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Estudio interdisciplinar de rasgos funcionales del grado humano. Aspectos sistemáticos.*

**Classificació UNESCO:** 7205, 2416, 6107, 5101.

**Centre:** Departament de Filosofia i Treball Social. Edifici Ramon Llull.

**Investigador responsable:** CELA CONDE, Camilo José.

**Categoria:** CU (àrea de coneixement: Filosofia Moral).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Cela Conde, Camilo José	CU	Única
Riutort Serra, Bernat	TU	Compartida
Miquel Novajra, Alexandre	TU	Compartida
Burgos Cruz, Lucrecia	Aj. EU	Única
Valdivielso Navarro, Joaquim	Aj. EU	Compartida
Afonso Marrero, José A.	Aj. EU	Única
Ruiz Altaba, Cristian		Compartida
Castro Nogueira, Laureano		Única

**Nombre total d'investigadors de la UIB:** 8.

### Summary

The study of evolution in terms of grades has been proposed as an alternative to cladistics limits existing to interpret ancestor-descendant relationships. However, "grades" are widely grounded on functional assumption, thus being difficult to quantify. The current project tries: Firstly, to stablish an interdisciplinary evolutive scenario of the main functional traits of Homo sapiens (such as, language, aesthetics, and morals. Secondly, to perform experimental studies to obtain stimuli capable of activating brain areas of processing of these tasks. Thirdly, to localize brain areas functionally active during the mentioned tasks, to check the hypothesis of a prefrontal localization of moral judgement, aesthetic appreciation and metaphorical using of language -the development of which would have been responsible for the late hominization period. Fourthly, to built computer simulated models of the evolution of the capacity af analyzing and cultullay transmitting evaluations. Fifthly, to analyse some turning point on the cultural evolution. Finally, to set up a model on the phylogeny of the already mentioned functional traits. How to identify grades and clades in the fossil record was mentioned in the Colloquium "Taxonomy and Systematics of the Human Clade" (Palma, February, 2000) as an area of particular interest of research in face of the V Congress of the IAHP (Barcelona 2003). The participants agreed in organising an International Group of research in human systematics to promote that kind of studies. To reach a tipification of the human grade is important in the systematics and paleontology fields, as well as in psychology, psychiatry, neurology, ethics, ethology, anthropology, biodiversity, and environmental studies.

**Referència:** SEC2000-1235. Ministeri de Ciència i Tecnologia.

**Modalitat:** P2. Projecte d'investigació bàsica orientada.

**Títol:** *La justicia, las transformaciones sociales y los límites del Estado del Bienestar: políticas públicas, mercado de trabajo, exclusión social y sostenibilidad.*

**Classificació UNESCO:** 6307.

**Centre:** Departament de Filosofia i Treball Social. Edifici Ramon Llull.

**Investigador responsable:** RIUTORT SERRA, Bernat.

**Categoria:** TU (àrea de coneixement: Filosofia Moral).

**Inici:** 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Riutort Serra, Bernat	TU	16
Miquel Novajra, Alexandre	TU	16
Carbonero Gamundí, M. Antònia	TEU	16
Valdivielso Navarro, Joaquim	Aj. EU	16

**Nombre total d'investigadors de la UIB:** 4.

*Keywords:* justice, social changes, welfare state, public policies, labour market, social exclusion, globalization, modernization, regionalism, sustainable development.

### Summary

It tries to continue the research on social changes in developed countries, focused, first, on theoretical general analysis and, second, on application to spanish society as well as balearic context. This analysis approaches on equity perspective. The analysis places on impact produced by globalization and complex modernity on social structure and welfare state. The emphasis is on social changes and citizenship rights. The contrast between factual changes and contra-factual equity assumptions allows to evaluate public policies, labour market and social exclusion from the double view of facticity and validity. This theoretical analysis finds the quantitative and valorative evaluation of such changes in spanish and balearic context.

**Referència:** BFF2001-0377. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Ciencia reguladora y riesgos tecnológicos.*

**Acrònim:** CRRT.

**Classificació UNESCO:** 720599, 720703.

**Centre:** Departament de Filosofia i Treball Social. Edifici Ramon Llull.

**Investigador responsable:** LUJÁN LÓPEZ, José Luis.

**Categoria:** TU (àrea de coneixement: Lògica i Filosofia de la Ciència).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Luján López, José Luis	TU	0.5
Ambrogí Álvarez, Adelaida	TU	0.5

#### **Investigadors d'altres entitats**

Rodríguez Alcázar, Francisco J.      Universitat de Granada

Blanco Merlo, José R.                  Universitat Autònoma de Madrid

Sanmartín Esplugues, José

**EDP del grup investigador de l'entitat sol·licitant:** 1.

*Keywords:* regulatory science, technological risks, uncertainty, methodology.

#### **Summary**

This research project deals with a particular kind of scientific activity: regulatory science. In fact, the regulatory science that studies technological risks and is the knowledge ground for the public policies that regulate technological applications. The objectives of the project are the following ones:

1. to study regulatory science in opposition to research science, and in what measure the objectives of regulatory science influence this kind of scientific activity.
2. to study the conflicts among different values in regulatory science, e. g., epistemic values and values related to the protection of environment and of public health.
3. to analyze the different strategies that in fact scientists use to save the uncertainty in their recommendations to public decision makers.

The research project will be developed in three phases: general analysis of regulatory science: two case studies (health technology assessment and Genetically Modified Organisms risk-analysis), both in Spain: and a comparative analysis (with studies on regulatory science carried out in other countries).

**Referència:** BFF2002-04454-C10-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Uso del vocabulario genético y reduccionismo.*

**Acrònim:** USOGEN.

**Centre:** Departament de Filosofia i Treball Social. Edifici Ramon Llull.

**Investigadora responsable:** [AMBROGI ÁLVAREZ, Adelaida](#).

**Categoria:** TU (àrea de coneixement: Lògica i Filosofia de la Ciència).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Ambrogi Álvarez, Adelaida</a>	TU	0.5
<a href="#">Luján López, José Luis</a>	TU	0.5

#### **Investigadors d'altres entitats**

<a href="#">Corrales Rosales, José María</a>	Fundació Hospital de Manacor
<a href="#">Morange Morange, Michel</a>	Universitat de París

#### **Summary**

The aim of the present project is the study of the use of genetic vocabulary. We will center our study on the field of genetics of human diseases, and the focus will be the impact of the use of this vocabulary in the proper receptivity and understanding of the advances of human genetics. Starting from the acknowledgement that human genetic is a field of research with high priority, yet also of high social sensibility, we will try to identify critical issues associated to the use of key genetic concepts, in the technical literature, as well as in the print mass media.

**Referència:** BSO2003-06904-C03-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Identificación por MEG de patrones espaciales y temporales de activación de áreas cerebrales en la percepción visual compleja: hacia un modelo de la percepción estética. Aspectos evolutivos.*

**Acrònim:** IMPACT.

**Centre:** Departament de Filosofia i Treball Social. Edifici Ramon Llull.

**Investigador responsable:** CELA CONDE, Camilo José.

**Categoria:** CU (àrea de coneixement: Filosofia Moral).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Cela Conde, Camilo José	CU	0.5
Miquel Novajra, Alexandre	TU	0.5
Riutort Serra, Bernat	TU	0.5
Valdivielso Navarro, Joaquim	Aj. EU	0.5

#### **Investigadors d'altres entitats**

Castro Nogueira, Laureano	UNED
Candel Sanmartín, Miguel	Universitat de Barcelona
Ruiz Altaba, Cristian	Govern Balear

**EDP del grup investigador de l'entitat sol·licitant:** 2.

#### **Summary**

Differences in the pattern of activation of brain areas when performing cognitive tasks of complex visual perception will be identified. Those tasks will be activated by stimuli qualified by participants as either aesthetic or not-aesthetic. The project is a continuation of a previous one that established what an 'aesthetic stimulus' is, grounding it on the preferences shown by participants. Several essays of localisation were carried out. A pilot-study in just one participant, by means of magnetoencephalography, pointed out that the main difference in activation patterns refers to the appearance of a mesocortical path. This path was present in the stimuli qualified as 'aesthetic', and it was absent in those qualified as 'non-aesthetic'. This project tries to confirm firstly the characteristics of such mesocortical path in a significant number of participants, as well as their evolutionary import. After, the project implies to perform factorial analyses introducing variables such as gender and previous training in either Art or History of Art. Finally, an evolutionary model of aesthetic perception and its brain correlates would be reached.

**Referència:** BFF2003-08156. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Antecedentes hispanos del método de la Janua Linguarum de Comenio.*

**Acrònim:** AMEJALINCOM.

**Centre:** Departament de Filosofia i Treball Social. Edifici Ramon Llull.

**Investigador responsable:** [TORRES MARÍ, Francesc](#).

**Categoria:** TU (àrea de coneixement: Filosofia).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Torres Marí, Francesc</a>	TU	1
<a href="#">Llinàs Begon, Joan Lluís</a>	As.	0.5

#### **Investigadors d'altres entitats**

<a href="#">Urbanek, Wladimir</a>	<a href="#">Acadèmia de Ciències de Txèquia</a>
<a href="#">Benes, Jiri</a>	<a href="#">Acadèmia de Ciències de Txèquia</a>

**EDP del grup investigador de l'entitat sol·licitant:** 1.5.

#### **Summary**

The aim is to investigate the sources of Comenius' *Janua Linguarum*, mainly the influence of the *Janua salmantina* and the connection between the reform of language and the social reform. We will study the influence of the utopian lulistic literature in the Renaissance and Barroc on the *Janua Linguarum*.



**DEPARTAMENT DE FÍSICA**



**Referència:** BFM2002-03241. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Dinámica de nanoestructuras electrónicas y comunicación cuántica.*

**Acrònim:** DINECC.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigadora responsable:** CASAS AMETLLER, Montserrat.

**Categoria:** CU (àrea de coneixement: Física Atòmica, Molecular i Nuclear).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Casas Ametller, Montserrat	CU	1
García, Martín Ezequiel	Investigador	1
Serra Crespi, Llorenç	TU	1
Nazmitdinov, Rashid	Investigador	1
Puente Ferrà, Antoni	TU	1
Garcias Gomila, Francesca	TU	1
Batle Vallespir, Josep	B	1
Valín Rodríguez, Manuel	B	1

**EDP del grup investigador de l'entitat sol·licitant:** 8.

### Summary

The main purpose of this project is the study of dynamical processes in electronic nanostructures, their possible use to obtain quantum entangled states, the characterisation of the latter and their application in quantum communication. In particular we are interested in the following items:

- a. Electronic nanostructures: a1) Isolated quantum dots: spin-orbit interaction effects. Quantum entangled states. Dissociation of quantum artificial molecules. Laser induced ultrafast phase transitions. a2) Open systems in 1, 2 and 3 dimensions. Conductance properties. Propagation of excited states in quantum dot chains. Coherent control of wave packet propagation.
- b. Quantum entangled states: Mixedness and separability. Entanglement evolution and decoherence time.
- c. Bose-Einstein condensation (BEC): c1) Superconductivity as a BEC of particles and holes in exotic materials. Critical temperatures. C2) Dynamics of condensates of atoms.

**Referència:** MAT2002-00319. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Desarrollo y caracterización de aleaciones con memoria de forma ferromagnéticas.*

**Acrònim:** ALMEMFER.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [CESARI ALIBERCH](#), Eduard.

**Categoria:** CU (àrea de coneixement: Física Aplicada).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Cesari Aliberch, Eduard</a>	CU	1
<a href="#">Seguí Palmer, M. Concepció</a>	TU	1
<a href="#">Pons Morro, Jaume</a>	TU	0.5
<a href="#">Picornell Alou, Catalina</a>	CEU	1
<a href="#">Santamarta Martínez, Rubén</a>	Aj. U	1

#### Investigadors d'altres entitats

<a href="#">Muntasell Pla, Joaquim</a>	<a href="#">Universitat Politècnica de Catalunya</a>
<a href="#">Font Ferrer, Joan</a>	<a href="#">Universitat Politècnica de Catalunya</a>
<a href="#">Chernenko, Volodymyr A.</a>	<a href="#">Institute of Magnetism (Ukraine)</a>

**EDP del grup investigador de l'entitat sol·licitant:** 4.5.

#### Summary

Ferromagnetic shape memory alloys can show, in addition to the conventional functional properties arising from the thermoelastic martensitic transformation that they undergo, the as-called Magnetic Memory Effect (MME), consisting of the occurrence of deformation (up to 5% in alloys close to  $\text{Ni}_2\text{MnGa}$ ) under the action of magnetic field. The basic objectives of the project are to gain knowledge on the thermal stability of Ni-Mn-Ga and Co-Ni-Ga (close to  $\text{Co}_2\text{NiGa}$ ) alloys, to quantify the MME and to clarify the mechanisms responsible for it. The proposal is structured around two main activities: (1) Study of the thermal stability of the alloys, both in parent phase and in martensitic phase; these aspects are basic to the practical use of the alloys, but nevertheless unknown. Particular attention will be paid to the effects of precipitation at moderate temperatures (200-300°C) and the stabilisation of martensite, as well as to the relationship of both effects with the MME. (2) Study of the MME: quantification of the strain produced by a magnetic field as a function of the martensite structures; this aspect will be studied in single and polycrystalline specimens (including melt-spun ribbons). Moreover, to clarify the relationship between the MME and the reorientation of martensite variants and the stress induced martensitic transformation, the following issues will be analysed: (a) the critical stresses needed to reorientate the martensite variants under load; (b) the characteristic stresses and strains involved in the stress induced transformation; (c) the strain-temperature cycles obtained under constant load (thermomechanical cycling), which allow to characterise the shape memory effect besides of giving complementary information on the formation of preferential martensite variants (issues (b) and (c)). Quantitative knowledge on the generation of martensite variants and their mobility is essential to the discussion and validation of the models for the MME.

**Referència:** REN2002-03482/CLI. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Estudio de la estructura y previsibilidad de los ciclones mediterráneos que producen situaciones de tiempo peligroso: aportación de Illes Balears al proyecto Medex de la OMM.*

**Acrònim:** MEDEXIB.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** RAMIS NOGUERA, Climent.

**Categoria:** TU (àrea de coneixement: Física de la Terra).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Ramis Noguera, Climent	TU	0.5
Homar Santaner, Víctor	Aj. U	1
Alonso Oroza, Sergio	CU	0.5
Romero March, Romuald	TU	0.5
Arreola Contreras, José Luís	B	1

#### Investigadors d'altres entitats

Campins Pons, Joan	Institut Nacional de Meteorologia
Jansà Clar, Agustí	Institut Nacional de Meteorologia
Genovés Terol, Ana	Institut Nacional de Meteorologia
Picornell Alou, Maria À.	Institut Nacional de Meteorologia

**EDP del grup investigador de l'entitat sol·licitant:** 3.5.

#### Summary

Recent studies have evidenced that, in the Mediterranean, there is a possible relation between hazardous weather phenomena (mainly heavy rain and strong winds) and cyclones. Such cyclonic disturbances would influence directly or indirectly on the development of the hazardous event. The aforementioned evidence favoured that, from an international front, a research program called MEDEX was presented to the WMO. The main objective of the MEDEX project is the study of the structure and predictability of the cyclones that produce hazardous weather which have high social impact. The SSC of the WWRP accepted the proposal highlighting its scientific and practical interest by the end of 2000. However, it is well known that the WMO does not provide economical support. The project we present, MEDEXIB, represents the contribution to the MEDEX from researchers located in the Balearic Islands. Although the objectives of the MEDEX are general for the Mediterranean area, the MEDEXIB will concentrate the attention on the western Mediterranean. The main objectives are: a) to produce a dynamical climatology of the cyclones in the Mediterranean in order to know its 3D structure and relate that climatology with the hazardous weather events, b) the study of the physical and dynamical factors that determine the formation, development and evolution of the cyclones that produce hazards, c) analyse the possibility to improve the skill of numerical forecasts by optimising physical parameterisations or improving initial conditions in the models. The benefits of the project are evident: improving the prediction of the cyclones that produce hazardous weather will consequently improve the prediction of the event itself and, then, the optimisation of the warnings to the population as well as to civil defence services and marine safety. For MEDEX information visit: <http://www.inm.es/MEDEX>.

**Referència:** BFM2000-1329. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Sismología de la corona solar y actividad solar.*

**Acrònim:** SICOAS.

**Classificació UNESCO:** 2106-02.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** BALLESTER MORTES, Josep Lluís.

**Categoria:** CU (àrea de coneixement: Astronomia i Astrofísica).

**Inici:** 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Ballester Mortes, Josep Lluís	CU	Única
Oliver Herrero, Ramon	TU	Única
Carbonell Huguet, Marc	CEU	Única

**Nombre total d'investigadors de la UIB:** 3.

*Keywords:* magnetohydrodynamics, magnetohydrodynamic waves, solar activity, solar cycle.

### Summary

Our proposal is based on a feed-back between theory and observation, our general goals being: (1) to use observational data to improve theoretical models; (2) to use the predictions of these models for subsequent observational campaigns; (3) to use theoretical models to reproduce the behaviour of solar activity in the past and to forecast its future behavior.

Two topics are included in the proposal: on one hand, we plan to study wave propagation within magnetic coronal structures and, on the other hand, to forecast and analyze the behavior of solar activity.

In the first part of the proposal, the specific goals are: (1) to study the effects of magnetic shear in MHD wave propagation in coronal structures such as magnetic arcades and prominences; (2) by considering quiescent solar prominences as slabs of material or composed by fibril structures, to bring a theoretical explanation to the observations of damping and growing of oscillations within them.

In the second part, we plan to study the behavior of solar and geomagnetic activity with the following specific goals: (1) to set up a forecasting method based on genetic algorithms, of the future behavior of the solar cycle and geomagnetic activity, based on genetic algorithms; (2) to analyze, using solar magnetograms obtained by ground-based solar telescopes and the MDI instrument onboard SOHO, the magnetic flux emergence during the recent solar cycles in order to confirm, or not, a hypothesis about the cause of the periodicity near 160 days in high-energy solar flares.

**Referència:** MAT2000-0862-C03-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** P3. Projecte d'investigació aplicada.

**Títol:** *Desarrollo de nuevas aleaciones de memoria de forma con elevadas temperaturas de transformación. Mejora de procesos de obtención y procesado: prototipos industriales.*

**Acrònim:** DEMEFOR.

**Classificació UNESCO:** 331507, 331208, 331212, 331614, 221129, 221101.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** PONS MORRO, Jaume.

**Categoria:** TU (àrea de coneixement: Física Aplicada).

**Inici:** 2000.                   **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
Pons Morro, Jaume	TU	Compartida
Amengual Colom, Antoni	TU	Compartida
Cifre Bauzà, Joan	Tèc.	Compartida

**Nombre total d'investigadors de la UIB:** 3.

*Keywords:* shape memory alloys, smart materials, stabilisation, martensite, training, diffusion welding, microstructure, properties, guaranteed behaviour, rapid solidification, melt-spinning.

### **Summary**

The main limitations of the shape memory alloys are the low transformation temperatures with the low stability of these temperatures and the structures involved in shape memory properties. To increase these transformation temperatures, a lot of people are working in complex Cu-Al-Ni-Ti-Mn alloys. The more complex the alloys, the higher the complexity of the degradations of the alloy at high temperatures. The aim of the project is to get shape memory alloys. It is also the scope of the project to get alloys with high stability of the transformation temperatures and phases. Hence the shape memory alloys can be guaranteed for industrial applications once improved the attainment and the processing to get, at the end, prototypes of industrial interest.

**Referència:** BFM2001-0988. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Radiación gravitatoria en sistemas relativistas axialmente simétricos. Un estudio analítico-numérico.*

**Acrònim:** GRASS.

**Classificació UNESCO:** 221205.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** CAROT GINER, Jaume Jesús.

**Categoria:** TU (àrea de coneixement: Física Teòrica).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Carot Giner, Jaume Jesús	TU	1
Mas Franch, Lluís	CU	1
Stela Fiol, Joan	TU	1
Palenzuela Luque, Carlos	Aj. EU	1
Sintes Olives, Alcía Magdalena	TEU	1

#### **Investigadors d'altres entitats**

Collinge March, Maria M.

IES Juníper Serra

Lázkoz Sáez, Ruth

Universitat del País Basc

**EDP del grup investigador de l'entitat sol·licitant:** 5.

*Keywords:* general relativity, gravitational radiation, axial symmetry.

#### **Summary**

Within the framework of the theory of General Relativity, we propose to carry out a rigorous and thorough study of axially symmetric spacetimes (regular and singular cases); with special attention to the production, propagation and detection of gravitational radiation: wave pattern elucidation and theoretical studies on the detectability of those wave patterns by means of the interferometric detectors currently under construction. Also, we intend to develop numerical codes adapted to the particular geometry of the above systems, with an emphasis on the introduction of coordinates with a precise geometrical meaning which allow for an adequate treatment of the numerical divergences occurring in a neighbourhood of the axis, and such that allow to carry out simulations in situations of physical interest.



**Referència:** REN2002-00486/CLI. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Estudio y parametrización de los intercambios de calor, humedad y momento en la capa estable.*

**Acrònim:** INTERCLE.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** CUXART RODAMILANS, Joan.

**Categoria:** INVESTIGADOR CONTRACTAT.

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Cuxart Rodamilans, Joan	Investigador	0.5
Jiménez Cortés, Maria Antònia	B	1

#### Investigadors d'altres entitats

Ferreres Soler, Enriqueta	Universitat Politècnica de Catalunya
Mahrt Nil, Larry	Oregon State University
Joergensen Nil, Hans E.	Risoe National Laboratory
Terradellas Jubanteny, Enric	Institut Nacional de Metereologia
Soler Duffour, Maria Rosa	Universitat de Barcelona
Conangia Triviño, Laura	Universitat Politècnica de Catalunya

**EDP del grup investigador de l'entitat sol·licitant:** 1.5.

#### Summary

Under conditions of clear skies and weak winds, the dynamics of the Atmospheric Boundary Layer (ABL) are complex. The stable stratification favours a special phenomenology of coherent structures, partly determined by the physiography of the area of study and its surroundings. We can mention the presence of Internal Gravity Waves, Gravity currents (katabatic flows) and low-level jets. These phenomena perform transport by themselves and there is turbulent transport related to their inestabilisations, mainly of sporadic or intermittent character. Recent experimental studies indicate that an important part of the total exchange of matter and energy between the surface and the free atmosphere under very stable stratification is performed by coherent structures as mentioned.

This project intends to evaluate the effects of these structures through the study of the available data out of recent experimental campaigns (SABLES-98, CASES-99, data from the continuous CIBA database) and also by means of explicit simulation, using Large-Eddy Simulation models (LES). The validity of available parameterisations arisen from the application of the similarity theory for the Stable ABL will be checked, and new proposals will be searched that account with the effects of the coherent structures metioned above. LES will be used as a numerical laboratory to study idealised isolated phenomena and the turbulence associated to them. All the terms of the complete second-order turbulence equations will be explicitly computed. Any finding leading to modifications in the current available parameterisations will be tested in the frame of a ABL 1D-model, in order to elaborate new proposals for implementations in mesoscale, NWP or climate models. The current parametrisations do not explicitly account for any contribution of these phenomena. An immediate practical application will be the introduction of any finding in a operational 1D-model for fog forecasting of the Spanish Meteorological Institute.

**Referència:** TIC2002-01238. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Test multiparamétrico de circuitos microelectrónicos digitales y mixtos de altas prestaciones.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [SEGURA FUSTER, Jaume Agapit](#).

**Categoria:** TU (àrea de coneixement: Tecnologia Electrònica).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Segura Fuster, Jaume Agapit</a>	TU	1
<a href="#">Roca Adrover, Miquel Jesús</a>	TU	1
<a href="#">Isern Riutort, Eugeni Miquel</a>	TU	0,5
<a href="#">Rosselló Sanz, Josep Lluís</a>	TEU int.	0,5
<a href="#">de Benito Crosetti, Carola</a>	TEU int.	1
<a href="#">Alorda Ladaria, Bartomeu</a>	Aj.	1

#### Investigadors d'altres entitats

<a href="#">Sainz Gómez, José Antonio</a>	Universitat del País Basc
<a href="#">Gil García, José M.</a>	Universitat del País Basc
<a href="#">Sánchez Etchegaray, Jesús M.</a>	Universitat del País Basc

**EDP del grup investigador de l'entitat sol·licitant:** 5.

#### Summary

Scaling advanced CMOS technology to the next generations improves performance, increases transistor density, and reduces power consumption. As a result of a constant device and interconnect scaling, current CMOS technology processes are in the 100nm range, and are referred to as nanometer technologies. One of the drawbacks of technology scaling is related to process parameter fluctuations. Parameter fluctuations in nanometer technologies come from poor control in critical dimensions and doping profiles, impacting geometric and electrical parameter distribution as the MOSFET transistor voltage ( $V_t$ ), the off-state current ( $I_{off}$ ), and the saturation current ( $I_{Dsat}$ ). Recent studies point that parameter fluctuation will have a significant impact on IC test and verification effectiveness in nanometer technologies.

The objective of this research project is to analyze the impact of parameter variation on the IC behavior, and to include this source of circuit malfunction into the test flow through specific compact fault models. The main goal of the research plan is to develop a new test technique based on correlating multiple parametric test observables to predict circuit integrity. This is required since parameter variations limit the effectiveness of single-parameter non-logic based test methods due to the difficulty to establish golden reference values. We will investigate the merits of a multi-parameter based test strategy that correlates a number of circuit parameters (delay, leakage current, active energy, temperature variation, etc.), to distinguish between faulty and fault-free circuits. The project is built on the basis of technology transfer to industry and incorporates tasks oriented to develop CAD modules and also specific circuit monitors to capture the parametric observables considered. The development of circuit monitors is of high importance since automatic test equipment (ATE) has limited compatibility with non-logic parameters, thus limiting the implementation of the proposed technique in production environments.

**Referència:** REN2003-09435. Ministeri de Ciència i Tecnologia.

**Modalitat:** Recursos naturals.

**Títol:** *Salidas de modelos de mesoscala a alta resolución: verificación y uso en cartografía climática.*

**Acrònim:** VERIMESO/CLI.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** CUXART RODAMILANS, Joan.

**Categoria:** INVESTIGADOR CONTRACTAT.

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Cuxart Rodamilans, Joan	Investigador	0.5
Alonso Oroza, Sergio	CU	0.5

#### Investigadors d'altres entitats

Guijarro Pastor, José Antonio	Institut Nacional de Meteorologia
Terradellas Jubanteny, Enric	Institut Nacional de Meteorologia

**EDP del grup investigador de l'entitat sol·licitant:** 3.

#### Summary

Meteorological case-studies through high-resolution mesoscale modeling is common today. Every simulation generates a large amount of numerical information, that is usually under-exploited, whereas the results are used in graphical mode and evaluated in a subjective manner.

However, to employ this quantitative information for other uses, it must be verified against observations. This is a difficult subject at high-resolution, since the model often has much larger resolution than the available observational net. The same problem is undertaken when dealing with two or more models that have to be intercompared. Each model should be verified individually and the comparison should be made through objective indexes. In this project, the outputs of two high-resolution non-hydrostatic mesoscale models (Meso-NH and MM5) will be used as test cases for several verification methods. The chosen cases will be for weak synoptic pressure gradients, when the parameterizations of turbulence and surface processes are extremely important. We will concentrate on the object-oriented verification methods through the use of the 2D wavelet transform to identify structures and estimate errors parameters depending on the scale. The verification will be made against instrumental observational data and also using high-resolution satellite information (starting from 1 km) for irradiance and derived fields.

On the other hand, the high-resolution numerical fields will be used as initial guesses in multiple regression models for the making of high-resolution regional climatic cartography, together with the standard low-resolution climatological information, in order to generate more detailed spatial information for a given climatological state. As better verified fields become available, new cartography will be generated.

**Referència:** TIC2003-01075. Ministeri de Ciència i Tecnologia.

**Modalitat:** Tecnologies de la informació i les comunicacions.

**Títol:** *Desarrollo de nuevas estrategias de test para circuitos integrados CMOS RF.*

**Acrònim:** DET-CIRF.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** GARCIA MORENO, Eugeni.

**Categoria:** CU (àrea de coneixement: Tecnologia Electrònica).

**Inici:** 2003.

**Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Garcia Moreno, Egueni	CU	1
Bota Ferragut, Sebastià A.	TU	0.5
Isern Riutort, Eugeni Miquel	TU	0.5
Rosselló Sanz, Josep Lluís	TEU int.	0.5
Font Rosselló, Joan	TEU	1
Calvo Ibáñez, Óscar Alberto	TEU int.	0.5
Picos Gayà, Rodrigo	P. Col.	1
Coll Mayor, M. Dèbora	P. Col.	1

#### Investigadors d'altres entitats

Sicard, Etienne	INSA Toulouse
Delmas-Bendhia, Sonia	INSA Toulouse
Sainz Gómez, José Antonio	Universitat del País Basc
Aguado Rodríguez, Luís Ángel	Universitat del País Basc
Gil-García Leiva, José Miguel	Universitat del País Basc
Oterino Echávarri, Fernando	Universitat del País Basc
Sánchez Etchegaray, Jesús M.	Universitat del País Basc

**EDP del grup investigador de l'entitat sol·licitant:** 6.

#### Summary

Wireless communications, either replacing wired solutions or creating new applications, have suffered a great expansion during last years. This development has been possible thanks to the digital signal processing advances allowed by the CMOS VLSI technology, though the RF stage of the today's transceivers uses other technologies (SiGe BICMOS, GaAs). Next transceivers generation devoted to low-performance and low cost applications, such as WLAN or Bluetooth, would be manufactured in CMOS. It means that RF building blocks like LNA, VCO, mixers, PLL, or power amplifiers will be designed in this technology. For these CMOS RF circuits it will be necessary to develop new test strategies.

Functional test of these circuits is expensive in terms of time and test equipment, so the main goal of our project is to explore the possibilities of adopting strategies for parametric and structural test based on monitoring the supply current. To achieve this aim we have to determine previously the correlation between electrical performances (functional test) and the test observable chosen, the supply current. Given the difficulties to characterize the electrical performances of these blocks by using off chip measurement techniques, a different approach based on including some monitor blocks inside the chip in order to simplify the task is proposed. Finally it will be necessary to implement current sensors with the appropriate sensitivity to not damper the fault coverage without impacting the performances of the circuit under test.

**Referència:** AYA2003-00123. Ministeri de Ciència i Tecnologia.

**Modalitat:** Astronomia i astrofísica.

**Títol:** *Oscilaciones en estructuras magnéticas de la corona solar.*

**Acrònim:** OSOCO.

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [BALLESTER MORTES, Josep Lluís](#).

**Categoria:** CU (àrea de coneixement: Astronomia i Astrofísica).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Ballester Mortes, Josep Lluís</a>	CU	1
<a href="#">Oliver Herrero, Ramon</a>	TU	1
<a href="#">Carbonell Huguet, Marc</a>	CEU	1
<a href="#">Arregui Uribe-Echevarría, Iñigo</a>	Aj. EU	1
<a href="#">Diaz Medina, Antonio Jesús</a>	B	1

#### **Investigadors d'altres entitats**

[Terradas Calafell, Jaume](#) [Catholic University of America](#)

**EDP del grup investigador de l'entitat sol·licitant:** 5.

#### **Summary**

The research Project we propose belongs to the research area known as Seismology of the Solar Corona. The main aim of coronal seismology is to use the oscillations detected in coronal structures as a tool to perform a diagnostic of the physical conditions of those structures and, in general, of the solar corona. Then, if we are able to obtain a deep knowledge about the oscillatory properties of accurate theoretical models of coronal structures, we can compare our predictions with observations, to establish a feed-back allowing to reach a perfect agreement between theory and observations. The main goal of the Project is to increase our knowledge about the oscillations of coronal magnetic structures, such as coronal loops, magnetic arcades and prominences, and its interpretation in terms of magnetohydrodynamic (MHD) waves. The Project is composed of a theoretical part, whose aim is to continue the study of the MHD modes of oscillations of coronal structure models, an observational part, whose aim is to obtain data about the oscillations of solar prominences using THEMIS, the third part deals with the analysis of observational data, coming from the data archives of SOHO and TRACE, with techniques implemented within our research group, and the last part is computational, with the aim of developing an already existing numerical code, in order to be used in more complex theoretical studies. The main objectives of the research Project are: (1) Theoretical study of the MHD modes of oscillation of sheared coronal magnetic arcades; (2) Theoretical study of the spatial and temporal damping of oscillations produced by non adiabatic MHD waves; (3) Theoretical study of the MHD modes of oscillation of multifibril prominences structures; (4) Data analysis of coronal loop oscillations by means of Empirical Mode Decomposition (EMD) and Complex Empirical Orthogonal Function (CEOF); (5) Analysis of observational data about prominence oscillations obtained with THEMIS telescope; (6) Development of an MHD numerical code suitable to study the MHD modes of oscillation of coronal magnetic structures.



**DEPARTAMENT D'INFERMERIA I FISIOTERÀPIA**





**Referència:** PI02-0925. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

**Títol:** *Cuidadores informales de salud del ámbito domiciliario: percepciones y estrategias de cuidado ligadas al género y a la generación.*

**Centre:** Departament d'Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [BOVER BOVER, Andreu](#).

**Categoria:** TEU (àrea de coneixement: Infermeria).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">Bover Bover, Andreu</a>	TEU
<a href="#">Gastaldo, Denise</a>	
<a href="#">Calvo Sastre, Ana M.</a>	TU

**Nombre total d'investigadors de la UIB:** 2.

### **Summary**

The informal care giving that takes place in homes is very relevant from a quantitative and qualitative perspective for the population health maintenance and protection. Current socio-demographic and health care changes have generated an increase in the number of dependent people who require home care and a diminished availability of informal care givers. In a short or medium term, this situation can lead into a care provision crisis which would collapse the current health care system model. The main factors influencing the role of informal caregivers are gender and generation. Hence, an in-depth exploration about how these variables impact on informal care giving is needed to plan healthy public policies. These policies should establish a material and human resource network necessary to keep informal care giving as a source of health for our population. The objective of this study is to understand how informal care givers' gender and generation affect specific care strategies and the perceptions of the impact that such activity has over their personal and family well-being. The research design is qualitative. The participants are women and men who are family care givers in Mallorca island (n=66). The data collection will be done through individual interviews and focus groups, which will vary according to participants' gender and generation. The content of the interviews and focus groups will be transcribed and analysed with the software NUD.IST. The analysis rigour will be assured by triangulation of sources and methods.



**DEPARTAMENT DE PSICOLOGIA**

**Referència:** BSO2002-03807. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *El tratamiento del miedo a volar y la teoría de los sistemas dinámicos: hacia una mejor comprensión del cambio terapéutico.*

**Acrònim:** CAFFT3.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** BORNAS AGUSTÍ, F. Xavier.

**Categoria:** TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Bornas Agustí, F. Xavier	TU	1
Tortella Feliu, Miquel Rafael	CEU	0.5
Llabrés Bordoy, Jordi	Aj. U	1

#### Investigadors d'altres entitats

Noguera Batlle, Miquel	Universitat Politècnica de Catalunya
Fullana Rivas, Miquel Àngel	Universitat Autònoma de Barcelona
López Jiménez, Ana	Universitat de Sevilla

**EDP del grup investigador de l'entitat sol·licitant:** 2.5.

#### Summary

We continue with this project the research line on fear of flying that we started six years ago and whose most important result is the computer-assisted exposure treatment, CAFFT –Computer Assisted Fear of Flying Treatment. The main novelty is that we incorporate some concepts and methods from the Dynamical Systems Theory, with the aim of improving our knowledge on three essential aspects related to fear of flying which still remain obscure: a) the dynamic characteristics of brain activity and heart rate of patients with fear of flying, b) the evolution of the system/patient along the treatment, that is, the process of therapeutic change, and c) the prediction of treatment outcome, starting from the knowledge of the system dynamics and, more specifically from his degree of chaoticity/flexibility. To achieve these goals we would perform a series of experimental studies with phobic patients. It is to note that, besides traditional analysis, the obtained data will be analysed through non-linear techniques, which are specially addressed to better understand dynamic systems. This knowledge could redound to an improved efficacy and usefulness of the CAFFT program and other treatments for this problem.

**Referència:** BSO2000-1116-C04-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Estudio interdisciplinar de rasgos funcionales del grado humano. Estudio experimental de los correlatos cerebrales de los rasgos funcionales de conducta moral, capacidad estética y lenguaje metafórico.*

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigadora responsable:** MARTY BROQUET, Gisèle.

**Categoria:** CU (àrea de coneixement: Psicologia Bàsica).

**Inici:** 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Marty Broquet, Gisèle	CU	Única
Roca Bennàsar, Miquel A.	TU	Compartida
Escudero López, Juan Tomás	Aj. EU	Única
Munar Roca, Enric	TEU	Única
Rosselló Mir, Jaume	TEU	Única
Espino Ibáñez, Ana María	As.	Compartida

**Nombre total d'investigadors de la UIB:** 6.

### Summary

The study of evolution in terms of grades has been proposed as an alternative to cladistics limits existing to interpret ancestor-descendant relationships. However, "grades" are widely grounded on functional assumption, thus being difficult to quantify. The current project tries: Firstly, to stablish an interdisciplinary evolutive scenario of the main functional traits of Homo sapiens (such as, language, aesthetics, and morals. Secondly, to perform experimental studies to obtain stimuli capable of activating brain areas of processing of these tasks. Thirdly, to localize brain areas functionally active during the mentioned tasks, to check the hypothesis of a prefrontal localization of moral judgement, aesthetic appreciation and metaphorical using of language -the development of which would have been responsible for the late hominization period. Fourthly, to built computer simulated models of the evolution of the capacity af analyzing and cultullay transmitting evaluations. Fifthly, to analyse some turning point on the cultural evolution. Finally, to set up a model on the phylogeny of the already mentioned functional traits. How to identify grades and clades in the fossil record was mentioned in the Colloquium "Taxonomy and Systematics of the Human Clade" (Palma, February, 2000) as an area of particular interest of research in face of the V Congress of the IAHP (Barcelona 2003). The participants agreed in organising an International Group of research in human systematics to promote that kind of studies. To reach a tipification of the human grade is important in the systematics and paleontology fields, as well as in psychology, psychiatry, neurology, ethics, ethology, anthropology, biodiversity, and environmental studies.

**Referència:** BSO2000-1200. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Estudio de la prevalencia de la hiperactividad en edad escolar.*

**Acrònim:** EPHEE.

**Classificació UNESCO:** 320105.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [SERVERA BARCELÓ, Mateu](#).

**Categoria:** TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Servera Barceló, Mateu</a>	TU	Única
<a href="#">Cardo Jalón, Esther</a>		Única
<a href="#">Llobera Cànaves, Joan</a>		Compartida

**Nombre total d'investigadors de la UIB:** 1.

**Total EJC/setmana:** 0,8.

*Keywords:* prevalence, hyperactivity.

### **Summary**

Attention Deficit Hyperactivity Disorder (ADHD) is a common dysfunction in childhood, with a genetic basis and neuroanatomic and psicologic factors that produce attention deficit, impulsiveness and motor hyperactivity in children. In anglosajons countries the prevalence is of 5%, but they exist few study in our country. Our objective is to obtain the prevalence of the different subtypes of the ADHD in the school population between 6 and 10 years of the Island of Mallorca. We will use a neuropsychologic protocol of evaluation that includes questionnaires for parents and teachers, evaluation of the cognitive profile, evaluation of attention and impulsiveness through computers program (own versions) and full neurological evaluation of "soft neurological signs". The analysis of data will allow, to establish the prevalence, but also to compare the different evaluation methods used and to detect good screening tools for early detection.

**Referència:** BSO2000-0956. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Factores cognitivos y aptitudinales con el consumo de alimentos en la población infantil de 10 a 14 años.*

**Classificació UNESCO:** 610201.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [PICH SOLÉ, Jordi](#).

**Categoria:** TU (àrea de coneixement: Psicologia Bàsica).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Pich Solé, Jordi</a>	TU	Única
<a href="#">Domingo Palomares, Herminio</a>	CEU	Única
<a href="#">Canals Casas, Ramon</a>	Emèrit (UdG)	Única

**Nombre total d'investigadors de la UIB:** 2.

*Keywords:* food behavior, food preferences, implicit theories.

### **Summary**

Leaving of the supposition that the feeding is not only a nutritional act but a behavior psychological as well as culturally determined, we intend the elaboration of a questionnaire and its application to a population of 400 subjects of 10 to 14 years of age dedicated to investigate the main factors implied in the appreciation or the infantile rejection of a list of basic foods in our culinary tradition. Later on another questionnaire dedicated to the parents will explore their implicit theories about the infantile feeding including its dietary beliefs, its valuation of the alimentary behavior of their children as well as the strategies before problematic alimentary behavior.

In the methodological order, the infantile subjects will value by means of scales from 1 of 5 for each food diverse parameters: consumption frequency, longing degree or aversion, healthfulness, consumption observed in parents and friends and existence of publicity. A global analysis of these answers will establish the influence of the growth and the sex of the children on the consumption of the diverse foods. Subsequently a multiple lineal regression will allow us to determine to what extent the consumption frequency can be dear starting from the qualities that the child attributes to the food (pleasantness and healthfulness) as well as of the models and social values (observation of the consumption on the part of his parents and friends and impact of the alimentary publicity).

Finally, the crossing between the questionnaires of the parents and their children will try to determine if the theories and more correct paternal alimentary attitudes belong together with the most varied and healthy diets on the part of the children.

**Projecte:** BSO2001-0369. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Redes neuronales artificiales aplicadas al análisis transversal y longitudinal en el campo de las conductas adictivas.*

**Acrònim:** RNA-CA.

**Classificació UNESCO:** 006106.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** PALMER POL, Alfons Lluís.

**Categoria:** TU (àrea de coneixement: Metodologia de les Ciències del Comportament).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Palmer Pol, Alfons Lluís	TU	1
Cajal Blasco, Berta	TU	0.5
Sesé Abad, Albert	TEU int.	0.5
Montaño Moreno, Juan José	Aj. U	1
Sospedra Baeza, M. José	Aj. EU	1
Jiménez López, Rafael	Aj. EU	1

#### **Investigadors d'altres entitats**

Calafat Far, Amador	IREFREA España
Juan Jerez, Montserrat	IREFREA España

**EDP del grup investigador de l'entitat sol·licitant:** 5.

#### **Summary**

The aim of this research is to apply Artificial Neural Networks (ANN) in the field of the addictive behaviors. Two different approaches will be applied: traverse and longitudinal. ANN is an information processing system based on biological neural networks. Parallel, distributed and adaptative systems characterize ANN. Traverse approach tries to identify bio-psycho-social risk factors associated with european young people drug use. Longitudinal approach tries to indentify bio-psycho-social risk factors associated whit drug addict relapse under treatment.



**Referència:** BSO2001-0693. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Evaluación psicofisiológica de la sensibilización central en el dolor crónico y su influencia sobre el procesamiento emocional y cognitivo.*

**Acrònim:** DOLOBRAIN.

**Classificació UNESCO:** 610601.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [MONTROYA JIMÉNEZ, Pedro](#).

**Categoria:** TU (àrea de coneixement: Psicobiologia).

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Montoya Jiménez, Pedro</a>	TU	1
<a href="#">Barceló Galindo, Francesc</a>	TU int.	0.5
<a href="#">Escudero López, Juan Tomás</a>	Aj. EU	0.5
<a href="#">Revert Vidal, Xavier</a>	B	1

#### **Investigadors d'altres entitats**

<a href="#">García Herrera, Manuel</a>	<a href="#">Institut Nacional de la Seguretat Social</a>
<a href="#">Izquierdo Rodríguez, Raúl</a>	<a href="#">Institut Nacional de la Seguretat Social</a>

**EDP del grup investigador de l'entitat sol·licitant:** 3.

*Keywords:* somatosensory and visual evoked-potentials, hyperalgesia, stress, Wisconsin sorting card test, pain memory, emotions.

#### **Summary**

The research project aims to examine how can affect the central sensitization, characteristic of chronic pain states, on the cognitive processing and its cerebral correlates. Basically, it will analyze the brain electrical activity in patients with fibromyalgia, rheumatoid arthritis and healthy volunteers during three experimental tasks: non nociceptive somatosensory information processing, Wisconsin sorting card test, and encoding/retrieval of pain-related information. Standardized protocols will be used for psychophysiological evaluation of somatosensory perception, voluntary attention, and pain memory, based on parameters of brain electric activity (evoked potentials and localization of brain electric source generators). In addition of establishing differences between chronic pain patients and healthy subjects on cognitive performance and brain functioning, the modulating role of continuous non-nociceptive somatosensory stimulation and stress on cognitive functioning of chronic pain patients will be also assessed.

**Referència:** BSO2002-04483-C03-03. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Influencia del trabajo emocional en la satisfacción de los clientes y en el desempeño de los empleados: un estudio experimental y longitudinal.*

**Acrònim:** ITESCDE.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigadora responsable:** [MANASSERO MAS, M. Antònia](#).

**Categoria:** CU (àrea de coneixement: Psicologia Social).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Manassero Mas, M. Antònia</a>	CU	1
<a href="#">Gili Planas, Margalida</a>	TEU	0.5
<a href="#">Ramis Palmer, M. Carme</a>	As.	0.5
<a href="#">Garcia Buades, M. Esther</a>	TEU int.	0.5

#### **Investigadors d'altres entitats**

<a href="#">Roca Moll, Joan</a>	<a href="#">Escola d'Hoteleria</a>
<a href="#">Ferré Roig, Maria del Mar</a>	<a href="#">Escola d'Hoteleria</a>

**EDP del grup investigador de l'entitat sol·licitant:** 2.5.

#### **Summary**

Jobs with elevated demands of personal interaction in dealing with clients require emotional work from employees. Emotional work affects employees as well as clients satisfaction. This subproject will specifically analyse the influence of emotional work in the performance of employees and the quality of service perceived by clients. The effects of "survey feedback" on emotional work and its relationships with other variables (employee performance and burnout, perceived service quality) will also be explored.

In order to achieve this, an experimental and longitudinal field study has been designed in which supervisors, contact employees and clients of these establishments will participate. The sample consists of 120 tourist establishments (60 hotels and 60 restaurants) of the Valencian Community and the Balearic Islands. The information will be collected at two different moments in time.

At Time of measurement 1 (T1) emotional work and its relationship with burnout and employee performance, as well as with perceived service quality and clients satisfaction will be evaluated in this subproject. Following this measurement, companies will be divided randomly in three groups: in the first group companies will not receive any type of information (group control), in the second group supervisors will receive a report with the quality evaluations made by clients, in the third group, supervisors and employees receive the report with the quality evaluations made by clients and, additionally, training on how to use this information to help improve the quality perceived by clients (survey feedback technique). Four months later, at Time of measurement 2 (T2), emotional work, employee performance and burnout as well as perceived quality by clients will be re-evaluated.

**Referència:** BFF2003-00129. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Cognición y representación en los enfoques alternativos al simbólico en ciencias cognitivas.*

**Acrònim:** CREASEC.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** GOMILA BENEJAM, Antoni.

**Categoria:** TU (àrea de coneixement: Psicologia Bàsica).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Gomila Benejam, Antoni	TU	0.5

#### **Investigadors d'altres entitats**

Calvo Garzón, Francisco	Universitat de Múrcia
Blanco Trejo, Florentino	Universitat Autònoma de Madrid
Travieso García, David	Universitat Autònoma de Madrid
Villarroya Oliver, Òscar	Universitat Autònoma de Barcelona

**EDP del grup investigador de l'entitat sol·licitant:** 0.5.

#### **Summary**

In opposition to the classical approach in Cognitive Science, the computational-symbolic one, several alternative programmes- ecological realism, situated cognition, artificial life, connectionism- are converging in the so-called dynamical hypothesis, whose central idea is that cognition is to be understood as the outcome of a complex interaction among brain, body and environment ("embedded, embodied cognition"). According to this approach, the mind is a dynamical system, amenable to modelization by means of the formal theory of dynamic systems (non-linear differential equations, theory of chaos). The goal of this project is to assess this line in Cognitive Science as regards a) whether or not it is committed to a representational view of mind, and in what sense of "representation"; b) whether it opens fruitful explanatory avenues to address traditional problems about the mind, and new psychological phenomena recently uncovered; c) a general evaluatory framework, independent of any particular approach, useful in comparing and preferring different explanatory proposals, and to set their range and limits; and d) whether or not it makes sense, and how, to integrate some of these approaches in hybrid models.

**Referència:** BSO2003-06904-C03-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Identificación por MEG de patrones espaciales y temporales de activación de áreas cerebrales en la percepción visual compleja: hacia un modelo de la percepción estética. Aspectos cognitivos.*

**Acrònim:** IMPACT.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigadora responsable:** MARTY BROQUET, Gisèle.

**Categoria:** CU (àrea de coneixement: Psicologia Bàsica).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Marty Broquet, Gisèle	CU	0.5
Rosselló Mir, Jaume	TEU	0.5
Munar Roca, Enric	TU	0.5
Gomila Benejam, Antoni	TU	0.5
Escudero López, Juan Tomás	TEU	0.5
Burges Cruz, Lucrecia	Aj. EU	0.5
Nadal Roberts, Marcos	B	0.5

#### **Investigadors d'altres entitats**

Amo Usanos, Carlos	Universitat Complutense de Madrid
Sotillo Méndez, María	Universitat Autònoma de Madrid
Revert Vidal, Xavier	Govern Balear

**EDP del grup investigador de l'entitat sol·licitant:** 3.5.

**Referència:** BSO2003-06904-C03-03. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Identificación por MEG de patrones espaciales y temporales de activación de áreas cerebrales en la percepción visual compleja: hacia un modelo de la percepción estética. Aspectos clínicos.*

**Acrònim:** IMPACT.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [ROCA BENNÀSAR, Miquel A.](#)

**Categoria:** TU (àrea de coneixement: Psiquiatria).

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Roca Bennàsar, Miquel A.</a>	TU	0.5
<a href="#">Gili Planas, Margalida</a>	TU	0.5

**Investigadors d'altres entitats**

<a href="#">Bernardo Arroyo, Miquel</a>	<a href="#">Universitat de Barcelona</a>
<a href="#">López-Ibor Alcocer, María I.</a>	<a href="#">Universitat Complutense de Madrid</a>

**EDP del grup investigador de l'entitat sol·licitant:** 1.

**Referència:** BSO2003-3885. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Madurez y envejecimiento en la flexibilidad cognitiva: parámetros electrofisiológicos y neuropsicológicos en la población normal.*

**Acrònim:** MENTFLEX.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [BARCELÓ GALINDO, Francesc](#).

**Categoria:** TU (àrea de coneixement: Psicobiologia).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Barceló Galindo, Francesc</a>	TU	0.5
<a href="#">Periañez Morales, José Antonio</a>	Aj. EU	1

#### Investigadors d'altres entitats

[Yaguez Hervás, Lidia](#) [University of London](#)

**EDP del grup investigador de l'entitat sol·licitant:** 1.5.

#### Summary

Human ability for responding to a changing environment requires a mechanism of executive control capable of distributing cognitive resources flexibly as behaviourally relevant circumstances vary constantly in time. This control mechanism is very fragile and becomes altered even after minor brain injury, as well as in various mental disorders. Currently, there is a substantial interest in the brain mechanisms responsible for the executive control of attention and, in particular, for a key process called 'attentional set shifting'. Our research team has pioneered the study of attention set shifting using event-related potentials (ERP) by means of a novel task protocol, the Madrid Card Sorting Task (MCST), that allows us to examine the interaction between bottom-up and top-down processes in the executive control of attention (NeuroReport, 2002, 15: 1887-1892). With a mid-term aim of applying the MCST protocol to neuropsychological assessment, first it is necessary to standardise it by exploring the variability of its electrophysiological (latency, amplitude and topography of event-related potentials), and neuropsychological indexes (reaction times and errors) in the normal population.

Hence, the main objective of this research proposal is to standardise the electrophysiological and neuropsychological measures derived from the MCST protocol for its future use in the assessment of attentional deficits. This general objective can be broken down into four sub-objectives: (1) to carry out a detailed analysis of the neurocognitive operations involved in MCST performance by comparing it with another three control tasks; (2) to compare the MCST with other neuropsychological tests of 'executive function' in order to isolate their cognitive structure using a multivariate statistical approach; (3) to explore age-related changes in the efficiency of attentional set shifting and other executive functions; (4) to pinpoint electrophysiological markers of age-related changes in set shifting ability in normal subjects as a first step towards the future use of the MCST protocol with clinical purposes.

**Projecte:** 83/00.

**Modalitat:** Acció estratègica per al foment de la igualtat d'oportunitats entre dones i homes. Ministeri de Treball i Assumptes Socials.

**Títol:** *Evaluación de los factores psicosociales y su influencia sobre las mujeres sometidas a tratamientos de infertilidad. Construcción y validación de programas de intervención para la reducción de su impacto en dichas mujeres y en sus parejas.*

**Classificació UNESCO:** 610501.

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [PÉREZ PAREJA, F. Javier](#).

**Categoria:** TU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (h/setm.)</b>
<a href="#">Pérez Pareja, F. Javier</a>	TU	32
<a href="#">Borràs Sansaloni, Carme</a>	As.	32
<a href="#">Palmer Pol, Alfons Lluís</a>	TU	16
<a href="#">Cajal Blasco, Berta</a>	TU	16
<a href="#">Sesé Abad, Albert</a>	TEU int.	32
<a href="#">Castro Iglesias, M. del Carmen</a>	As.	32
<a href="#">Roses, A.</a>		32
<a href="#">Marqueta Sobrino, L. N.</a>		32

**Nombre total d'investigadors de la UIB:** 6.

**Total EJC/setmana:** 4.

**Referència:** Ministeri de l'Interior.

**Modalitat:** Ajudes econòmiques per el desenvolupament de projectes d'investigació sobre drogodependències per a entitats públiques o privades sense fins de lucre.

**Títol:** *Identificación de factores de riesgo asociados al consumo de alcohol y sustancias psicoestimulantes en adolescentes mediante redes neuronales artificiales.*

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** PALMER POL, Alfons Lluís.

**Categoria:** TU (àrea de coneixement: Metodologia de les Ciències del Comportament).

**Inici:** 2002. **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>
Palmer Pol, Alfons Lluís	TU
Cajal Blasco, Berta	TU
Sesé Abad, Albert	TEU int.
Montaño Moreno, Juan José	Aj. U
Jiménez López, Rafael	Aj. EU
Llorens Aleixandre, Noèlia	Aj. EU
Calafat Far, Amador	
Juan Jerez, Montserrat	

**Nombre total d'investigadors de la UIB:** 6.

### **Summary**

It is to discover, being based on the explanatory theories on the consumption of drugs, what factors of risk they act on the consumption, as well as those that influence in the maintenance of the adiction and in their abandonment. With this objective we proceeded to the creation of a measure instrument that, under a focus cognitivo-conductual, integrate the preventive, clinical and therapeutic focuses. The analysis of the data obtained by means of the created questionnaire will be carried out by means of models of artificial neural networks due to its potentiality in the handling of relationships not lineal complex, in a scenario of multiplicity of variables potentially explanatory.



**Referència:** G03/184. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

**Modalitat:** Xarxes Temàtiques d'Investigació Cooperativa.

**Títol:** *Criterios para la clasificación de los trastornos psicóticos y de la personalidad.*

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [ROCA BENNÀSAR, Miquel A.](#)

**Categoria:** TU (àrea de coneixement: Psiquiatria).

**Inici:** 2002.                      **Fi:** 2005.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">Roca Bennàsar, Miquel A.</a>	TU
<a href="#">Cañellas Dols, Francesca</a>	As
<a href="#">Gili Planas, Margalida</a>	TEU
<a href="#">Ramon Juanpere, Misericòrdia</a>	TU
<a href="#">Castro Ocón, José Aurelio</a>	TU
<a href="#">Picornell Rigo, Antònia</a>	TEU
<a href="#">Serrano Ripoll, M. Jesús</a>	B



**DEPARTAMENT DE QUÍMICA**

**Referència:** REN2000-0336-P4-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de recursos naturals.

**Títol:** *Regeneración de aguas grises para su reutilización no potable para la descarga de inodoros.*

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [MARCH ISERN, Joan Gabriel](#).

**Categoria:** TU (àrea de coneixement: Química Analítica).

**Inici:** 2001. **Fi:** 2003.

#### **Membres de l'equip**

#### **Categoria**

[March Isern, Joan Gabriel](#)

TU

[Grases Freixedas, Felicià](#)

CU

[Forteza Coll, Rafael A.](#)

TU

[Stela Fiol, Joan](#)

TU

#### **Investigadors d'altres entitats**

[Bibiloni Martí, Francesca](#)

[Conselleria d'Educació i Cultura](#)

#### **Summary**

The actual lack of water resources in most of Spain is a pressing problem that need urgent solution. This situation require a better management of the already available resources. The free of risk (on health and on environment) reuse of water is a promising strategy that can contrubute to mitigate, partially, this problem.

The aim of this project is the development of a plant for treatment of water coming from shower bath (and other similar uses) in order to reuse it for recharge of toilets. The project also include a control of chemical and biological parameters in order to collect data of sanitary interest to conclude on the safety of the treatment. A conclusion on the economical viability is also a goal of the project. The treatment plan include two sedimentation steps, a filtration and a cloration. Other treatments focused to solve other problems as non satisfactory smell and foam formation, could be added if necessary. The addition of coloured compounds will be also considered. The plant will be located at a hotel of the Mallorca Island Coast. Due to the interest on the project, the hotel company will collaborate with the research team, supplying necessary data for economical evaluation, and with the disposal of infrastructures.

**Referència:** BQU2002-02546. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Síntesis y caracterización de ligandos derivados de bases púricas, pirimidínicas y compuestos con propiedades farmacológicas. Estudio de su química de coordinación con cationes metálicos.*

**Acrònim:** SCLDBPPCPF.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** TERRON HOMAR, Àngel.

**Categoria:** TU (àrea de coneixement: Química Inorgànica).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Terrón Homar, Àngel	TU	1
Fiol Arbós, Joan Jesús	TU	1
Herrero Aisa, Luis Ángel	As.	0.5
Adrover Fiol, Bartomeu	As.	0.33
García Raso, Àngel	TU	1

**EDP del grup investigador de l'entitat sol·licitant:** 3.83.

### Summary

The presence of purine and pyrimidine rings into chemical compounds is very interesting due to the possible interactions between themselves and the nitrogenated bases present in nucleic acids. Thus, many antiviral and antitumour agents show this type of heterocycles in their structure. On the other hand, the activity of a particular drug can be modulated by means of the presence of metal ions. These complexes could modify its pharmacokinetic properties, mechanism of action, selectivity or toxicity. In this context, our main purpose is the synthesis and structural characterisation of bispurines, bispyrimidines, modified antiviral molecules, lateral chain modified amino acids and the study of their coordination complexes with transition metal ions. In addition, the formation of metal complexes of related modified ligands with pharmacological properties will be studied.

**Referència:** BQU2000-0242. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Estudio químico-físico de la inactivación de serin-enzimas por antibióticos beta-lactámicos.*

**Classificació UNESCO:** 2307.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** MUÑOZ IZQUIERDO, Francisco.

**Categoria:** CU (àrea de coneixement: Química Física).

**Inici:** 2000. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Muñoz Izquierdo, Francisco	CU	Compartida
Donoso Pardo, Josefa	TU	Compartida
Frau Munar, Joan	TU	Compartida
Vilanova Canet, Bartomeu	TU int.	Compartida
Llinàs Martí, Antoni	Aj. U.	Compartida
Coll Parets, Miquel	As.	Única

**Nombre total d'investigadors de la UIB:** 6.

*Keywords:* beta-lactam antibiotics, beta-lactamases, elastases, HCMV proteases, serine enzymes, chemical kinetic, computational chemistry.

### Summary

In the present investigation Project we wish to determine the inactivation mechanism of three different serine enzymes (beta-lactamases, elastases and HCMV proteases) by beta-lactam antibiotics, classic monobactams and the new bridged monobactams which recently have been proposed as strong beta-lactamase inhibitors.

The choice of these three enzymes is due to their therapeutic relevance. Beta-lactamases are the main cause of diseases such as emphysema, arteriosclerosis and rheumatoid arthritis. HCMV proteases is essential for mature of patients and organ transplant recipients.

By Stopped Flow, FTIR, HPLC, RMN and UV measurements we will study the enzymatic. Theoretical calculation will be done for the modeling of the active site. Later we will propose the inhibition mechanisms. These mechanisms must perfectly explain the experimental results.

Once established the mechanism we will be able to postulate new inhibition structures.

**Referència:** BQU2000-0214. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Estudio químico-físico de las reacciones de condensación de piridoxamina (piridorina) con cetoácidos y azúcares, su aplicación al estudio de enzimas PMP-dependientes y a la inhibición de la glicación no enzimática de proteínas.*

**Classificació UNESCO:** 2307.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigadora responsable:** DONOSO PARDO, Josefa.

**Categoria:** TU (àrea de coneixement: Química Física).

**Inici:** 2000.

**Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Donoso Pardo, Josefa	TU	Compartida
Muñoz Izquierdo, Francisco	CU	Compartida
Frau Munar, Joan	TU	Compartida
Vilanova Canet, Bartomeu	TU int.	Compartida
Llinàs Martí, Antoni	Aj. U.	Compartida
Salvà Salvà, Antoni	As.	Única

**Nombre total d'investigadors de la UIB:** 6.

**Keywords:** pyridoxamine, pyridorine, vitamin B6, schiff bases, carbohydrates, PMP-dependent enzymes, advanced glycation process, amadorins.

### Summary

Pyridoxamine and Pyridoxamine 5' phosphate are two forms of the Vitamin B6. Its function as coenzyme in Vitamin B6 dependent enzymes involves the formation of a Schiff base between its amino group and a carbonyl group and a carbonyl group of an alfa-ketoacid in the transamination processes and the formation of the Schiff base with the 4-keto group of a cyclic hexose in the catalytic process of formation of 3, 6-dideoxysugars. Pyridoxamine has been recently proposed as an inhibitor of the advanced glycation process of proteins due to its capability of formation of a Schiff base with the carbonyl group of glucose.

In this work we will study from a kinetic point of view the formation and later evolution of the Schiff bases between PMP and alfa-ketoacids, as well as with sugars (aldoses and other cyclic sugars). We will pay special attention to the reactions with aldoses and we will investigate the role of pyridoxamine as reactive of the post-Amadori products generated in the glycation of amino acids. We will study the influence of the medium, the reactive ionization state and the reactive nature in general on these reactions.

**Referència:** PPQ2001-0474. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de processos i productes químics.

**Títol:** *Desarrollo del análisis por inyección en flujo multijeringa. Aplicación a la determinación de parámetros ambientales.*

**Acrònim:** MSFIA.

**Classificació UNESCO:** 230199.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** CERDÀ MARTÍN, Víctor.

**Categoria:** CU (àrea de coneixement: Química Analítica).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Cerdà Martín, Víctor	CU	0.5
Gómez Benito de Valle, Enrique	As.	0.5
Estela Ripoll, Josep Manuel	TU	0.5
Rumori, Paolo	B	1
Leal Quezada, Luz Olivia	B	1
Becerra Hernández, Eduardo	B	1
Miró Lladó, Manuel	B	1

#### Investigadors d'altres entitats

Elsholz, Olaf	Fachhochschule Hamburg
Lima, José Luis	Universidade do Porto
Lapa, Rui	Universidade do Porto
Lario García, Javier	Crison Instruments, SA
Sitjà Rius, Pere	Crison Instruments, SA

**EDP del grup investigador de l'entitat sol·licitant:** 5.5.

#### Summary

In a former project AMB97-0537 we proposed a new analytical technique which we entitled **MultiSyringe Flow Injection Analysis (MSFIA)**, having the advantages of other already existing flow techniques, like the high sample throughput of FIA, robustness and versatility of SIA, simplicity of MCFA, etc. The construction of the first prototype and its application to the development of analytical methods to the determination different environmental parameters allowed us to see some clear advantages of this new analytical technique. The aim of this project is to develop this methodology with the firm CRISON INSTRUMENTS, SA, which has already participated with us in former funded projects. In this way, the firm could take advantage of the project, both in the sense to increase the commercial interest of their product by widening their application fields, as well as introducing new analytical instrumentation with MSFIA methodology of interest to their customers.

Our purpose in this new project is to continue in the development of MSFIA, specially considering the following milestones: Development of a new prototype with better performances and which could be commercialized. To develop new kind of excitation sources and development of new analytical procedures, mainly for the determination of environmental parameters and specially for water quality control and monitoring.



**Referència:** PPQ2001-0347. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de processos i productes químics.

**Títol:** *Contribución a la valorización de productos resultantes de la incineración de residuos sólidos urbanos.*

**Acrònim:** VALRSU.

**Classificació UNESCO:** 230199.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** FORTEZA COLL, Rafael A.

**Categoria:** TU (àrea de coneixement: Química Analítica).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Forteza Coll, Rafael A.	TU	0.5
Cerdà Martín, Víctor	CU	0.5
Mas Torres, Francesca	Aj. U	0.5
Gómez Benito de Valle, Enrique	As.	0.5
Far Sánchez, María Micaela	B	1

#### Investigadors d'altres entitats

Theraulaz, Frederic	University of Provence
Coulomb, Bruno	University of Provence
Oms Mollà, Maria Teresa	Incineradora RSU Son Reus
Cerdà Lacaci, Amàlia	TIRME
Bauzà de Mirabó Darder, Francesca	Conselleria de Medi Ambient

**EDP del grup investigador de l'entitat sol·licitant:** 3.

*Keywords:* incineration, municipal solid waste, ash, bottom ash, valorisation, leaching.

#### Summary

The aim of the project is to study several problems related with the activity of municipal solid waste incinerator (MSWI) plants with energy production. At first, and as continuation of previous studies, we want to evaluate physical, chemical and geotechnical characteristics of MSWI bottom ash for use in highway applications. One important point of view must be the environmental impact: for this reason we would study the leaching of trace inorganic elements and organic contaminants including polychlorinated dibenzo-p-dioxines (PCDDs), polychlorinated dibenzo-p-furans (PCDFs), as well as potential precursors for these compounds under certain reaction conditions. The potential precursor are chlorinated benzenes (CBs), chlorinated phenols (CPs) and polychlorinated biphenyls (PCBs). Also we would evaluate the efficiency of a stabilisation/solidification process of incinerator ashes with cement based on leaching results, using several leaching tests and as function of the proportion ash/cement/water. At last we would construct a quality monitor for water used in the plant of energy production (TIRME, Palma, Spain) to determine harmful specimen: pH, conductivity, acid conductivity, ammonium, hydrazine, heavy metals...).

**Referència:** BQU2001-0724-C02-02. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de processos i productes químics.

**Títol:** *Catalizadores enantioselectivos de base lantanida para síntesis orgánica.*

**Acrònim:** CASIOR.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** SAÁ RODRÍGUEZ, José Manuel.

**Categoria:** CU (àrea de coneixement: Química Orgànica).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Saá Rodríguez, José Manuel	CU	1
Vega Reynés, Manuel	B	1

**EDP del grup investigador de l'entitat sol·licitant: 2.**

### Summary

The CLAN ROMA Project (enantioselective, lanthanide-based catalysts for organic reactions in aqueous medium) aims at obtaining chiral catalysts capable of promoting enantioselective synthesis in aqueous media. The point of departure to this objective is the use of lanthanide triflates as the core of the catalyst, around which we plan to build appropriately designed chiral units. Lanthanide triflates are known to catalyze achiral organic reactions in aqueous media. The following stages have been planned accordingly: 1a) designing and synthesis of chiral, robust complexes having the somewhat schizophrenic ability of being stable to water and, at the same time, capable of promoting enantioselective organic reactions; To this end a number of variables will be modified in order to achieve the best material: metal and its counterion, the ligand and its denticity, the stoichiometry and the ionic or nonionic nature of the complexes; 1b) the analysis of reactivity and enantioselectivity will be examined upon a well-known Henry reaction (the condensation of a nitroalkane with an aldehyde). Iteration of stages 1a and 1b are expected to drive us to the best lead; 2) next stage will be the application to a number of common organic reactions known to be catalyzed by acids, in search for enantioselective catalysis in aqueous media.

**Referència:** BQU2002-04651. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Estudios relativos a especies supramoleculares de interés como materiales nanoestructurados y quimiosensores.*

**Acrònim:** SUPRAMOL2002.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** COSTA TORRES, Antoni.

**Categoria:** CU (àrea de coneixement: Química Orgànica).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Costa Torres, Antoni	CU	1
Frontera Beccaria, Antonio	As.	1
Deyà Serra, Pere M.	CU	1
Morey Salvà, Jeroni	TU	1
Martorell Crespí, Gabriel	As.	1
Ballester Balaguer, Pau	TU	1
Garau Rosselló, Carolina	B	1
Piña Capó, Maria Neus	B	1

#### Investigadors d'altres entitats

Suñer Sabater, Guillem

Direcció General d'Administració Educativa

**EDP del grup investigador de l'entitat sol·licitant:** 8.

#### Summary

Supramolecular chemistry has evolved from pure host-guest recognition to materials with functional properties. This research proposal is focused on three main topics that represent our own evolution from molecules to functional systems through a multidisciplinary approach. The first objective is focused on chemosensing in aqueous media using squaramide-based molecular receptors. Selectivity, solubility and signal amplification are practical problems that will be addressed. In this proposal we take advantage of a known entropy effect to develop a new line of modular self-assembled chemosensors for a variety of anions, incorporating fluorescence self-quenching squaramide units. The synthesis and characterization of nanosized supramolecular structures is a second objective. Among the different options, we selected metal-porphyrins combined with organic bases to self-assemble a variety of supramolecules with interesting properties as materials capable of electronic transfer. Self-assembly, will be characterized by a variety of spectrophotometric and calorimetric techniques. The comparison of experimental and theoretically calculated proton chemical shifts of free and complexed bases will be used to assess the stoichiometry of the complexes. High-level theoretical calculations are important tools when used at a predictive level. In a third objective we use "ab-initio" methods to characterize anion-( interactions arising from perfluoroaromatics and anions. The resulting host-guest binding force will be applied to the design of a new generation of artificial receptors based on perfluoroaromatic compounds.

**Referència:** MAT2002-03603. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Nanoestructuras en sòlidos porosos periódicos.*

**Acrònim:** NANOPER.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [OTERO AREÁN, Carlos.](#)

**Categoria:** CU (àrea de coneixement: Química Inorgànica).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Otero Areán, Carlos	CU	1
Turnes Palomino, Gemma I.	TU	1
Santos Peña, Jesús	Aj. EU	1
Rodríguez Delgado, Montserrat	B	1
Cuart Pascual, Juan José	B	1

**EDP del grup investigador de l'entitat sol·licitant:** 5.

### Summary

Periodic porous solids, such as zeolites, MCM-type mesoporous silica and other zeotypes, possess a system of internal channels and cavities which are periodically arranged in the nanometer scale and which can be used as a host to synthesize periodic nanostructures. Quantum confinement of charge carriers and regular layout confers to the superstructures thus formed potential application in optical and electronic devices, as well as in chemical sensors. The first objective of this project is the preparation of nanostructures formed by conducting polymers, semiconductors and luminescent materials hosted inside the periodic porous system of several solids; inclusion of chemical species which can act as specific sensors its also envisaged. The following objectives would be characterization of the materials obtained by using appropriate instrumental techniques and the study of the relevant physico-chemical properties for the potential usage in technological devices.

**Referència:** AGL2003-03889. Ministeri de Ciència i Tecnologia.

**Modalitat:** Recursos i tecnologies agroalimentàries.

**Títol:** *Influencia de las variables de proceso en la obtención de fibra alimentaria. Enriquecimiento en fibra de productos cárnicos crudos curados.*

**Acrònim:** SEFI.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigadora responsable:** [ROSSELLÓ MATAS, Carme](#).

**Categoria:** TU (àrea de coneixement: Enginyeria Química).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Rosselló Matas, Carme</a>	TU	1
<a href="#">Simal Florindo, Susana</a>	TU	1
<a href="#">Femenia Marroig, Antoni</a>	TEU	1

#### Investigadors d'altres entitats

[Frau Caldentey, Miquel](#)

[Govern Balear](#)

[Cañellas Mut, Jaume](#)

[Associació per el Foment dels Aliments de les Illes Balears](#)

**EDP del grup investigador de l'entitat sol·licitant:** 3.

#### Summary

The 'sobrassada de Mallorca' is a traditional product made in the island of Mallorca and protected by a quality distinction (PGI) of European ambit. Actually, this product is in a clear expansion process. Sobrassada is a raw cured pork sausage, with a high fat content. Basically, the aim of this proposal is to find the appropriate methodology to elaborate a raw cured meat based product (sobrassada) enriched with high quality dietary fibre, maintaining the organoleptic properties as similar as possible to those from the original product.

To undertake this study is necessary to carry out an in depth analysis of the following aspects:

- Assessment of the optimal process conditions to obtain fibre supplements of high quality from different fruit and vegetable sources: influence of the raw material, pretreatments and the operation variables during the drying process. Selection of the more appropriate fibre supplements under objective quality parameters.
- Study of the effects of the incorporation of fibre supplements on the physicochemical, microbiological and sensorial quality of the sobrassada: evaluation of the influence of the new formulation on the maturation process and, also, on the final characteristics of the product, evaluated under objective quality parameters.

The methodology, which is intended to develop on this project, could then be applied on the elaboration process of many other raw cured meat-based products typical of Spain.

**Referència:** BQU2003-02592. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Inactivación y modelado molecular de serin-enzimas. Beta-lactamasas de la clase D y elastasas.*

**Acrònim:** IMMELE.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** MUÑOZ IZQUIERDO, Francisco.

**Categoria:** CU (àrea de coneixement: Química Física).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Muñoz Izquierdo, Francisco	CU	0.5
Donoso Pardo, Josefa	TU	0.5
Frau Munar, Joan	TU	0.5
Vilanova Canet, Bartomeu	TU	0.5
Coll Parets, Miquel	As.	1
Garcias Llabrés, Rafael	Aj.	0.5
Fenollar Ferrer, Maria C.	Tèc.	1

**EDP del grup investigador de l'entitat sol·licitant:** 4.5.

### Summary

In the present investigation project we will study the kinetic mechanism of enzyme inhibition of some serine enzymes. We will carry out kinetics studies on the class D  $\beta$ -lactamases and PPE (Porcine Pancreatic Elastase) inhibition. The therapeutic problem posed by class D  $\beta$ -lactamases, a family of serine enzymes that hydrolyse  $\beta$ -lactam antibiotics following an acylation-deacylation mechanism, are increased by the very low level of sensibility of these enzymes to  $\beta$ -lactamase inhibitors. The PPE usually is taken as a model of the HLE (Human Leukocyte Elastase), enzyme that plays an important role in destructive processes associated with chronic inflammatory diseases such as emphysema, rheumatoid arthritis...

In the first step, a kinetic study on the chemical reactivity of different potential inhibitors will be carried out. This study will be done by HPLC and UV-VIS and NMR spectroscopy. In a second step, by UV-VIS and Stopped Flow measurements, we will study the inhibition process. At the same time, theoretical calculations will be done in order to determine the chemical reactivity of the potential inhibitors and to model the oxyanion hole in class D  $\beta$ -lactamases, HLE and PPE. The hydrolysis, thiolysis and aminolysis of the potential inhibitors will be studied by semiempirical, ab initio and DFT calculations. The molecular modelling study will be done by molecular mechanics and molecular dynamics calculation. We will study the formation of Michaelis complex between the serine enzymes and the antibiotics in order to determine the interactions that stabilize it and the amino acids involved in this process.

**Referència:** BQU2003-01659. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Estudios sobre nucleación heterogénea en la litiasis renal oxalocálcica. Etiología y diagnóstico.*

**Acrònim:** NUHELIROC.

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [GRASES FREIXEDAS, Felicià](#).

**Categoria:** CU (àrea de coneixement: Química Analítica).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Grases Freixedas, Felicià</a>	CU	1
<a href="#">Costa Bauzà, Antònia</a>	TEU	1
<a href="#">Prieto Almirall, Rafel M.</a>	TEU	1
<a href="#">Perelló Bestard, Joan</a>	B	1

#### Investigadors d'altres entitats

<a href="#">Pieras Ayala, Enrique C.</a>	Hospital Universitari Son Dureta
<a href="#">García González, Ramón</a>	Gestió Sanitària de Mallorca
<a href="#">Ramis Barceló, Margalida</a>	
<a href="#">Muñoz Vélez, Daniel</a>	Fundació Hospital de Manacor

**EDP del grup investigador de l'entitat sol·licitant:** 4.

#### Summary

During the last decade a clear increment of the renal lithiasis incidence has been evidenced in all the countries, bigger so much increase as much as higher is the socio-economical level of the country. In fact one of the factors fewer studied and that probably notably influences in the development of calcium oxalate renal calculi (they are the most abundant) is the presence of heterogeneous nucleants, since the urine of any individual is permanently supersaturated in calcium oxalate. In fact, a notable increase of the number of calcium oxalate renal calculi from cavities, which formation is clearly induced by the presence of heterogeneous nucleants in the urine, has been detected. Thus, the purpose of the Project that is presented is the one of making a study in depth of the heterogeneous nucleation in the oxalocalcic renal lithiasis.

For it is sought to stablish a 'in vitro' study of substances that can act as heterogeneous nucleants of calcium oxalate in urine and of all those factors that affect to the process (inducing or inhibiting it). It will be also performed a study of calcium oxalate monohydrate renal calculi from cavity for the identification of heterogeneous nucleants in the core of them, and also the identification and cuantification of the presence of heterogeneous nucleants in the urine of stone formers of this calculi type. This study will contribute to a knowledge in depth of one of the key stages in the formation of this calculi type, of the one that without a doubt will be derived more effective prevention and treatment protocols.

**Referència:** PTR1995-0583-OP. Ministeri de Ciència i Tecnologia.

**Modalitat:** Projecte d'estímul a la transferència de resultats d'investigació (PETRI).

**Títol:** *Desarrollo de un sensor para la cuantificación de ácidos húmicos en aguas salobres destinadas al consumo humano*

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [COSTA TORRES, Antoni](#).

**Categoria:** CU (àrea de coneixement: Química Orgànica).

**Inici:** 2002.                    **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">Costa Torres, Antoni</a>	CU
<a href="#">Ballester Balaguer, Pau</a>	TU
<a href="#">Pablo Cànaves, Josep A.</a>	Tèc

**Nombre total d'investigadors de la UIB:** 3.



**Referència:** 4/2002-IA. Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.  
**Modalitat:** Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.  
**Títol:** *Obtenció d'antioxidants naturals a partir dels subproductes del procés de vinificació del raïm autòcton Manto Negro.*  
**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.  
**Investigadora responsable:** [LLOBERA BALLE, Antònia](#).  
**Categoria:** TU (àrea de coneixement: Química Orgànica).  
**Inici:** 2003.                   **Fi:** 2003.

### Participacions a altres projectes

**Referència:** AGL2001-2774-C05. Ministeri de Ciència i Tecnologia.

**Títol:** *Aplicación de ultrasonidos de potencia en procesos de deshidratación de alimentos. Modelización del proceso.*

**Investigador responsable:** [MULET PONS, Antoni](#).

**Centre:** Universitat Politècnica de València.

**Investigador de la UIB:** [Femenia Marroig, Antoni](#).

**Categoria:** TEU (àrea de coneixement: Enginyeria Química).

**Inici:** 2000.                   **Fi:** 2003.

**INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS  
(IMEDEA)**



**Referència:** BFM2000-1108. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Cooperación y fenómenos no lineales en sistemas complejos extendidos.*

**Acrònim:** CONOCE.

**Classificació UNESCO:** 2299.

**Centre:** IMEDEA-Departament de Física.

**Investigador responsable:** SAN MIGUEL RUIBAL, Maximino.

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació
San Miguel Ruibal, Maximino	CU	Compartida
Toral Garcés, Raúl	CU	Compartida
Balle Monjo, Salvador	TU	Compartida
Hernández García, Emilio	TU	Compartida
Mirasso Santos, Claudio Rubén	TU	Compartida
Piro Perusin, Oreste	As. Estr.	Compartida
Salazar Tió, Rafael	Aj. U	Única
Colet Rafecas, Pere		Compartida
Matias Muriel, Manuel A.		Compartida

**Nombre total d'investigadors de la UIB:** 7.

*Keywords:* nonlinear, cooperative phenomena, localized structures, excitability, chaos, spatio-temporal complexity, fluctuations, dynamical systems, feedback, biooscillators, advection, reaction-diffusion, nonlinear optics, semiconductor lasers, VCSELs.

### Summary

CONOCE is a nonlinear and cooperative research effort in the general interdisciplinary context of the new directions of statistical and nonlinear physics, with special reference to the behavior of spatially extended systems with external forcing and or non-local couplings. On the one hand the project intends to contribute to the development of methods, concepts and description of generic behavior in nonlinear physics in 6 aspects: fronts, growth phenomena and localized structures. Prediction in spatiotemporal chaos. Systems with feedback. Cooperative phenomena in networks with nonlocal coupling, fluctuations, and synchronization phenomena. On the other hand, it addresses the use of these methods and concepts in 5 exploratory lines of strategic research: mixing, transport and localized structures in fluids. Patterns in nonlinear optics, cooperative phenomena, synchronization and feedback in semiconductor lasers, biological oscillators in excitable media and competition, coordination and cooperation of agents. General phenomena considered in the different research lines of the project include excitability emergence of localized structures, synchronization and coherent response to fluctuations.

**Referència:** REN2000-1471-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** P2. Projecte d'investigació bàsica orientada.

**Títol:** *Flujo de carbono en la región canaria: determinación de balances locales y estructura trófica.*

**Classificació UNESCO:** 241001, 251002, 251007.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [AGUSTÍ REQUENA, Susana](#).

**Categoria:** Científica titular del CSIC.

**Inici:** 2000. **Fi:** 2003.

### **Membres de l'equip**

[Agustí Requena, Susana](#)

[Duarte Quesada, Carlos](#)

[Vaqué Vidal, Dolors](#)

[Latasa Arcalis, Mikel](#)

### **Summary**

The increasing evidence that community respiration tends to exceed planktonic production at the oligotrophic areas of the ocean has important consequences for the global carbon budget, for it implies that the biota of the oligotrophic areas of the ocean are net sources of CO<sub>2</sub> to the atmosphere. The origin of the organic carbon needed to support the excess carbon consumed in the oligotrophic areas of the ocean is unclear, but probably is imported from coastal areas, specially from coastal upwelling areas where primary production exceeds carbon consumption. The COCA (Canary Organic Carbon Assessment) project is an interdisciplinary effort to test this hypothesis at the Atlantic Canary Region, located at the transition zone between the high productive NW African upwelling and the oligotrophic waters of the North Atlantic Subtropical Gyre. During COCA, we will determine the carbon balance of planktonic communities at the Canary Region, and the cause of their variation along the high productive coastal zone of the NW African upwelling, and the low productivity area of the NA subtropical, as well as the interchange of organic carbon between the two systems.

**Referència:** BOS2000-0822. Ministeri de Ciència i Tecnologia.

**Modalitat:** P1. Projecte d'investigació bàsica no orientada.

**Títol:** *Aislamiento geográfico y exclusión competitiva en la filogenia, y la evolución de ciertos géneros de coleopteros.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [PETITPIERRE VALL, Eduard](#).

**Categoria:** CU (àrea de coneixement: Genètica).

**Inici:** 2000. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació</b>
<a href="#">Petitpierre Vall, Eduard</a>	CU	Compartida
<a href="#">Juan Clar, Carles</a>	TU	Compartida
<a href="#">Sacarés Mas, Antoni</a>		Compartida

**Nombre total d'investgadors de la UIB:** 2.

**Keywords:** DNA sequences, molecular phylogenies, chromosomes, endemics, allopatric, evolution, competitive exclusion, *Chrysomelidade coleopterans*.

### Summary

The apterous leaf beetle *Cyrtonus* are a suitable model for the high number of endemics to assess the effects of geographic isolation in iberian and balearic mountain ranges, by DNA analysis, cytogenetic studies and morphometric measurements. Two mitochondrial gene fragments and another of nuclear ribosomal DNA will be amplified by PCR and then sequenced, to construct cladograms of phylogenetic interrelationships among populations and species of *Cyrtonus*, whose congruence with their karyotypes and geographic distributions would be also evaluated. Particular attention will be paid to the differences in the previous traits between species in allopatry and sympatry, to ascertain possible influences of character displacement and competitive exclusion. Moreover, in the large genus *Chrysolina*, the same two mitochondrial gene fragments plus karyotypes and host-plant affiliations will be examined in 10-15 further species, to obtain more supported cladograms than the previous ones based on 30 species, as well as a giving a major emphasis on the complex taxonomy and evolutionary patterns displayed in the Central European subgenus *Colaphoptera sensu lato*. The species of *Colaphoptera sensu lato* feed as a whole on plants of three distinct families, *Lamiaceae*, *Asteraceae* and *Apiaceae*, and might be a right group to investigate the shifts in host-plant affiliations from genetic standpoints.

**Referència:** BOS2000-0569-C02-02. Ministeri de Ciència i Tecnologia.

**Títol:** *Investigaciones aplicadas al programa de conservación de la gaviota de Audouin: los efectos de los depredadores terrestres en la ecología y la dinámica de sus poblaciones.*

**Classificació UNESCO:** 240123.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [ORO DE RIVAS, Daniel](#).

**Categoria:** Científic titular del CSIC.

**Inici:** 2000.                    **Fi:** 2003.

#### **Membres de l'equip**

#### **Categoria**

[Oro de Rivas, Daniel](#)

Científic titular

[Jiménez Pérez, Juan](#)

Generalitat Valenciana

[Mínguez Díaz, Eduardo](#)

Generalitat Valenciana

*Keywords:* migration, predation, dispersal, wintering, fisheries discards, pollution, mercury, laying costs, protracted clutches, food supplementation, yolk characteristics, Ebro delta, Chafarinas, Columbretes.

#### **Summary**

The presence of terrestrial carnivores is analysed at the world's largest breeding colony of Audouin's gulls, a threatened species. This was used as a natural experiment to assess the effects of predation at the level of both population ecology (changes in demographic parameters, population growth rate, dispersal and immigration, coloniality and conspecific attraction, source-sink dynamics) and conservation biology (extinction probabilities, culling of predators).



**Referència:** AGL2000-1397-C02-01. Programa nacional de recursos i tecnologies agroalimentàries.

**Modalitat:** P3. Projectes d'investigació aplicada.

**Títol:** *Detección molecular de los aditivos alimentarios E410, E412 y E417 en alimentos.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** ALBERTÍ SERRANO, Sebastià.

**Categoria:** TEU (àrea de coneixement: Microbiologia).

**Inici:** 2000.                   **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (h/setm.)</b>
Albertí Serrano, Sebastià	As.	16
Doménech Sánchez, Antonio	B	

**Nombre total d'investgadors de la UIB:** 2.

**Total EJC/setmana:** 0,4.

*Keywords:* food additives, detection, differentiation, identification, molecular, DNA, PCR, E410, E412, E417.

### **Summary**

For food additives E410 (locust bean gum) and E412 (guar gum), we have previously developed molecular methods for the extraction and PCR amplification of DNA of the plants from which they are extracted. This allowed the direct identification of these two additives on their commercial preparations (patent pending). These methods are based on the identified existence in the genomes of these and other plant species of highly repetitive sequences with a high degree of variation between species of the same genus. Following the same molecular strategy, we will here determine diagnostic DNA sequences for food additive E417 (tara gum) extracted from the plant *Caesalpinia spinosa*. They will be applied to the differentiation of this food additive from the other two in raw materials (i.e., commercial food additives and their mixtures) and to the identification in foods of additives E410, E412, and E417. These goals match with objectives 9.2 of the Programa Nacional de Recursos y Tecnologías del Plan Nacional of the Spanish Government and 6.2 of Methodologies for Measurements and Testing from competitive and sustainable growth programme of the European Commission. Both objectives aim to develop new molecular analytical tools to ensure the origin and authenticity of raw materials and food ingredients.

**Referència:** FIS01-0034-01. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.  
**Títol:** *Caracterización de mecanismos de resistencia a antibióticos en Klebsiella pneumoniae debido a alteraciones en la permeabilidad.*  
**Centre:** IMEDEA-Departament de Biologia.  
**Investigador responsable:** [HERNÁNDEZ ALLÉS, Santiago](#).  
**Inici:** 2001. **Fi:** 2003.

<b>Membres de l'equip</b>	<b>Categoria</b>
<a href="#">Hernández Allés, Santiago</a>	Tèc.
<a href="#">Gil Sánchez, José</a>	As.
<a href="#">Martínez Martínez, Luis</a>	
<a href="#">Doménech Sánchez, Antonio</a>	B
<a href="#">Ballesteros Martínez, Francisca</a>	B

**Nombre total d'investigadors de la UIB:** 4.

### Summary

*K. pneumoniae* is an important nosocomial pathogen and some mechanisms of resistance to antimicrobials have been described for this species. We have previously described the roles of some molecules (porins) in the influx of antimicrobials, their cooperations with other mechanisms (betalactamases), and the subsequent elevation in the resistance levels. In this project we will extend this knowledge by the characterization of mechanisms which affect the efflux of antimicrobials and by studying in further detail the roles of additional undescribed porins. These objectives will be approached by the following concurrent strategies. Efflux mechanisms will be identified by (1) cloning genes homologous to *acr* and *emr* described in *E. coli* as efflux components, (2) selective mutation of these genes by homologous recombination experiments, and (3) by identification of further efflux genes through random mutagenesis and selection of efflux-defective mutants. Further insights into the roles of porins in the influx of antimicrobials will be gained by (1) characterization of the OmpK35 porin of this bacterium and comparison of its pore functions with those of porins OmpK36 and OmpK37 previously described by us. We will also extend our current knowledge of the OmpK36 properties by studying the relationships between alterations in key residues of its tridimensional structure and altered antibiotic permeability. The role of these molecules in antimicrobial resistance will be evaluated *in vitro* by constructing strains with specific deficiencies in one or another of these molecules. In cooperation with the accompanying project, these strains will be used in an animal model of *pneumoniae* to evaluate *in vivo* the contribution of these mechanisms to antimicrobial resistance.

**Referència:** PI02-1309. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.

**Títol:** *Infecciones neonatales por Enterobacter cloacae: papel de los mecanismos de permeabilidad en la resistencia a los agentes antimicrobianos.*

**Centre:** IMEDEA-Departament de Biologia.

**Investigador responsable:** [HERVÁS PALAZÓN, Juan Antonio](#).

**Inici:** 2002.                    **Fi:** 2005.

### **Membres de l'equip**

[Hernández Allés, Santiago](#)

[Gil Sánchez, José](#)

[Hervás Palazón, Juan Antonio](#)

[Gallegos Álvarez, Maria Carmen](#)

[Doménech Sánchez, Antonio](#)

[Ballesteros Martínez, Francisca](#)

**Nombre total d'investigadors de la UIB:** 2.

### **Summary**

Our group has recently characterized and described the neonatal infections that have occurred in the Balearics since 1977. We noted in the last years an important increase in the prevalence. Some of the clones that have described were highly virulent and resistant to multiple antimicrobial agents, and have persisted in our neonatal intensive care unit for years, in coincidence with the observations reported by other authors.

The increase in prevalence could be due to the well-know alternance along the years of the microorganisms causing these infections, and/or because the environmental *Enterobacter* flora have acquired or developed mechanisms that enhance their chance to gain the observed levles of multiresistance. One of these mechanisms that is not well characterized in this bacterial species depends on permeability (porins). This project will take advantage of the basic and clinical experience of our group to a) continue to characterize the clinical aspects of the neonatal infections, paying particular attention to the phenotypic and tenotypic analysis of *Enterobacter* clones in our neonatal intensive care units; and b) determine the mechanisms that this microorganism utilizes to cause antimicrobial resistant infections.

**Referència:** REN2001-0802-C02-01/MAR. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Procesos de transporte, campos de velocidades y análisis de estructuras oceánicas mediante imágenes de satélite.*

**Acrònim:** IMAGEN.

**Classificació UNESCO:** 2510.07.

**Centre:** IMEDEA-Departament de Física.

**Investigador responsable:** [HERNÁNDEZ GARCÍA, Emilio](#).

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Hernández García, Emilio</a>	Professor d'investigació	0.5
<a href="#">Colet Rafecas, Pere</a>	Científic titular	0.33
<a href="#">Piro Perusín, Oreste</a>	As. estr.	0.33
<a href="#">Fernández López, Vicente</a>	B	0.5

**Investigadors d'altres entitats**

[López Sánchez, Cristóbal](#) Universitat di Roma 'La Sapienza'

**EDP del grup investigador de l'entitat sol·licitant:** 2.

*Keywords:* mesoscale structures, transport processes, teledetection, SST-SSH, SeaWIFS.

**Summary**

The main objective of this proposal is the development of quantitative methods to analyse satellite images (colour, temperature and dynamic height) of the sea surface to allow the identification of the existing structures and the evaluation of velocity fields, and their use to quantify transport processes of water masses and substances of interest in marine ecosystems (nutrients, biomass, etc.). The methods will be based mainly in techniques of image multiresolution analysis, artificial intelligence (neural networks and genetic algorithms), dynamical systems theory, and computer models of ocean circulation which include ecosystem dynamics. The techniques will be applied in detail to the evaluation of fluxes in several zones of the Western Mediterranean and in the Canary Current area. The project, of multidisciplinary character, addresses aspects fully contained as priority objectives in the 'Marine Resources' item of the 'Programa Nacional de Recursos Naturales', namely the quantification of biogeochemical processes and fluxes in marine ecosystems, the development of predictive models, and the development of techniques to improve sea observation.

**Referència:** BFM2001-0341-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Sincronización en sistemas físicos y biológicos.*

**Acrònim:** SINFIBIO.

**Classificació UNESCO:** 220510.

**Centre:** IMEDEA-Departament de Física.

**Investigador responsable:** TORAL GARCÉS, Raúl.

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2001. **Fi:** 2004.

Membres de l'equip	Categoria	Dedicació (EDP)
Toral Garcés, Raúl	CU	0.5
Mirasso Santos, Claudio Rubén	TU	0.33
Sintes Olives, Tomàs Miquel	TEU	0.5
Scire, Alessandro	B	0.5
Calvo Ibáñez, Óscar Alberto	TEU int.	0.5
Gomes da Siva, Iacyel	B	1
Matias Muriel, Manuel A.	Científic titular	0.5
Colet Rafecas, Pere	Científic titular	0.33
Gomila Villalonga, Damià	B	1

#### Investigadors d'altres entitats

Chialvo, Dante Renato      The Rockefeller University

**EDP del grup investigador de l'entitat sol·licitant:** 5.16.

#### Summary

Synchronization processes, besides appearing in many natural phenomena, are very important both from the theoretical point of view as well as for the many technological applications. In the last years, attention has shifted from the classical studies of non-linear, limit cycle-type, oscillators to the synchronization in chaotic systems and that induced by noise and people have explored its use in encoding systems for communications. In this project we aim to study several aspects related to synchronization in some physical and biological systems. Our objectives in this vast field will focus on three main topics: (a) general studies, (b) semiconductor lasers, (c) biological systems. Concerning topic (a) we plan to contribute towards our understanding of synchronization whenever there is dispersion in the elements to be synchronized, as well as the influence of noise terms which, surprisingly, can trigger synchronization. In topic (b) we plan to study semiconductor lasers arrays with different couplings and the possible applications of chaotic synchronization for communications. Finally, in (c) biological systems, we will study the synchronization of intracellular calcium spikes, designing specific models and analyze them using Monte Carlo techniques, and the synchronization phenomena that are known to occur in large areas of brain during pain periods. In all the cases, we will be using analytical and numerical techniques as well as analogic simulations in electronic circuits.

**Referència:** REN2001-0580/GLO. Ministeri de Ciència i Tecnologia.

**Títol:** *Biodiversidad marina en ambientes costeros extremos: prospección faunística de las cuevas anchialinas de las Baleares, Canarias, y Levante Ibérico.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** JAUME LLABRÉS, Damià.

**Categoria:** Investigador contractat CSIC.

**Inici:** 2001.                      **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
Jaume Llabrés, Damià	Investigador contractat	1

**EDP del grup investigador de l'entitat sol·licitant:** 1.

*Keywords:* coastal biodiversity, extreme environments, fauna, conservation.

### **Summary**

Anchialine habitats are flooded inland marine caves that lack any direct connection with the open sea. They are inhabited by remarkable animals, long term survivors of ancient lineages, which are threatened by changes in their fragile habitat. In recent years numerous new species, genera, families and even a new class of crustaceans have been described from anchialine caves, particularly on islands. This degree of novelty makes anchialine habitats iniquely important but it is the restricted distribution and isolation of such species often to a single cave system on a single island, which renders them so vulnerable. Unsustainable levels of development for tourism are threatening these coastal habitats. This proposal will collate and make available data on all Spanish anchialine sites and species. The information will be used 1): to answer topical scientific questions such as where did the ancestors of cave faunas live and how were their disjunct distribution patterns generated, 2): to increase our knowledge of the Spanish animal biodiversity, 3): to promote the inclusion of anchialine habitats in coastal management plans, by emphasizing to policy makers and conservationists the unique attributes of their endemic inhabitants.

**Referència:** REN2002-04035-C03-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programes nacionals d'I+D orientada.

**Títol:** *Criterios de calidad microbiológica en reutilización de aguas y biosólidos.*

**Centre:** IMEDEA-Departament de Biologia.

**Investigador responsable:** LALUCAT JO, Jordi.

**Categoria:** CU (àrea de coneixement: Microbiologia).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació (EDP)
Lalucat Jo, Jordi	CU	0.5
Bergueiro López, José Ramón	TU	0.5
Gomila Ribas, Margalida	B	1
Solis Sanchis, Javier J.	Tèc.	1

**EDP del grup investigador de l'entitat sol·licitant:** 3.

### Summary

Water reuse and the right use or disposal of biosolids produced in wastewater treatments requires the determination of pathogens and surrogate indicators in order to assess the risk of reuse and disposal as well for designing simple procedures to assess the performance of the different treatments. To advance in this knowledge in our geographical area, the following studies will be performed. Determine the efficiency of removal of pathogens and indicators in tertiary treatments. Determine the efficiency of removal of pathogens and indicators in treatment of biosolids. Define the best model organisms to assess the performance of treatments. Obtain data on occurrence and levels of pathogens and indicators in regenerated water and different biosolids obtained by sludge treatment and build a data basis to be used in future risk assessment studies. In order to ensure that we obtain reliable data, transfer of standardised methods will be done to the laboratories, which do not use them yet, and quality assurance schemes will be implemented. As well, the adaptation of some methodologies to this kind of samples will be done. Methods adapted will be: i) extraction of microorganisms from biosolids; ii) application of molecular methods for *Salmonella* ssp; iii) and determination of viability of *Cryptosporidium*.

**Referència:** EN2002-04044-C02-01. Ministeri de Ciència i Tecnologia.

**Títol:** *Relación entre procesos físicos y biogeoquímicos asociados a sistemas hidrodinámicos de mesoescala en el mar de Alborán.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** GOMIS BOSCH, Damià.

**Categoria:** TU (àrea de coneixement: Física de la Terra).

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació
Gomis Bosch, Damià	TU	Compartida
Tintoré Subirana, Joaquim	Professor d'investigació	Compartida
Monserrat Tomàs, Sebastià	TU	Compartida
Ruiz Valero, Simón		Compartida
Basterretxea Oyarzábal, Gotzon		Compartida
Pascual Ascaso, Ananda		Compartida

### Summary

The oceanic mesoscale (10-100 km) is the equivalent to the atmospheric storm scale. It is usually associated to frontal instabilities and generates highly energetic patterns of three-dimensional circulation. The central objective of this project is to extend our previous observations (Rodríguez et al., 2001) about the relation between the vertical velocity field and the size structure of the phytoplankton community. We predict that the validity of the empirical model can be extended up to cover the whole range of vertical velocity values which can be found in the region if the size range of analysed particles is extended to include cell aggregates and fecal pellets. On the other hand, the already demonstrated effect of the upward motion on large cells could be compensated by the downward intense transport along the isopycnals. The analysis of this phenomenon will be a core objective of the project. Finally, the knowledge of the vertical velocity fields and the size structure of phytoplankton associated to the northwestern Alborán front will permit us to carry out a first experimental balance about the effect of mesoscale vertical dynamics on the vertical flux of carbon in the ocean.



**Referència:** BFM2002-04474-C02-C01.

**Modalitat:** Programa nacional de promoció general del coneixement.

**Títol:** *Competición, coordinación y cooperación de agentes en redes complejas.*

**Acrònim:** NOLINET.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** MARTÍNEZ EGUÍLUZ, Víctor.

**Categoria:** INVESTIGADOR CONTRACTAT.

**Inici:** 2002. **Fi:** 2003.

Membres de l'equip	Categoria	Dedicació
Martínez Eguíluz, Víctor	Investigador	1
Klemm, Konstantin	Becari predoctoral	1

**EDP del grup investigador de l'entitat sol·licitant:** 2.

### Summary

We propose the study of socio-economical complex systems from the Statistical Mechanics and Nonlinear Physics point of view. These systems are formed by degrees of freedom ("agents") whose interaction is given by a complex network. This project is intended to describe the dynamical evolution of such systems. Similarly to the standard problems in statistical mechanics, the topology, correlations and competition between agents are essential for a macroscopic description. Thus it seems appropriate to split the study in two parts. In the first part, we will study the topological properties of interaction networks of socio-economical systems from empirical data. We will use standard statistical tools (e.g. correlation matrix, percolation), and develop new ones whenever necessary. This study will help us to uncover the interaction networks, and their dynamics as well. In the second part, we will model the dynamics of the agents following the results obtained previously. In this part we will use extensive numerical simulations of the developed stochastic models. We aim for a macroscopic characterization and for a determination of which of the microscopic features are essential for the description of the aggregate behavior. We intend to identify the causes of the complex behavior of such systems and to be able to make predictions. The specific topics we will address are the emergence of social structure in a model of cooperation, phase transitions and scaling laws in a coordination model, and the formation of clusters in networks with transmission of information.

**Referència:** REN2001-1535/MAR. Ministeri de Ciència i Tecnologia.

**Títol:** *Biodiversidad y funcionamiento de ecosistemas bentónicos mediterráneos dominados por macroalgas.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [TERRADOS MUÑOZ, Jorge](#).

**Categoria:** Científic titular del CSIC.

**Inici:** 2002.                      **Fi:** 2004.

### **Summary**

The main goal of the project is to elucidate the role of algal diversity in the function of Mediterranean benthic communities dominated by macroalgae to evaluate the consequences of the loss of biodiversity that occurs in these ecosystems when affected by human activities. The experimental approach of the project involves in situ manipulation of the algal diversity of the Mediterranean community formed by infralitoral photophilic algae through the selective elimination of individual/groups of species. The project will evaluate the relative contribution of dominant and minor species of macroalgae and will identify key species for (1) the maintenance of algal diversity itself, (2) the primary productivity, (3) the biomass of the invertebrate fauna (epifauna) associated to the community, and (4) the maintenance of epifauna diversity. It is expected that project results will contribute significantly to the knowledge of the function of Mediterranean benthic ecosystems dominated by macroalgae through the elucidation of the role of macroalgal diversity in the maintenance of algal diversity and primary productivity, and the biomass and diversity of epifauna. Furthermore, the project will contribute to establish strong scientific criteria to evaluate the effects that human activities have on rocky-bottom Mediterranean benthic ecosystems and to support environmental policy and management plans that promote the sustainable use of these ecosystems by man.

**Referència:** REN2002-00701/MAR. Ministeri de Ciència i Tecnologia.

**Títol:** Expansión de *Caulerpa prolifera*, *C. taxifolia* y *C. racemosa* en el Mediterráneo: dinámica clonal, producción y destino de la producción.

**Acrònim:** CAULEXPAN.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [MARBÀ BORDALBA, Núria](#).

**Categoria:** Científica titular del CSIC.

**Inici:** 2002. **Fi:** 2005.

Membres de l'equip	Categoria	Dedicació
<a href="#">Marbà Bordalba, Núria</a>	Científica titular	0.5
<a href="#">Terrados Muñoz, Jorge</a>	Científic titular	0.5
<a href="#">Deudero Company, Salut</a>	Aj. U	0.33

### Summary

The macroalgae of the genus *Caulerpa* are clonal plants with sifonal structure that develop extensive meadows on sandy and muddy littoral bottoms. *Caulerpales* have been shown to act as invasive species when introduced across biogeographic ranges. This is particularly prominent in the Mediterranean, where two exotic *Caulerpa* species, *C. taxifolia* and *C. racemosa* have spread into areas formerly occupied by seagrasses. The paucity of available information on *Caulerpa* spp meadow dynamics prevents to define and implement efficient management policies to control its expansion. The aims of the project proposed are (1) to develop predictive models of spatial and temporal expansion of *C. prolifera*, *C. taxifolia*, and *C. racemosa* meadows in the Mediterranean Sea, based on clonal plant growth at frond (cm), clon (m) and meadow (Ha), and the habitat requirements of the species; (2) to quantify meadow, autotrophic and heterotrophic, production; and (3) to investigate the fate of plant production, and the changes enhanced by *Caulerpa* spp on the trophic structure of the community. The results obtained with the project will provide the necessary tools to effectively manage the expansion of *Caulerpa* species across the Spanish Mediterranean.

**Referència:** REN2002-04535-CO2-02. Ministeri de Ciència i Tecnologia.

**Títol:** *Influencia de la estructura y dinámica oceanográfica sobre poblaciones demersales en aguas de las Islas Baleares.*

**Acrònim:** IDEA.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [MORALES NIN, Beatriz.](#)

**Categoria:** Científica titular del CSIC.

**Inici:** 2002.                   **Fi:** 2005.

### Summary

The management of renewable marine resources based on the ecosystem is imposing a simplistic concept that relies on traditional population dynamics. This new focus establishes that the strategy of exploitation and conservation should take into account the functioning of the ecosystems, their natural variations and the factors that control these changes. The presented project is designed within this field and proposes to study the influence of abiotic (oceanographic structure and dynamics) and biotic (trophic resources) factors on the ecosystems and demersal resources, as well as the populational dynamics of two species subjected to exploitation on the shelf and slope of the western Mediterranean: the hake (*Merluccius merluccius*) and the red shrimp (*Aristeus antennatus*). The study will be developed off the island of Majorca, which is separated from the continental margins by large geographical, therefore it can be considered as an isolated demersal ecosystem, and shows large oceanographic spatio-temporal variability, both at the meso- and the macroscale level. Moreover, in this area, periodical movements of the local fishing fleet have been shown between two zones west and south of the Island, suggesting a seasonal variability for the resources, and databases on oceanographic and fisheries monitoring information are available from different research projects since the beginning of the 1990's. As a result, it is proposed: (i) to study, in these two zones with distinct oceanographic and environmental characteristics, the seasonal changes in the bottom communities and their exploited species, as well as their trophic resources; (ii) to study the interannual variability for the mortality and abundance of these resources. There are only a few previous studies in this line of research, which, moreover, have been limited in the two aspects that will be the basis of the current proposal: (i) a study of the seasonality, dealt with until now in a fragmentary way; (ii) the simultaneous sampling of the distinct compartments that form the marine ecosystems, from the water masses to the highest level of the trophic chain. Consequently, the project proposal deals with the first attempt at a multidisciplinary approach towards understanding the dynamics of the exploited demersal ecosystems in the Mediterranean Sea.

**Referència:** BSO2003-01960. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Modelos matemáticos aplicados al estudio de la demografía y dinámica de poblaciones de organismos amenazados: una aproximación poblacional y metapoblacional.*

**Acrònim:** POPMODEL.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [ORO DE RIVAS, Daniel](#).

**Categoria:** Científic titular del CSIC.

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Oro de Rivas, Daniel</a>	Científic titular	1
<a href="#">Igual Gómez, José Manuel</a>	Tèc.	0.5
<a href="#">Louzao Arsuaga, Maite</a>	B	0.5
<a href="#">Genovart Millet, Meritxell</a>	B	0.5
<a href="#">Martínez Abraín, Alejandro</a>	B	0.5

#### **Investigadors d'altres entitats**

<a href="#">Mínguez Díaz, Eduardo</a>	Universitat Miguel Hernández
<a href="#">de León Martí, Ana</a>	University of Glasgow
<a href="#">Arcos Pros, José Manuel</a>	University of Glasgow

**EDP del grup investigador de l'entitat sol·licitant:** 3.

#### **Summary**

This project deals with the development of mathematical and statistical models to account of a precise diagnosis on the conservation status and threats affecting three threatened marine birds of the Mediterranean: the Balearic shearwater, Audouin's gull and European storm petrel. The Balearic shearwater is one of the few endemic species of the Iberian vertebrate fauna and has been recently classified as critically endangered in the up-to-date edition of the Red Book of the Birds of Spain. Audouin's gull concentrates on Spain more than 90% of total world population, while the storm petrel is one of the most unknown species in the whole region. Action Plans proposed by the Ministry of the Environment point out the need of monitoring field data to model several demographic parameters that are crucial to elaborate a reliable diagnose on the conservation status of such species. The study will analyse several topics such as demography, feeding and breeding ecology, effects of pollutants and modelling of extinction probabilities. Demographic parameters (adult and immature survival, recruitment, dispersal) will be analyzed by capture-recapture models, while ultrastructural models will allow us to estimate dispersal among local populations at metapopulation level. Probabilities of extinction will be assessed through Monte Carlo simulation of population trajectories, taking into account stochasticity both demographic and environmental. The study of foraging areas, diet and pollutants will allow us to model these probabilities of extinction under different theoretical scenarios of management carried out by Conservation Agencies.

**Referència:** BOS2003-05198-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Análisis intraespecífico de la diversidad génica de Salinibacter ruber.*

**Acronim:** GASA-ANIS.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [ROSSELLÓ MORA, Ramon.](#)

**Categoria:** Científica titular del CSIC.

**Inici:** 2003.                      **Fi:** 2006.

### **Membres de l'equip**

### **Categoria**

[Rosselló Mora, Ramon](#)

Científica titular

### **Summary**

The goal of this project is to characterize the genome of *Salinibacter ruber*, an extremely halophilic prokaryote belonging to the *Bacteria* Domain. We will focus on three different aspects: (i) study of the genome sequence of the type strain, with special emphasis on the ecological and/or evolutionarily relevant genes, whose expression will be studied; (ii) study of the intra-specific diversity of these genes in isolates of *S. ruber* of different origin; and (iii) analysis of the expression of these genes in environmental samples in which the presence of *S. ruber* has been described. To ensure the feasibility of the project we have currently around 80% of the genome sequence for the type strain, as well as a collection of 44 *S. ruber* strains isolated worldwide and detailed knowledge about the ecology of this bacterium.

This project is organized in two subprojects, tightly related to each other. The first subproject will focus on the type strain genome, using the available sequence for the characterization of genes that could have been transferred from *Archaea* (present in *Salinibacter* habitats) and/or genes relevant in hypersaline environments. Once found, these genes will be phylogenetically characterized (in collaboration with the researchers in the second subproject) and their expression studied in different growth conditions. Besides, we will complete and analyse the sequence for the genome zones containing these genes (by cloning *S. ruber* genome in BACs, picking of the clones containing these genes and sequencing of the selected BACs). In the second subproject all this information will be used to study the intra-specific diversity of the newly characterized genes in the strain collection analysing both their presence/absence and their expression in order to correlate these aspects with the origin of isolation. Finally, in this subproject frame, the expression of these genes in environmental samples will be studied in order to ascertain their role in the ecology of the system.

**Referència:** VEM2003-20565. Ministeri de Ciència i Tecnologia.

**Modalitat:** Acció estratègica contra vessaments marins.

**Títol:** *Caracterización de la microbiota autóctona degradadora del fuel del Prestige y de su potencial de biorremediación.*

**Acrònim:** DEFUEL.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** LALUCAT JO, Jordi.

**Categoria:** CU (àrea de coneixement: Microbiologia).

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
Lalucat Jo, Jordi	CU	1
García-Valdés Pukkits, Elena	TU	1
Bosch Zaragoza, Rafael	TEU	1
Bennàsar Figueras, Antoni	As.	1
Nogales Fernández, Balbina		1
Bergueiro López, José Ramón	TU	1

#### Investigadors d'altres entitats

Timmis, Kenneth Nigel	University of Essex
McGenity, Terence John	University of Essex

**EDP del grup investigador de l'entitat sol·licitant:** 6.

#### Summary

Bacteria play a predominant role in the degradation and mineralisation of hydrocarbon spills in marine ecosystems. The indigenous microbiota responds to an oil spill by increasing its biodegradation capacity and favouring the development of those populations able to metabolise hydrocarbons. The composition of microbial communities varies with relation to the hydrocarbon characteristics and the physico-chemical conditions of the environment. The succession of bacterial populations involved in hydrocarbon degradation is not well known due to methodological problems. Currently, the use of molecular techniques allows for the precise characterisation of the relevant microbial communities in marine ecosystems, as well as to characterise the genetic and metabolic potential of the populations degrading hydrocarbons in the recovery of contaminated areas. The main objectives of the proposed project are:

- Analysis using cultivation and molecular methods of the bacterial communities in contaminated and non contaminated zones in an area affected by the Prestige oil spill at the Galician coast: tidal zone, sediment and surface water. Identification of those populations which actively degrade hydrocarbons by using stable isotope probing (SIP).
- Study of the diversity of the key genes in the degradation of the crude oil constituents, both from the isolated microorganisms and directly from environmental samples after generation of metagenomic libraries.
- Bioremediation studies in micro- and macrocosms by stimulation of the indigenous microorganisms identified.

This project will allow us to determine which are the microorganisms present in polluted marine environments, which of them are involved in biodegradation, which metabolic genes are implicated and which biodegradation strategy might be the most appropriate for these environments.

**Referència:** BOS2001-0610. Ministeri de Medi Ambient.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Consecuencias ecológicas y evolutivas de la ruptura de mutualismos planta-animal debido a la introducción de especies exóticas en ecosistemas insulares.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** TRAVESET VILAGINÉS, Anna.

**Categoria:** Investigadora científica del CSIC.

**Inici:** 2001.                      **Fi:** 2004.

### Summary

The objective of the project is to study the effect that the introduction of exotic species of animals in insular ecosystems (in particular, in the Balearic Islands) has had on the distribution and abundance of plant species endemic to the islands or with a microareal distribution, and to know the evolutionary consequences (due to the possibly different selection pressures on plant traits, such as fruit or seed traits) of such introduction. The main goal of the project is to confirm the following hypotheses: (1) that the introduction of carnivores in the large islands, which has resulted in the extinction of the endemic lizard (*Podarcis lilfordi*), has had important consequences in the reproductive success of some plant species, both from an ecological - affecting their abundance and distribution- and from an evolutionary viewpoint. The study species are going to be: *Daphne rodriguezii*, a shrub endemic to Menorca island and currently considered in risk of extinction by the IUCN, and *Cneorum tricoccon*, a shrub with a restricted distribution to the western Mediterranean area with the densest populations in the Balearics, although in risk of extinction in some of these islands. For both species, matrix projection models will be generated, based on the size of individuals, which will allow to determine demographic parameters, their temporal variation and to project the populations through time in order to evaluate the risk of extinction.



**Referència:** 050/2002. Ministeri de Medi Ambient.

**Modalitat:** Ajudes a projectes d'investigació a la Xarxa de Parcs Nacionals.

**Títol:** *Impacto de los herbívoros exóticos en las comunidades vegetales del Parque Nacional de Cabrera: umbrales de degradación, análisis de riesgos y plan de gestión integrada.*

**Acrònim:** HERBIMPACT.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** TRAVESET VILAGINÉS, Anna.

**Categoria:** Investigadora científica del CSIC.

**Inici:** 2003. **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>
Traveset Vilaginés, Anna	Investigadora
Santamaría Galdón, Luis	Investigador
Palmer Vidal, Miquel	Investigador

### **Summary**

Biological invasions caused by exotic species often have devastating effects on island flora and fauna. Island endemics are particularly sensitive to the effects of such invasions, since they seem to be more extinction prone. Invasions by rodents such as rats and rabbits are often mentioned among those showing the most devastating effects. Both species show high fecundities, are herbivores and (in the case of rats) seed predators. They also have indirect effects on the vegetation and fauna, through increased soil erosion, decreased soil fertility and increased risk of invasion by other exotic species.

The characteristics of small rodent populations make extremely difficult their complete eradication from islands other than isolated and very small islets. For this reason, optimal strategies for the mitigation of impacts caused by these species combine an evaluation of their impact on island ecosystems with an analysis of the efficacy and costs of eradication programs. HERBIMPACT will contribute to this objective providing the analysis of the impact of exotic rodent herbivores (rat and rabbit) on the vegetation dynamics in the Cabrera National Park. The results will be used to undertake a risk analysis under various management scenarios, focusing mainly on the risk of (1) erosion, soil degradation and seed-bank loss, (2) extinction of endemic and/or endangered species, and (3) establishment of invasive species. The results of the risk analysis will be used to generate adaptive management guidelines for the impact of exotic herbivores on the vegetation and to elaborate an early warning system for the degradation of vegetation and soil by said herbivores.

For this purpose, we will study the direct and indirect effects of local rat and rabbit populations on the vegetative biomass (cycle production-grazing-regrowth) and sexual reproduction (seed production, dispersal and seedling predation) of (a) dominant species in the various vegetation types and (b) a taxon of high conservation interest (*Medicago citrina*), endemic of eastern Spain and the Balearic islands with a total of 10 populations situated in small islands and islets (of which 3 are placed in Cabrera National Park).

We will pay special attention to establishing the relationships between both herbivore species and quantifying accurately the relationship between their population densities and their impact on the vegetations. For this purpose, we will combine field experiments (exclosures linked to experimental manipulations to measure seed predation and seedling

predation), field observations (vegetation structure and plant survival at sites with various herbivore densities) and laboratory experiments with animals (diet choice and plants (regrowth potential, impact of grazing on reproductive output). Field experiments will make use of the existing variability in rat and rabbit density among the various islands and islets of the Cabrera archipelago.

Field observations and experimental results will be integrated by means of two types of vegetation models: (1) dynamic succession models and (2) state-transition models. Risk analysis will be based in the simulations with both types of models. Finally, the subsequent generation of indicators linked to adaptive management strategies will be based on DPSIR (driving force–pressure–state–impact–response) models.

**Referència:** REN2003-06962/GLO. Ministeri de Medi Ambient.

**Modalitat:** Recursos naturals.

**Títol:** *Efecto de las especies invasoras en las redes de polinización: ¿favorece la abundancia de especies súper-generalistas la invasión de los ecosistemas insulares?*

**Acrònim:** INVASRED.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [SANTAMARÍA GALDÓN, Luis](#).

**Categoria:** Científic titular del CSIC.

**Inici:** 2003.                      **Fi:** 2006.

### Summary

INVASRED focuses on the impact of invasive species on the pollination networks of native communities. We aim specifically at testing the following hypothesis: increased abundance of super-generalist pollinators in island ecosystems (as compared to continental ones) enhances the probability of establishment of invasive species, which in turn results in reduced establishment of native species. Detailed aspects of this hypothesis are: (1) decreased species richness of island ecosystems results in an increased abundance of super-generalists pollinator species, with broad feeding niches; (2) super-generalist pollinator species facilitate the establishment of invasive species; (3) presence of invasive plants results in lower pollination and establishment of native species, due to competition for pollinators.

In order to test these hypotheses, we will analyse pollinator networks in insular and continental, coastal communities that differ in their species richness (between island and continent) and in the presence of invasive species (nested within each locality, whether island or continent). We will also evaluate the efficiency of the pollinator communities studied in each pollinator network, on a selected subset of invasive (e.g. *Carpobrotus edulis*, *C. acinaciformis* and *Opuntia* spp.) and native species (e.g. those belonging to the genera *Anthyllis*, *Asphodelus*, *Asteriscus*, *Cistus*, *Lotus* and *Sonchus*) chosen to represent those most abundant and/or most important in each pollination network. This empirical work will be complemented by a theoretical analysis of the conditions under which range expansions can take place in a system with four actors (native plant, introduced plant, native pollinator and invasive pollinator), aimed at generating both improved screening methods for the identification of potentially invasive species and improved management methods for those which are already established.

**Referència:** 55/2002. Ministeri de Medi Ambient.

**Modalitat:** Ajudes a projectes d'investigació a la Xarxa de Parcs Nacionals.

**Títol:** *Regresión de praderas de Posidonia oceánica y calidad ambiental en el Parque Nacional del Archipiélago de Cabrera: causas, magnitud, distribución y posibles estrategias de remediación.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [MARBÀ BORDALBA](#), Núria.

**Categoria:** Científic titular del CSIC.

**Inici:** 2003. **Fi:** 2006.

#### **Membres de l'equip**

#### **Categoria**

[Marbà Bordalba](#), Núria

Científic titular

[Agustí Requena](#), Susana

Investigadora

[Duarte Quesada](#), Carlos

Professor d'investigació

[Terrados Muñoz](#), Jorge

Científic titular

#### **Summary**

*Posidonia oceanica* develops extensive meadows on the carbonate sediments of the Cabrera Archipelago National Park coast, forming a key ecosystem for biologic production and littoral biogeochemical processes. Recent studies demonstrate that *P. oceanica* meadows at Cabrera NP are declining, evidencing in turn some degree of environmental quality deterioration. The origin and magnitude (i.e. loss rate, spatio-temporal scale) of the decline detected, however, are unknown, preventing to define and implement efficient management policies to preserve *P. oceanica* meadows as its coastal functions. Meadow decline, moreover, is a non-linear process, accelerating, through cascade effects, after reaching a certain level of disturbance. There is the need, therefore, to detect seagrass decline at early stages of the process to be able to revert the decline process when seagrass loss is still not evident as loss of seagrass cover. Meadow recovery, in addition to depend on the growth and reproduction rate of the species, depends on on the recovery time scale of environmental quality. Whereas water quality recovers within days/weeks, sediment quality requires decades to recover. Therefore, the time scale for meadow recovery might substantially decrease through strategies towards accelerating the recovery of sediment quality. Hence, the aim of the project submitted is to identify the origin(s), quantify the magnitude and characterize the distribution of meadow decline of *Posidonia oceanica* at the Cabrera Archipelago NP, to develop new approaches based on early warning indicators of decline, and to investigate possible amelioration strategies to stop the seagrass decline observed.

**Referència:** BTE2001-0589. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de recursos naturals.

**Títol:** *Análisis de la evolución y extinción de Myotragus balearicus bate 1909 (Artiodactyla: caprinae).*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [ALCOVER TOMÀS, Josep A.](#)

**Categoria:** Investigador científic del CSIC.

**Inici:** 2001. **Fi:** 2004.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Alcover Tomàs, Josep A.</a>	Investigador científic	0.5
<a href="#">Ramis Bernat, Damià</a>	B	1
<a href="#">Bover Arbós, Pere</a>	B	1
<a href="#">Pons Buades, Guillem Xavier</a>		0.5

**EDP del grup investigador de l'entitat sol·licitant:** 3.

*Keywords:* *Myotragus balearicus*, Illes Balears, colonització humana, *Hypnomys*

### **Summary**

The project aims to: 1) Studying unknown aspects of biology and *Myotragus balearicus* evolution. 2) Studying indigenous fauna contact with the first human colonizers. 3) Studying unknown aspects of biology and *Hypnomys morpheus* evolution. 4) Expanding the paleornithological fossil register, and 5) Studying the pre-human invertebrate selected groups fauna (*Mollusca*, *Diplopoda*).

**Referència:** REN2003-07787-C02-01. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de biodiversitat, ciències de la terra i canvi global.

**Títol:** *Desarrollo de una plataforma de observación oceánica móvil y autónoma.*

**Acrònim:** CORMORÁN.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [ÁLVAREZ DÍAZ, Alberto](#).

**Categoria:** Investigador científic del CSIC.

**Inici:** 2003. **Fi:** 2006.

Membres de l'equip	Categoria	Dedicació (EDP)
<a href="#">Álvarez Díaz, Alberto</a>	Investigador científic	1
<a href="#">Tintoré Subirana, Joaquim</a>	Professor d'investigació	0.5
<a href="#">Orfila Forster, Alejandro</a>	Investigador	0.5
<a href="#">Basterretxea Oyarzábal, Gotzon</a>	Investigador	0.5
<a href="#">Antich Tobaruela, Javier</a>	Aj. EU	0.5
<a href="#">Burguera Burguera, Antoni</a>	Aj. EU	0.5
<a href="#">González Cid, Yolanda</a>	TEU	0.5
<a href="#">Guerrero Sastre, José</a>	P. Col.	0.5
<a href="#">Ortiz Rodríguez, Alberto</a>	TEU	0.5
<a href="#">Vidal Rodríguez, Damià</a>	TEU	0.5
<a href="#">Mochnacs, José Luis</a>	B	0.5

**EDP del grup investigador de l'entitat sol·licitant:** 6.

*Keywords:* autonomous vehicle, data assimilation, numerical models, marine observations.

### Summary

Marine coastal environment is an extremely complex system, which is characterized by strong interrelationships between its physics-chemical process and its biological population. Therefore, the coastal marine environment requires interdisciplinary studies, which implies the simultaneous physical-chemical and biological variables sampling. Traditionally, oceanographic ships have been the most important observation platforms where to carry out oceanographic-interdisciplinary studies. Because they are economically expensive, the methodology is unable to provide information with the space-temporary resolution required. The anchorages, which are the alternatives to the oceanographic ships in coastal areas, provide a temporary high resolution, but their spatial resolution is very limited. The Autonomous Underwater Vehicles (AUV's) and the Autonomous Surface Vehicles (ASV's) are recent alternatives to these platforms, which would provide a higher spatial and temporary resolution. Among these kind of platforms, only the first of them, AUV's, are able to be considered as a working ones. However, its use is not very widespread due to its high cost.

This project proposes the development of a low cost oceanic observation platform, an hybrid between AUV's and ASV's, that is to say, a one which is able to be moved by sea surface and execute vertical immersion in order to get water column profiles according to a previously established plan.

**Referència:** REN2002-00450. Ministeri de Ciència i Tecnologia.

**Modalitat:** Programa nacional de recursos naturals.

**Títol:** *Estructuración, demografía y conservación de la comunidad de aves marinas en el mediterráneo occidental: comparación con otras comunidades.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** GONZÁLEZ FORERO, Manuela.

**Categoria:** INVESTIGADORA CONTRACTADA.

**Inici:** 2003.                      **Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
González Forero, Manuela	Investigadora	1
Afán Asencio, Isabel		1

**Investigadors d'altres entitats**

Hobson, Keith                      Canadian Wildlife Service

**EDP del grup investigador de l'entitat sol·licitant:** 2.

*Keywords:* trophic ecology, stable isotopes, seabirds, population dynamics, conservation, mediterranean sea.

**Summary**

The general aim of this project is to establish the factors that help to explain the distribution and abundance of sea birds in the western Mediterranean area, emphasizing the intra and interspecific competition for food, such as the fishing activities. In order to evaluate these effects, we will apply the stable isotope of nitrogen and carbon measuring technique. Secondly, we will study how these factors have influenced the demographic parameters of these populations.

**Referència:** REN-2000-1471-C02/MAR. Ministeri de Ciència i Tecnologia.  
**Títol:** *Flujo de carbono en la región Canaria: acoplamiento entre exportación costera y demanda oceánica.*  
**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).  
**Investigadora responsable:** [AGUSTÍ REQUENA, Susana](#).  
**Categoria:** Científica titular del CSIC.  
**Inici:** 2000.                    **Fi:** 2003.

**Referència:** REN-2001-5060E/MAR. Ministeri de Ciència i Tecnologia.  
**Títol:** *Producción de carbono orgánico disuelto por el fitoplancton en la región Canaria del Atlántico.*  
**Investigadora responsable:** [AGUSTÍ REQUENA, Susana](#).  
**Categoria:** Científica titular del CSIC.  
**Inici:** 2001.                    **Fi:** 2003.

**Referència:** REN2002-04165-CO3-02. Ministeri de Ciència i Tecnologia.  
**Títol:** *Luz y nutrientes como recursos: respuestas del microplancton y génesis de la heterogeneidad espacial en el océano sur.*  
**Acrònim:** ICEPOS.  
**Investigador responsable:** [DUARTE QUESADA, Carlos](#).  
**Categoria:** Professor d'investigació del CSIC.  
**Inici:** 2000.                    **Fi:** 2005.

**Referència:** VEM2003-20081-C02-02.  
**Títol:** *Evaluación del impacto de los vertidos del Prestige sobre el ecosistema de la plataforma y sus recursos pesqueros. Biología de los recursos.*  
**Acrònim:** ECOPRESTIGE.  
**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).  
**Investigadora responsable:** [MORALES NIN, Beatriz](#).  
**Categoria:** Científica titular del CSIC.  
**Inici:** 2002.                    **Fi:** 2005.

**Referència:** 2/2002-IA. Conselleria d'Agricultura i Pesca del Govern de les Illes Balears.  
**Modalitat:** Ajudes per a la investigació en matèria d'agricultura i pesca en l'àmbit de les Illes Balears.  
**Títol:** *Estudi de la forma corporal del raor *Xyrichthys novacula* i la seva aplicació per a la discriminació de poblacions.*  
**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).  
**Investigadora responsable:** [MORALES NIN, Beatriz](#).  
**Categoria:** Científica titular del CSIC.  
**Inici:** 2003.                    **Fi:** 2003.



**INSTITUT UNIVERSITARI D'INVESTIGACIONS EN  
CIÈNCIES DE LA SALUT (IUNICS)**



**Referència:** BFM2003-00771. Ministeri de Ciència i Tecnologia.

**Modalitat:** Promoció general del coneixement.

**Títol:** *Modelos algebraicos, gráficos y borrosos en biología molecular.*

**Acrònim:** ALBIOM.

**Centre:** Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).

**Investigador responsable:** [ROSSELLÓ LLOMPART, Francesc A.](#)

**Categoria:** CEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003.

**Fi:** 2006.

<b>Membres de l'equip</b>	<b>Categoria</b>	<b>Dedicació (EDP)</b>
<a href="#">Rosselló Llompart, Francesc A.</a>	CEU	1
<a href="#">Alberich Martí, Ricard</a>	TEU	1
<a href="#">Casasnovas Casasnovas, Jaume</a>	CEU	1
<a href="#">Llabrés Segura, Mercè</a>	TEU	1
<a href="#">Miró Julià, Josep J. A.</a>	TU	1

**EDP del grup investigador de l'entitat sol·licitant: 5.**

### **Summary**

This project is within the field of computational biology, and its intention is to contribute to the development and application of new mathematical models in molecular biology in the three following areas:

- The development of new algebraic and discrete models of the three-dimensional structures of the molecules of RNA and proteins, and its application to the study of new notions of distances and similarities among them.
- The study of weighted graphs as models of biological systems; in particular, the development of new notions of clustering in weighted graphs and new realistic models of the dynamics of these graphs and their application to the modeling of biological systems.
- The development of a theory of fuzzy genomes as a simultaneous model of the incomplete knowledge and the homology of nucleic acid molecules and proteins.



## **ACCIONS INTEGRADES**



**Referència:** HA2000-0012.

**Acció:** Hispano-alemanya.

**Títol:** *Polarization patterns and fluctuations in nonlinear optical systems.*

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Departament:** Física.

**Període:** 2001-2003.

**Referència:** HI2000-0027.

**Acció:** Hispano-italiana.

**Títol:** *Estructuras localizadas en cavidades ópticas no lineales.*

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Departament:** Física.

**Període:** 2001-2003.

**Referència:** HA2001-0015.

**Acció:** Hispano-alemanya.

**Títol:** *Evaluación de los parámetros termodinámicos de interacciones metalosupramoleculares para la formación de ensamblajes cíclicos y poliméricos, estudio de sus propiedades funcionales.*

**Investigador responsable:** [BALLESTER BALAGUER, Pau.](#)

**Departament:** Química.

**Període:** 2002-2004.

**Referència:** HP2002-0031.

**Acció:** Hispano-portuguesa.

**Títol:** *Microsimulación de las reformas de los sistemas de redistribución y de las políticas sociales: análisis de la política familiar en España y en Portugal en un marco comparado europeo.*

**Investigador responsable:** [SPADARO, Amedeo.](#)

**Departament:** Economía Aplicada.

**Període:** 2003.





## **ACCIONS ESPECIALS**

**Referència:** SAF2001-4859-E.

**Títol:** *Lípidos de la dieta como factores de riesgo para la salud. Mecanismo de acción.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** PALOU OLIVER, Andreu.

**Categoria:** CU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2002. **Fi:** 2004.

**Referència:** SAF2002-11011-E.

**Títol:** *Red de excelencia europea en nutrigenómica.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** PALOU OLIVER, Andreu.

**Categoria:** CU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2003. **Fi:** 2006.

**Referència:** REN2002-10539-E.

**Títol:** *III Congreso de la Asociación Española de Climatología.*

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** GRIMALT GELABERT, Miquel.

**Categoria:** TU (àrea de coneixement: Geografia Física).

**Inici:** 2003. **Fi:** 2004.

**Referència:** BHA2002-11587-E.

**Títol:** *VII Encuentro entre técnicos e historiadores. Evolución del territorio como punto de encuentro trasdisciplinar.*

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigadora responsable:** MOLL BLANES, Isabel.

**Categoria:** CU (àrea de coneixement: Història Contemporània).

**Inici:** 2003. **Fi:** 2003.

**Referència:** BHA2002-11647-E.

**Títol:** *I Encuentro de Demografía Histórica de la Europa Meridional.*

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigadora responsable:** MOLL BLANES, Isabel.

**Categoria:** CU (àrea de coneixement: Història Contemporània).

**Inici:** 2003. **Fi:** 2003.

**Referència:** TIC2002-10743-E.

**Títol:** *An automatic human model animation environment for augmented reality interaction.*

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** PERALES LÓPEZ, Francisco José.

**Categoria:** TU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003. **Fi:** 2006.

**Referència:** TIC2002-10616-E.

**Títol:** *First Iberian Conference on Pattern Recognition and Image Analysis.*

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** [GONZÁLEZ HIDALGO, Manuel.](#)

**Categoria:** TU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003.                      **Fi:** 2003.

**Referència:** SEC2002-10980-E.

**Títol:** *Escuela de verano en evaluación de políticas públicas.*

**Centre:** Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** [SPADARO, Amedeo.](#)

**Categoria:** TU (àrea de coneixement: Economia Aplicada).

**Inici:** 2003.                      **Fi:** 2003.

**Referència:** BFF2001-5441-E.

**Títol:** *The Evolutionary Impact of Evolutionary Thought.*

**Centre:** Departament de Filosofia i Treball Social. Edifici Ramon Lull.

**Investigador responsable:** [CELA CONDE, Camilo José.](#)

**Categoria:** CU (àrea de coneixement: Filosofia Moral).

**Inici:** 2002.                      **Fi:** 2003.

**Referència:** REN2001-5431-E.

**Títol:** *Towards sustainable water use on mediterranean islands: adressing conflicting demands and varyng hidrological, social and economic conditions (MEDIS).*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [ALONSO OROZA, Sergio.](#)

**Categoria:** CU (àrea de coneixement: Física de la Terra).

**Inici:** 2002.                      **Fi:** 2006.

**Referència:** REN2001-5175-E/CLI.

**Títol:** *Organizació de la 4th Plinius Conference on Mediterranean Storms.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [ROMERO MARCH, Romuald.](#)

**Categoria:** TU (àrea de coneixement: Física de la Terra, Astronomia i Astrofísica).

**Inici:** 2002.                      **Fi:** 2003.

**Referència:** REN2002-10018-E/CLI.

**Títol:** *Red ibérica para la investigación y desarrollo de aplicaciones en base al modelo atmosférico MM5.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [ROMERO MARCH, Romuald.](#)

**Categoria:** TU (àrea de coneixement: Física de la Terra, Astronomia i Astrofísica).

**Inici:** 2002.                      **Fi:** 2004.

**Referència:** TIC2001-4484-E.

**Títol:** *Optical chaos communication using laser-diodes transmitters.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** MIRASSO SANTOS, Claudio Rubén.

**Categoria:** TU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2002.                      **Fi:** 2004.

**Referència:** TIC2002-10328-E.

**Títol:** *Occult, optical chaos communication using laser-diodes transmitters.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** MIRASSO SANTOS, Claudio Rubén.

**Categoria:** TU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** AYA2002-10847-E.

**Títol:** *SOHO 13: waves, oscillations and small scale events in the solar atmosphere, a joint view from TRACE and SOHO.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** BALLESTER MORTES, Josep Lluís.

**Categoria:** CU (àrea de coneixement: Astronomia i Astrofísica).

**Inici:** 2003.                      **Fi:** 2003.

**Referència:** DIF2003-10018-E.

**Títol:** *III Semana de la Ciencia y Tecnología en la UIB.*

**Centre:** Oficina de Suport a la Recerca. Edifici Son Lledó.

**Investigadora responsable:** TURNES PALOMINO, Gemma I.

**Categoria:** TU (àrea de coneixement: Química Inorgànica).

**Inici:** 2003.                      **Fi:** 2003.

**Referència:** BSO2001-4442-E.

**Títol:** *I Jornadas de Teoría y Psicología. Representación y Significado: Una Aproximación Multidisciplinar.*

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** GOMILA BENEJAM, Antoni.

**Categoria:** TU (àrea de coneixement: Psicologia Bàsica).

**Inici:** 2002.                      **Fi:** 2003.

**Referència:** BSO2002-11074-E.

**Títol:** *II Jornadas de Teoría y Psicología: Evolución de la Mente.*

**Centre:** Departament de Psicologia. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** GOMILA BENEJAM, Antoni.

**Categoria:** TU (àrea de coneixement: Psicologia Bàsica).

**Inici:** 2003.                      **Fi:** 2003.

**Referència:** BFM2001-4180-E.

**Títol:** *Quantum Images.*

**Centre:** IMEDEA-Departament de Física.

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2002.                   **Fi:** 2003.

**Referència:** REN2000-2123-E.

**Títol:** *Cooperación hispano-australiana en la modelización de la colonización de praderas submarinas de Posidonia.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [DUARTE QUESADA, Carlos.](#)

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2001.                   **Fi:** 2003.

**Referència:** REN2000-3091-CE/MAR.

**Títol:** *Management and monitoring of seagrass beds (M&MS).*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [DUARTE QUESADA, Carlos.](#)

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2001.                   **Fi:** 2004.

**Referència:** REN2000-3116-CE/MAR.

**Títol:** *Nutrients cycling and the trophic status of coastal ecosystems (EUROTROPH).*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [DUARTE QUESADA, Carlos.](#)

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2001.                   **Fi:** 2004.

**Referència:** REN2002-10871-E/ANT.

**Títol:** *Regulación de la producción, crecimiento y mortalidad del fitoplancton antártico por la interacción entre radiación ultravioleta y disponibilidad de amonio.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [DUARTE QUESADA, Carlos.](#)

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2003.                   **Fi:** 2005.

**Referència:** REN2001-5504-E/GLO.

**Títol:** *Comité español IGBP.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [DUARTE QUESADA, Carlos.](#)

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2002.                   **Fi:** 2003.

**Referència:** REN2002-12285-E MAR.

**Títol:** *Preparación de propuesta de red de excelencia Eur-Oceans.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** DUARTE QUESADA, Carlos.

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2003.                    **Fi:** 2004.

**Referència:** REN2002-10001-E/MAR.

**Títol:** *Effects of nutrient release from Mediterranean fish farms on benthic vegetation in coastal ecosystems (MEDVEG).*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** DUARTE QUESADA, Carlos.

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2002.                    **Fi:** 2003.

**Referència:** DIF2001-4379-E.

**Títol:** *Difusión de resultados de un grupo de investigación de calidad: el campo de la biología de la conservación.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** ORO DE RIVAS, Daniel.

**Categoria:** Científic titular del CSIC.

**Inici:** 2002.                    **Fi:** 2004.

**Referència:** REN2002-12249-E.

**Títol:** *Mediterranean ocean forecasting system: toward environmental predictions (MFSTEP).*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** TINTORÉ SUBIRANA, Joaquim.

**Categoria:** Professor d'investigació del CSIC.

**Inici:** 2003.                    **Fi:** 2006.

**Referència:** REN2002-11198-E.

**Títol:** *Apoyo al programa de intervención científica en I+D para la acción estratégica contra vertidos marinos.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** MORALES NIN, Beatriz.

**Categoria:** Científica titular del CSIC.

**Inici:** 2003.                    **Fi:** 2006.

**Referència:** BIO2000-3114-E.

**Títol:** *Participació en el projecte 'Estudio internacional doble ciego para la identificación de las especies de Pseudomonas'.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** LALUCAT JO, Jordi.

**Categoria:** CU (àrea de coneixement: Microbiologia).

**Inici:** 2002.                   **Fi:** 2003.

**Referència:** REN2002-10606-E/MAR.

**Títol:** *Mortalidad de fitoplancton en el mediterráneo occidental: participación en la campaña Pelagia 2003.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** AGUSTÍ REQUENA, Susana.

**Categoria:** Científica titular del CSIC.

**Inici:** 2002.                   **Fi:** 2004.

**Referència:** REN2002-10592-E.

**Títol:** *XV Reunión de la Sociedad Española de Fisiología Vegetal y VIII Congreso Hispano-luso.*

**Centre:** IMEDEA-Departament de Biologia.

**Investigador responsable:** MEDRANO GIL, Hipólito.

**Categoria:** CU (àrea de coneixement: Fisiologia Vegetal).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** REN2002-10771-E/MAR.

**Títol:** *Campaña oceanográfica BIOMEGA.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Responsable:** GOMIS BOSCH, Damià.

**Categoria:** TU (àrea de coneixement: Física de la Terra).

**Inici:** 2003.                   **Fi:** 2003.

**Referència:** REN2002-10918-E/MAR.

**Títol:** *Projecte europeu ESEAS.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Responsable:** GOMIS BOSCH, Damià.

**Categoria:** TU (àrea de coneixement: Física de la Terra).

**Inici:** 2002.                   **Fi:** 2005.

**Referència:** REN2002-11169-E.

**Títol:** *Medición de ondas largas en la boca del puerto de Sant Antoni de Ibiza.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Responsable:** MONSERRAT TOMÀS, Sebastià.

**Categoria:** TU (àrea de coneixement: Física de la Terra).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** REN2002-11018-E.

**Títol:** *Estudio integrado de las bases biológicas de la estimación de la edad con otolitos en dos especies de interés comercial, merluza (Merluccius merluccius) y bacalao (Gadus morhua).*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [MORALES NIN, Beatriz.](#)

**Categoria:** Científica titular del CSIC.

**Inici:** 2002.                      **Fi:** 2005.

**Referència:** REN2002-107001-E/MAR.

**Títol:** *Influencia de la estructura y dinámica oceanográfica sobre poblaciones demersales en aguas de las Islas Baleares.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [MORALES NIN, Beatriz.](#)

**Categoria:** Científica titular del CSIC.

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** REN2002-10034-E.

**Títol:** *Conferencia electrónica sobre las obras de vida media del BIO Hespérides.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigadora responsable:** [MORALES NIN, Beatriz.](#)

**Categoria:** Científica titular del CSIC.

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** TIC2001-4572-E.

**Títol:** *Comunicación óptica utilizando transmisores láser. Complemento a proyecto europeo OCCULT.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [COLET RAFECAS, Pere.](#)

**Categoria:** Científic titular del CSIC.

**Inici:** 2001.                      **Fi:** 2004.

**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Bioinformàtica: projecte present, realitat futura.*

**Centre:** Departament de Biologia. Edifici Guillem Colom Casasnovas.

**Investigador responsable:** [CASTRO OCÓN, José Aurelio.](#)

**Categoria:** TU (àrea de coneixement: Genètica).

**Inici:** 2002.                      **Fi:** 2003.



**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Seminari sobre educació i patrimoni cultural.*

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [COLOM CAÑELLAS, Antoni J.](#)

**Categoria:** CU (àrea de coneixement: Teoria i Història de l'Educació).

**Inici:** 2002.                      **Fi:** 2003.

**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Seminari sobre la Interpretació del Patrimoni i Desenvolupament Cultural.*

**Centre:** Departament de Ciències de l'Educació. Edifici Guillem Cifre de Colonya.

**Investigador responsable:** [SUREDA NEGRE, Jaume.](#)

**Categoria:** CU (àrea de coneixement: Didàctica i Organització Escolar).

**Inici:** 2002.                      **Fi:** 2003.

**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Red temática europea: aspectos sociales de la investigación en genética humana.*

**Centre:** Departament de Filosofia i Treball Social. Edifici Ramon Llull.

**Investigadora responsable:** [AMBROGI ÁLVAREZ, Adelaida.](#)

**Categoria:** TU (àrea de coneixement: Lògica i Filosofia de la Ciència).

**Inici:** 2002.                      **Fi:** 2003.

**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Estudio de la organización de la actividad eléctrica auricular en la fibrilación auricular crónica.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [MIRASSO SANTOS, Claudio Rubén.](#)

**Categoria:** TU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2002.                      **Fi:** 2003.

**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Vents nocturns locals a Mallorca: estudi per simulació numèrica.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [CUXART RODAMILANS, Joan.](#)

**Categoria:** INVESTIGADOR CONTRACTAT.

**Inici:** 2002.                      **Fi:** 2003.

**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Estimació de paràmetres demogràfics en poblacions de vertebrats.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [ORO DE RIVAS, Daniel.](#)

**Categoria:** Científic titular del CSIC.

**Inici:** 2002.                    **Fi:** 2003.

**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Colloquium on new challenges on nonlinear and statistical physics.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2002.                    **Fi:** 2003.

**Referència:** Accions especials de recerca i desenvolupament tecnològic del Govern Balear.

**Títol:** *Estudi de les propietats dietètiques del germen de garrofi i la seva utilització per el desenvolupament d'aliments funcionals.*

**Centre:** Química.

**Investigador responsable:** [GRASES FREIXEDAS, Felicià.](#)

**Categoria:** CU (àrea de coneixement: Química Analítica).

**Inici:** 2002.                    **Fi:** 2003.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Eines de la comunicació per a la difusió dels resultats d'investigació.*

**Centre:** Vicerectorat de Política Científica.

**Investigador responsable:** [MUÑOZ IZQUIERDO, Francisco.](#)

**Categoria:** CU (àrea de coneixement: Química Física).

**Inici:** 2003.                    **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Detecció de toxicitat i capacitat mutagènica de productes químics reaccionats amb bases púriques en *Drosophila melanogaster*.*

**Centre:** Biologia.

**Investigador responsable:** [CASTRO OCÓN, José Aurelio.](#)

**Categoria:** TU (àrea de coneixement: Genètica).

**Inici:** 2003.                    **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Constitució de la Xarxa Interdisciplinària d'Estudi de l'Evolució Insular (INSULAEVOL).*

**Centre:** Biologia.

**Investigadora responsable:** [RAMON JUANPERE, Misericòrdia.](#)

**Categoria:** TU (àrea de coneixement: Genètica).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Estudi de l'activitat citoquinina de distintes sèries de nous composts sintètics a plantes.*

**Centre:** Biologia.

**Investigadora responsable:** [CABOT BIBILONI, Catalina.](#)

**Categoria:** TU (àrea de coneixement: Fisiologia Vegetal).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Patògenos e indicadors en fangos de depuradores (MICROSLUDGE).*

**Centre:** Biologia.

**Investigador responsable:** [LALUCAT JO, Jordi.](#)

**Categoria:** CU (àrea de coneixement: Microbiologia).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Constitució del Grup de Biologia d'Espècies Invasores Marines.*

**Centre:** Biologia.

**Investigadora responsable:** [DEUDERO COMPANYY, Salut.](#)

**Categoria:** Aj. U (àrea de coneixement: Zoologia).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Producció de biohidrògen a partir de residus orgànics.*

**Centre:** Biologia.

**Investigador responsable:** [BENNÀSAR ROIG, Antoni.](#)

**Categoria:** CEU (àrea de coneixement: Fisiologia Vegetal).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Adaptació de la tecnologia d'ADN a mostres forenses.*

**Centre:** Biologia.

**Investigador responsable:** [PICORNELL RIGO, Antònia](#).

**Categoria:** TEU (àrea de coneixement: Genètica).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Creació d'una base de dades integrada per a la xarxa temàtica dedicada a l'estudi de la dieta mediterrània en la prevenció primària de les malalties.*

**Centre:** Biologia Fonamental i Ciències de la Salut.

**Investigador responsable:** [OLIVER OLIVER, Jordi](#).

**Categoria:** TEU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Posada en marxa del disseny d'aliments funcionals a partir d'ametlla dirigits a malalts de porfíria.*

**Centre:** Biologia Fonamental i Ciències de la Salut.

**Investigador responsable:** [PONS BIESCAS, Antoni](#).

**Categoria:** TU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Avaluació de la conflictivitat pares i fills adolescents en les famílies de la CAIB.*

**Centre:** Ciències de l'Educació.

**Investigadora responsable:** [FERRÀ COLL, Patrícia](#).

**Categoria:** TEU (àrea de coneixement: Teoria i Història de l'Educació).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Difusió i explotació de la base de dades del patrimoni cultural de Mallorca.*

**Centre:** Ciències de l'Educació.

**Investigador responsable:** [COLOM CAÑELLAS, Antoni J.](#)

**Categoria:** CU (àrea de coneixement: Teoria i Història de l'Educació).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Creació d'una xarxa d'investigació i intercanvi de materials i d'experiències de formació entre universitats.*

**Centre:** Ciències de l'Educació.

**Investigador responsable:** [SALINAS IBÁÑEZ, Jesús M.](#)

**Categoria:** TU (àrea de coneixement: Didàctica i Organització Escolar).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Conversió dels curtsmetratges d'animació per ordinador del Màster Maisca a 35 mm pel seu enviament a la Xarxa Internacional de Festivals de Cinema.*

**Centre:** Ciències Matemàtiques i Informàtica.

**Investigador responsable:** [MONTES DE OCA DURAN, Juan A.](#)

**Categoria:** TEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Relació entre l'estructura web i l'activitat empresarial a les Illes Balears.*

**Centre:** Ciències Matemàtiques i Informàtica.

**Investigador responsable:** [VALVERDE GARCIA, Llorenç.](#)

**Categoria:** CU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Presentació de propostes de projecte europeu de treball col·laboratiu i usuaris mòbils.*

**Centre:** Ciències Matemàtiques i Informàtica.

**Investigador responsable:** [GALLI, Ricardo Adolfo.](#)

**Categoria:** AS. ESTR. (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Xarxa Audiovisual de les Illes Balears.*

**Centre:** Ciències Matemàtiques i Informàtica.

**Investigador responsable:** [BIBILONI COLL, Antoni.](#)

**Categoria:** TEU. (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Jornades Tècniques RedIRIS 2003.*

**Centre:** Ciències Matemàtiques i Informàtica.

**Investigador responsable:** [FONTANET NADAL, Gabriel.](#)

**Categoria:** TEU. (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Constitució d'una xarxa de recerca sobre modelització de dades turístiques d'alta freqüència.*

**Centre:** Economia Aplicada.

**Investigador responsable:** [SANSÓ ROSSELLÓ, Andreu.](#)

**Categoria:** TU (àrea de coneixement: Economia Aplicada).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Projecte per la consolidació de la xarxa de recerca en l'àrea d'anàlisi d'estructures de formigó i activitats de difusió de la xarxa a les Illes Balears.*

**Centre:** Física.

**Investigador responsable:** [CLADERA BOHIGAS, Antoni.](#)

**Categoria:** P. Col. (àrea de coneixement: Mecànica de Medis Continus i Teoria de les Estructures).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Jornada tècnica i xarxa sobre el desenvolupament d'energies renovables i tècniques de millora de la eficiència energètica per a l'assoliment de sistemes energètics més sostenibles.*

**Centre:** Física.

**Investigador responsable:** [MARTÍNEZ MOLL, Víctor.](#)

**Categoria:** TEU int. (àrea de coneixement: Enginyeria Mecànica).

**Inici:** 2003.                      **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *II Seminario de Neurociencia Cognitiva.*

**Centre:** Psicologia.

**Investigador responsable:** [MONTROYA JIMÉNEZ, Pedro.](#)

**Categoria:** TU (àrea de coneixement: Psicobiologia).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Gestión integrada de zonas costeras ante vertidos de hidrocarburos en el Mar Balear.*

**Centre:** Química.

**Investigador responsable:** [BERGUEIRO LÓPEZ, José Ramón.](#)

**Categoria:** TU (àrea de coneixement: Enginyeria Química).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Valorització de productes resultants de la incineració de residus sòlids urbans.*

**Centre:** Química.

**Investigador responsable:** [FORTEZA COLL, Rafael A.](#)

**Categoria:** TU (àrea de coneixement: Química Analítica).

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *Aplicación de nuevas metodologías de análisis de imagen a la determinación de la edad de peces por extracción de anillos de crecimiento de los otolitos.*

**Centre:** IMEDEA.

**Investigador responsable:** [TOMÁS OLAGUE, Javier.](#)

**Inici:** 2003.                   **Fi:** 2004.

**Referència:** Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.

**Títol:** *De genes a ecosistemas: el uso de marcadores moleculares como técnica integradora de la fisiología, ecología y evolución de plantas.*

**Centre:** IMEDEA.

**Investigadora responsable:** [TRAVESET VILAGINÉS, Anna.](#)

**Inici:** 2003.                   **Fi:** 2004.





## **ALTRES ACCIONS**



**Projecte:** Acció COST 918.

**Títol:** *Body weight and energy expenditure. Functional food and nutrition technology.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigador responsable:** PALOU OLIVER, Andreu.

**Categoria:** CU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Inici:** 1998.                      **Fi:** 2003.

**Projecte:** Acció COST 267.

**Títol:** *Semiconductor devices for signal processing.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** BALLE MONJO, Salvador.

**Categoria:** TU (àrea de coneixement: Física de la Matèria Condensada).

**Projecte:** Acció COST 722.

**Títol:** *Short-range forecasting methods of fog, visibility and low clouds.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** CUXART RODAMILANS, Joan.

**Categoria:** INVESTIGADOR CONTRACTAT.

**Inici:** 2001.                      **Fi:** 2006.

**Projecte:** Acció COST 858.

**Títol:** *Biotic and abiotic stress: grapevine defense mechanism and grape development.*

**Centre:** Departament de Biologia. Edifici Guillem Colom Casanovas.

**Investigador responsable:** MEDRANO GIL, Hipólito.

**Categoria:** CU (àrea de coneixement: Fisiologia Vegetal).

**Inici:** 2003.                      **Fi:** 2009.

**Referència:** Acció COST 102.

**Títol:** *Physics of risk.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** SAN MIGUEL RUIBAL, Maximino.

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2003.                      **Fi:** 2005.

**Referència:** IST-1999-29064.

**Títol:** *Quantum information processing & communications network of excellence.*

**Acrònim:** QUIPROCONE.

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** SAN MIGUEL RUIBAL, Maximino.

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Inici:** 2000.                      **Fi:** 2003.

**Referència:** 2002AR0012.

**Títol:** *Efectos constructivos del ruido en sistemas dinámicos y sistemas extendidos.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Organisme:** CSIC-CONICET.

**Inici:** 2002.                   **Fi:** 2003.

**Referència:** Red 84.

**Títol:** *PHASE: Phase Domains and Spatial Solitons in Nonlinear Optics.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Organisme:** European Science Foundation.

**Inici:** 2000.                   **Fi:** 2003.

**Títol:** *STOCHDYN: Stochastic Dynamics. Fundamentals and Applications.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Organisme:** European Science Foundation.

**Inici:** 2002.                   **Fi:** 2007.

**Referència:** Xarxa Temàtica de la Generalitat de Catalunya.

**Títol:** *Dinàmiques no lineals d'autoorganització espaciotemporal.*

**Centre:** Institut Mediterrani d'Estudis Avançats (IMEDEA).

**Investigador responsable:** [SAN MIGUEL RUIBAL, Maximino.](#)

**Categoria:** CU (àrea de coneixement: Física de la Matèria Condensada).

**Organisme:** Generalitat de Catalunya.

**Inici:** 2000.                   **Fi:** 2003.

**Referència:** Projecte AECL.

**Títol:** *Desarrollo de métodos automáticos para la especiación de compuestos nitrogenados y fosforados. Aplicación al análisis de aguas residuales.*

**Centre:** Departament de Química. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [CERDÀ MARTÍN, Víctor.](#)

**Categoria:** CU (àrea de coneixement: Química Analítica).

**Centre d'aplicació:** Laboratorio de Espectroscopia Molecular. Departament de Química. Facultad de Ciencias. Universidad de Los Andes. Núcleo de la Hechicera. Mérida. Venezuela.

**Referència:** Projecte AECl.

**Títol:** *Benchmarking pour commerce electronique.*

**Centre:** Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.

**Investigador responsable:** [PUIGJANER TREPAT, Ramon.](#)

**Categoria:** CU (àrea de coneixement: Arquitectura i Tecnologia de Computadors).

**Centre d'aplicació:** Université de la Manouba-Tunis. Tunísia.

**Inici:** 2003. **Fi:** 2005.

**Referència:** II-02-066 EC.

**Títol:** *X-ray diffraction study of lamellar, and nonlamellar forming lipids with synthetic peptides of G-protein and Alpha2 Adrenergic-receptor sequences.*

**Centre:** Departament de Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casanovas.

**Investigadora responsable:** [BARCELÓ MAIRATA, Francesca M.](#)

**Categoria:** TU (àrea de coneixement: Bioquímica i Biologia Molecular).

**Organisme:** Deutches Electronen-Synchrotron.

**Inici:** 2002. **Fi:** 2005.

**Referència:** NATO-PST-CL6-976135.

**Títol:** *Non linear and non-adiabatic magneto-hydrodynamic waves in solar coronal structures.*

**Centre:** Departament de Física. Edifici Mateu Orfila i Rotger.

**Investigador responsable:** [BALLESTER MORTES, Josep Lluís.](#)

**Categoria:** CU (àrea de coneixement: Astronomia i Astrofísica).

**Organisme:** Oficina Científica de la NATO.

**Inici:** 1999. **Fi:** 2003.

**Referència:** UMR-8585.

**Títol:** *Le quotidien institutionnel des cités municipales.*

**Centre:** Departament de Ciències de la Terra. Edifici Guillem Colom Casanovas.

**Investigador responsable:** [GARCÍA RIAZA, Enrique.](#)

**Categoria:** TEU (àrea de coneixement: Història Antiga).

**Organisme:** Centre National de la Recherche Scientifique.

**Inici:** 2003. **Fi:** 2003.

**Referència:** 213854-CP-3-2003-1-PT.

**Títol:** *PHOENIX: European thematic network on health and social welfare policy.*

**Centre:** Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.

**Investigadora responsable:** [MOLL BLANES, Isabel.](#)

**Categoria:** CU (àrea de coneixement: Història Contemporània).

**Organisme:** Unió Europea.

**Inici:** 2003. **Fi:** 2004.

**Títol:** *Attività per la formazine di operatori del diritto in materia di accesso alla giustizia dei consumatori europei nelle controversie transnazionali e di rilevanza comunitaria.*

**Centre:** Departament de Dret Privat. Edifici Anselm Turmeda.

**Investigadora responsable:** [TAPIA FERNÁNDEZ, Isabel.](#)

**Categoria:** CU (àrea de coneixement: Dret Processal).

**Organisme:** Unió Europea.

**Inici:** 2003. **Fi:** 2004.

**Títol:** *Las interacciones ecológicas entre plantas y animales como generadoras de biodiversidad: su papel en la dinámica y conservación de los ecosistemas.*

**Centre:** Institut Mediterrani d'Estudis Avançats.

**Investigadora responsable:** [TRAVESET VILAGINÉS, Anna.](#)

**Categoria:** Investigadora científica del CSIC.

**Organisme:** CYTED.

**Inici:** 2003. **Fi:** 2007.

**Títol:** *Estudio comparativo de dos especies de Cneoraceae de distribución disyunta en España y Cuba.*

**Centre:** Institut Mediterrani d'Estudis Avançats.

**Investigadora responsable:** [TRAVESET VILAGINÉS, Anna.](#)

**Categoria:** Investigadora científica del CSIC.

**Organisme:** CSIC-CITMA.

**Inici:** 2003. **Fi:** 2004.

**Títol:** *Micro-level analysis of the European Social Agenda: combating poverty and social exclusion through changes in social and fiscal policy.*

**Centre:** Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** [SPADARO, Amedeo.](#)

**Categoria:** TU (àrea de coneixement: Economia Aplicada).

**Organisme:** Unió Europea (Targeted Socio-Economic Research Program, CT2001-0099).

**Inici:** 2001. **Fi:** 2004.

**Títol:** *Economics of Ageing in Europe (AGE).*

**Centre:** Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** [SPADARO, Amedeo.](#)

**Categoria:** TU (àrea de coneixement: Economia Aplicada).

**Organisme:** Unió Europea (RTN European Program, HPRN-CT-2002-00235).

**Inici:** 2002. **Fi:** 2005.

**Títol:** *Complex systems networks of excellence.*

**Centre:** Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.

**Investigador responsable:** [SPADARO, Amedeo.](#)

**Categoria:** TU (àrea de coneixement: Economia Aplicada).

**Organisme:** Unió Europea.

**Inici:** 2002. **Fi:** 2005.

## **ÍNDIX D'INVESTIGADORS/INVESTIGADORES**





(En majúscula, els/les investigadors/investigadores principals)

Abasolo Guerrero, María José	153
Adrover Fiol, Bartomeu	237
Afán Asencio, Isabel	279
Afonso Marrero, José A.	195
Aguado Rodríguez, Luís Ángel	212
Aguiló Pons, Antoni	108, 153
Aguiló Pons, Isabel	158
Aguiló Ribas, Josep Antoni	87
AGUSTÍ REQUENA, Susana	254, 276, 280, 295
Alberich Martí, Ricard	150, 283
ALBERTÍ SERRANO, Sebastià	257
Alcaraz Carrasco, Salvador	159
ALCOVER GARAU, Guillem	166
ALCOVER TOMÀS, Josep A.	277
Alcover, Bartomeu	133
Alegre Marín, Joaquín	175
ALEMANY ALONSO, Regina	77, 96
ALEMANY FERRÀ, Aina	15, 91
Alemany Hormaeche, Margalida	179
ALEMANY LLODRÀ, Francesc X.	98
Almeida García, Fernando	135
Alomar Canyelles, Antoni Ignasi	183
Alonso Frau, Diana	90
Alonso Frau, Raquel	91
ALONSO OROZA, Sergio	45, 46, 205, 211, 291
Alorda Ladaria, Bartomeu	210
Alorda Martorell, Maria	85
ÁLVAREZ DÍAZ, Alberto	278
AMBROGI ÁLVAREZ, Adelaida	197, 198, 297
Amengual Alcover, Esperança	153
Amengual Bunyola, Guillem A.	183
Amengual Colom, Antoni	207
Amo Usanos, Carlos	228
Anciano Martín de la F., Juan L.	159
Andrés Yeves, Marifé	91
Antich Tobaruela, Javier	155, 278
Antón Botella, Josefa	80
Arbona Femenia, Miquel	166
Arcos Pros, José Manuel	269
Arechavaleta Hernández, Manuel J.	93
Arrabal Cormenzana, Marina	120
Arregui Uribe-Echevarría, Iñigo	213
Arreola Contreras, José Luís	205
Arrom Loscos, Rosa	167
Arrondel Arrondel, Luc	176
Artigues Bonet, Antoni A.	132, 135
Baamonde Calzada, Carmela	92, 96
Badenes Plá, Núria	176
BAEZA-YATE, Ricardo	160
Baiges Blanco, Isabel Maria	89
BALAGUER COVAS, Jaume	102, 104, 107
Balaguer Huguet, Pau	125
Balius Matas, Xavier	153
BALLE MONJO, Salvador	253, 307
BALLESTER BALAGUER, Pau	243, 248, 287
Ballester Brage, Lluís	121

BALLESTER MORTES, Josep Lluís	206, 213, 292, 309
Ballesteros Martínez, Francisca	258, 259
Balliu Badia, Pere Ramon	110
BARCELÓ GALINDO, Francesc	225, 230
BARCELÓ MAIRATA, Francesca M.	77, 92, 113, 309
Barroso Osuna, Julio	120
Barturen Fernández, Fernando	92
Basterretxea Oyarzábal, Gotzon	264, 278
Batle Vallespir, Josep	203
Bauzà de Mirabó Darder, Francesca	241
Becerra Hernández, Eduardo	240
Benes, Jiri	200
Benet, Mikhail	77
Bennàsar Figueras, Antoni	90, 271
BENNÀSAR ROIG, Antoni	299, 84, 85
BERGUEIRO LÓPEZ, José Ramón	263, 271, 303
Bernardo Arroyo, Miquel	229
Bernat Nicolau, Guillem	155
Besalduch Vidal, Joan	92
BIBILONI COLL, Antoni	116, 120, 153, 301
Bibiloni Martí, Francesca	236
Bibiloni Oliver, Gabriel	88
BINIMELIS SEBASTIÁN, Jaume	128, 134
Blanco Merlo, José R.	197
Blanco Trejo, Florentino	227
BLÁZQUEZ SALOM, Macià	132
Bollo Arocena, María D.	171
BONA GARCIA, Carles	41
Bonet Piña, M. Lluïsa	102, 104, 109, 110, 112
Bonner, Anthony	183
Borchert, Gudrun	92
BORNAS AGUSTÍ, F. Xavier	220
Borràs Rotger, Pere Antoni	122
Borràs Sansaloni, Carme	231
Bosch Juan, M. Carme	189
Bosch Zaragoza, Rafael	90, 271
Bota Ferragut, Sebastià A.	212
Bota Salort, Josefina	85, 86
Bover Arbós, Pere	277
BOVER BOVER, Andreu	217
Bru Martínez, Lluís	179
BRUNET ESTARELLAS, Pere Joan	135
Buades Juan, Josep Maria	141
Buades Rubio, Josep M.	153
BUJOSA HOMAR, Francesc	151
Burges Cruz, Lucrecia	195, 228
Burguera Burguera, Antoni	155, 278
Cabello Vives, Mercedes Y.	104
Cabero Almenara, Julio	120
CABOT BIBILONI, Catalina	84, 299
CABRÉ CASTELLVÍ, M. Teresa	160
Cabré Lunas, Laura	189
Cajal Blasco, Berta	224, 231, 232
Calafat Far, Amador	224, 232
Calveras Maristany, Aleix	179
Calvo Garzón, Francisco	227
CALVO IBÁÑEZ, Óscar Alberto	42, 212, 261
Calvo Sánchez, Tomasa	152, 158

Calvo Sastre, Ana M. ....	217
Calvo Trias, Manuel A. ....	138
Campins Pons, Joan ....	205
Canals Casas, Ramon ....	223
Candel Sanmartín, Miguel ....	199
Cañellas Dols, Francesca ....	233
Cañellas Mut, Jaume ....	245
Cañellas Serrano, Nicolau ....	83
Capellà Roig, Margalida ....	171
Capó, Damiana ....	77
Carbonell Huguet, Marc ....	206, 213
Carbonero Gamundí, M. Antònia ....	196
Cardo Jalón, Esther ....	222
Cardona Coll, Daniel ....	176
CAROT GINER, Jaume Jesús ....	208
Carrasco Martorell, Lorenza ....	156
CASAS AMETLLER, Montserrat ....	203
Casas Rodríguez, Jesús ....	92
Casasnovas Casasnovas, Jaume ....	150, 152, 283
Casero Martínez, Antonio ....	118
Cases Porcel, Núria ....	108
Castro Iglesias, M. del Carmen ....	231
Castro Marrero, Jesús ....	92
Castro Nogueira, Laureano ....	195, 199
CASTRO OCÓN, José Aurelio ....	79, 95, 233, 296, 298
CATEURA BENNÀSSER, Pau ....	144
CAVANILLAS MÚGICA, Santiago José ....	33, 165
CELA CONDE, Camilo José ....	195, 199, 291
Celma Valero, María del Pilar ....	190
Cerdà Lacaci, Amàlia ....	241
CERDÀ MARTÍN, Víctor ....	50, 240, 241, 308
Cerdán Amorós, Francis ....	188
CESARI ALIBERCH, Eduard ....	204
Chernenko, Volodymyr A. ....	204
Chialvo, Dante Renato ....	261
Cifre Bauzà, Joan ....	207
Cifre Llompart, Josep ....	89
CLADERA BOHIGAS, Antoni ....	302
Cladera Munar, Magdalena ....	175
COCA PAYERAS, Miquel ....	163
COLET RAFECAS, Pere ....	67, 253, 260, 261, 296
Coll Coll, Aina Maria ....	142
Coll Conesa, Jaume ....	138
Coll Mayor, M. Dèbora ....	212
Coll Parets, Miquel ....	238, 246
COLL VICENS, Bartomeu ....	27, 149
Collinge March, Maria M. ....	208
COLOM CAÑELLAS, Antoni J. ....	297, 300
Colom Muntaner, Guillem ....	153
Comas Rubí, Francesca ....	119
Company Matas, Arnau ....	141
Conangia Triviño, Laura ....	209
Conde Riera, Pere B. ....	102, 104
Conde Tejón, Antonio ....	166
Contreras Díaz, Hermans G. ....	81, 93
Córdova Martínez, Alfredo ....	108
Corrales Rosales, José María ....	198
Cors Iglesias, Martí ....	132

Costa Bauzà, Antònia	247
Costa Ribas, Benjamí	138
COSTA TORRES, Antoni	243, 248
Coulomb, Bruno	241
CRESPÍ CLADERA, Rafael	179
CRUZ FELIU, Jaume	122
Cuart Pascual, Juan José	244
Cuesta Labernia, Maurici	141
CUXART RODAMILANS, Joan	209, 211, 297, 307
de Benito Crosetti, Bárbara	116, 120
de Benito Crosetti, Carola	210
de León Martí, Ana	269
del Olmo Iturriarte, Almudena	190, 191
del Rey Canteli, Elena	176
Delgado Domínguez, Adelaida	160
Delgado Ramis, Carlos	96
Delmas-Bendhia, Sonia	212
DEUDERO COMPANYY, Salut	267, 299
Deyà Bauzà, Miquel Josep	142
Deyà Serra, Pere M.	243
Deyà Tortella, Bartomeu	179
DÍAZ DE CASTRO, Francisco J.	190, 191
Diaz Medina, Antonio Jesús	213
DOLADO COSÍN, José Javier	160
DOLS SALAS, Nicolau	184
Doménech Sánchez, Antonio	257, 258, 259
Domingo Palomares, Herminio	118, 223
DONOSO PARDO, Josefa	238, 239, 246
DUARTE QUESADA, Carlos	53, 54, 55, 254, 276, 280, 293, 294
Durà Blasco, Antoni	91
Duran Pastor, Miquel	141
Egea Merlos, Carolina	96
ELORDIETA ALCIBAR, Gorka	192
Elorza Guerrero, Miguel Ángel	107
Elsholz, Olaf	240
Ensenyat Alcover, Josep F.	138
Ensenyat Pujol, Gabriel	183
Erice Ruiz, M. Carmen	157
Escalas, Félix	133
Escalona Lorenzo, José M.	85, 86
Escoda Saloni, Josep	153
ESCRIBÁ RUIZ, Pablo Vicente	77, 92
Escudero López, Juan Tomás	221, 225, 228
Espinilla Buisán, Empar	189
Espino Ibáñez, Ana María	221
ESTEBAN VALDÉS, Susana	82, 106
Estela Ripoll, Josep Manuel	240
Far Sánchez, María Micaela	241
Felipe Legaz, Francisco	104, 109, 110
Feliu Álvarez de Sotomayor, Silvia	165
Femenia Marroig, Antoni	245, 250
FEMENIES NADAL, Guillem	156
Fenollar Ferrer, Maria C.	246
Fernández Bennàssar, M. Carme	121, 151
Fernández Coca, Antonio	120
Fernández Coll, Cristina	121
Fernández González, M. Carmen	144
Fernández López, Vicente	260

Fernández Tomás, Antonio	171
FERRÀ COLL, Patrícia	300
Ferré Roig, Maria del Mar	226
Ferrer Cerdà, Elena	117
Ferrer Gomila, Josep Lluís	156, 168
Ferrer Lloret, Jaume	171
FERRER VANRELL, M. Pilar	164
Ferrerres Soler, Enriqueta	209
Fiol Arbós, Joan Jesús	237
FIOL SALA, Miquel	113
Flaquer Riutort, Joan	166, 168
Flexas Sans, Jaume	85, 89
Font Ferrer, Joan	204
Font Rosselló, Joan	212
FONTANET NADAL, Gabriel	153, 302
Forcada Barona, Ignacio	171
Fornès Bisquerra, Joan F.	138
FORNÉS PALLICER, M. Antònia	189
FORNÓS ASTÓ, Joan Josep	125
FORTEZA COLL, Rafael A.	236, 241, 303
Forteza Forteza, M. Dolors	117
Fragoso Jerez, Rosario	93, 81
Frau Caldentey, Miquel	245
Frau Munar, Joan	238, 239, 246
Frontera Beccaria, Antonio	243
Frontera Borrueco, Margalida	107
Fuentespina Vidal, Emilia	108
Fullana Puigserver, Pere	143
Fullana Rivas, Miquel Àngel	220
Furió Caldentey, Ignasi	156
Fuster Roca, Maria Antònia	110
Galiano Ibarra, Vicente	159
Gallardo Pérez, Antonio	120
Gallego Caminero, Gloria	143
Gallegos Álvarez, Maria Carmen	259
GALLI, Ricardo Adolfo	301
Galmés Galmés, Jeroni	88
Galmés Obrador, Sebastià	157, 159
GAMBÚS SAIZ, Mercè	139
Gamir, Agustín	133
Gamundí Gamundí, Antoni	106
GARAU AMENGUAL, Jaume	187, 188
Garau Rosselló, Carolina	243
Garau Sobrino, Federico F.	165
Garcia Buades, M. Esther	226
García Crespí, Federico	159
GARCÍA GARCÍA, Celso	130
García González, Ramón	247
García Herrera, Manuel	225
Garcia Mas, Alexandre	122
Garcia Mas, Francesc	83
GARCIA MORENO, Eugeni	43, 212
García Oliverors, María C.	84
GARCÍA PALMER, Francisco José	102, 101, 104, 107, 113
García Raso, Àngel	237
GARCÍA RIAZA, Enrique	309
Garcia Rosselló, Jaume	138
GARCÍA SEVILLA, Jesús A.	82

García, Martín Ezequiel	203
García-Escudero Domínguez, Enrique	85
García-Valdés Pukkits, Elena	90, 271
Garcias Gomila, Francesca	203
Garcias Lladrés, Rafael	246
Garí Ruíz, Rut	155, 158
Garrido Abenza, Pedro P.	159
Gastaldo, Denise	217
Gelabert Ferrer, Bernadí	125
Gelabert Valls, Maria	110
Genestar Julià, Catalina	139
Genovart Millet, Meritxell	269
Genovés Terol, Ana	205
GIANOTTI BAUZÀ, Magdalena	102, 101, 104, 107, 113
Gil García, José M.	210
Gil Sánchez, José	258, 259
Gil Vives, Llorenç	84
Gil-García Leiva, José Miguel	212
Gili Planas, Margalida	226, 229, 233
Gilly de la Sierra, Katja	159
Giménez García, Jordi	125
Ginard Bujosa, Antoni	128, 134
Ginés Gracia, Ángel	125
Ginés Gracia, Joaquín	125
Gomes da Siva, Iacyel	261
Gomés Hachero, José S.	138
Gómez Bellvert, Cristina	82
Gómez Benito de Valle, Enrique	240, 241
Gómez Pujol, Lluís	125
Gómez-Zurita Frau, Jesús	94
GOMILA BENEJAM, Antoni	227, 228, 292
Gomila Ribas, Margalida	263
Gomila Villalonga, Damià	261
GOMIS BOSCH, Damià	63, 264, 295
González Cid, Yolanda	155, 278
González de Alaiza, José Javier	165
GONZÁLEZ FORERO, Manuela	279
GONZÁLEZ HIDALGO, Manuel	291
González Hidalgo, Manuel	153
González Páez, Carmen	189
González Pérez, Jesús M.	132, 135
GRASES FREIXEDAS, Felicià	236, 247, 298
GRIMALT GELABERT, Miquel	131, 290
Grimalt Gomila, Josep Antoni	184
Grimalt Servera, Pedro	165
Guaita Mas, Francesc	133
Gual Cerdó, Joana M.	138
Guardiola Serrano, Francesca	102, 104
GUERRERO AYUSO, Víctor Manuel	138
Guerrero Sastre, José	278
Guerrero Tomé, Carlos	159
Guijarro Pastor, José Antonio	211
Gulías León, Javier	88
Gutiérrez García, Antonio Manuel	92
HERNÁNDEZ ALLÉS, Santiago	258, 259
HERNÁNDEZ GARCÍA, Emilio	253, 260
Herrera, Maria Teresa	77
Herrero Aisa, Luis Ángel	237

HERVÁS PALAZÓN, Juan Antonio	259
Hidalgo Taltavull, Núria	120
Hobson, Keith	279
Homar Santaner, Víctor	205
HUESA VINAIXA, M. Rosario	171
Huguet Rotger, Llorenç	156, 165
Igelmo Ganzo, Ángel	153
Iglesias Durán, Montserrat	78
Iglesias Portela, M. José	165
Igual Gómez, José Manuel	269
Iranzo Abellán, Salvador	189
Iravedra Valea, Araceli	190
Isern Riutort, Eugeni Miquel	210, 212
Izquierdo Rodríguez, Raúl	225
Janer Torrens, Joan David	171
Jansà Clar, Agustí	205
JAUME LLABRÉS, Damià	262
Jiménez Cortés, Maria Antònia	209
Jiménez López, Rafael	224, 232
Jiménez Millán, Antonio G.	190
Jiménez Pérez, Juan	256
Joergensen Nil, Hans E.	209
JUAN CLAR, Carles	81, 93, 94, 255
Juan Garau, Maria	192
Juan Jerez, Montserrat	224, 232
JUAN VIDAL, Josep	142
JUANEDA SAMPOL, C. Nativitat	175
Juiz García, Carlos	157, 159
Justo López, Roberto	104, 107
Kitatja, Klara	77
Klemm, Konstantin	265
La Fuente, Diego	153
Laita Ruiz de Asúa, M. Mercedes	131
LALUCAT JO, Jordi	90, 263, 271, 295, 299
Lanz Rivera, Juan José	190
Lapa, Rui	240
Lario García, Javier	240
Latasa Arcalis, Mikel	254
Lázaro García, Jesús	158
Lázkoz Sáez, Ruth	208
Leal Quezada, Luz Olivia	240
Lima, José Luis	240
Lisani Roca, Josep Lluís	149
Llabrés Bordoy, Jordi	220
Llabrés Segura, Mercè	150, 283
Lladó Matas, Catalina	157, 159
LLADO SAMPOL, Isabel	102, 104, 107, 113
LLADÓ VICH, Jerònia	98
Llamosí Casas, Albert	155
Llinàs Begon, Joan Lluís	200
Llinàs Martí, Antoni	238, 239
LLOBERA BALLE, Antònia	249
Llobera Cànaves, Joan	222
Llodrà Grimalt, Francesca	163, 164
Llompert Alabern, Isabel	108
Llorens Aleixandre, Noèlia	232
Llorens García, Lleonard	84
López García, José María	129

López Jiménez, Ana	220
López Pons, Antoni	138
López Sánchez, Cristóbal	260
López Simó, Francisco	167
López-Ibor Alcocer, María I.	229
LORENTE CASAFONT, Mercè	160
Louzao Arsuaga, Maite	269
Lozano Arnica, Gonzalo	179
LUJÁN LÓPEZ, José Luis	197, 198
Madroñal Duran, Abraham	187
Mahrt Nil, Larry	209
Maíz Chacón, Jorge	144
MANASSERO MAS, M. Antònia	226
Mañas Florit, Josep	157
MARBÀ BORDALBA, Núria	267, 276
March Cerdà, Martí X.	121
MARCH ISERN, Joan Gabriel	236
Marimon Riutort, Antoni	141
Marqueta Sobrino, L. N.	231
Martín González, Antonio	120
Martín Pelayo, Javier	152, 158
Martínez Abraín, Alejandro	269
Martínez Beringola, M. L.	91
Martínez Beringola, M. Luisa	91
Martínez Cañellas, Anselm M.	166
Martínez Carmena, María	171
MARTÍNEZ EGUÍLUZ, Víctor	265
Martínez Martínez, Luis	258
MARTÍNEZ MOLL, Víctor	302
MARTÍNEZ NADAL, Apol·lònia	168
Martínez Reynés, Maria R.	128
Martínez Serra, Jorge	92
MARTINEZ TABERNER, Antoni	83, 133
Martínez, Rosa	133
Martorell Crespí, Gabriel	243
MARTY BROQUET, Gisèle	221, 228
Mas Franch, Lluís	208
Mas Grimalt, Margarida	152
Mas Pichaco, Antònia	160
Mas Sansó, Ramon	153
Mas Torres, Francesca	241
Mascaró Oliver, Miquel	153
Mascaró Portells, Miquel	153
Massot Perelló, M. Magdalena	179
Matas Pastor, Joan Josep	141
Mateo Hernández, José Luis	166
Mateos Ruiz, Rosa	129
Matias Muriel, Manuel A.	253, 261
Mayol Colom, Bartomeu	91
MAYOR FORTEZA, Gaspar	152, 158
McGenity, TerenceJohn	271
MEDRANO GIL, Hipólito	16, 85, 86, 88, 98, 295, 307
Mesquida Cantallops, Joan Antoni	183
Mestre Moyà, M. Lluïsa	121
Migallón Gomis, Héctor F.	159
Mínguez Díaz, Eduardo	256, 269
Minteig Florensa, Gerard	78
Miquel Novajra, Alexandre	195, 196, 199



Mir Torres, Arnau	153
Miralles Barrachina, Olga	104, 109, 110
Miralles Monserrat, Joan	184
Miralles Socias, Antoni	82
MIRANDA CHUECA, Miguel Ángel	97
Miranda González, Miguel Ángel	135
MIRASSO SANTOS, Claudio Rubén	44, 253, 261, 292, 297
Miró Julià, Josep J. A.	150, 283
Miró Lladó, Manuel	240
Mochnacs, José Luis	278
MOLL BLANES, Isabel	143, 151, 290, 309
Monjo Cabrer, Marta	104, 107
Monserrat Antich, Miquel	152
MONSERRAT TOMÀS, Sebastià	264, 295
Montaño Moreno, Juan José	224, 232
Monterrubio Prieto, Juan Miguel	187, 188
MONTES DE OCA DURAN, Juan A.	301
MONTOYA JIMÉNEZ, Pedro	225, 303
MORALES NIN, Beatriz	65, 268, 280, 294, 296
Morange Morange, Michel	198
MORATA SOCIAS, Josep	140
Moreiro Socias, José	104, 110
Morelló Baget, Jordi	144
Moreno Castillo, Isabel	98
Morey Salvà, Jeroni	243
Morlà Garcias, M. Miquela	116
Moya Mesa, Óscar	81, 93
MOYÀ NIELL, Gabriel	<b>83</b> , 11, 87
Muel Muel, Enriqueta	158
MULET PONS, Antoni	250
Munar Bernat, Pedro A.	163
Munar Muntaner, Esperança	179
Munar Roca, Enric	221, 228
MUNTANER GUASP, Joan Jordi	117
Muntasell Pla, Joaquim	204
MUÑOZ IZQUIERDO, Francisco	238, 239, 246, 298
Muñoz Vélez, Daniel	247
MUS AMÉZQUITA, Maurici	88
Mut Puigserver, Macià	156
Nadal Gómez, Irene	166, 167
Nadal Roberts, Marcos	228
Nagy, Tünde	92
Navarro Gómez, Ricardo	144
Nazmitdinov, Rashid	203
Negre Bennàssar, Francesca	120
Nicolau Llobera, Cristina	106
Nofre Maíz, Montserrat	189
Nogales Fernández, Balbina	271
Noguera Batlle, Miquel	220
Novo Malvárez, Margarita	132, 135
Oliver Barceló, Santiago	166
OLIVER CODINA, Gabriel	155
Oliver Herrero, Ramon	206, 213
Oliver Llamas, Pere	79
OLIVER OLIVER, Jordi	102, 104, 113, 300
Oliver Ribas, Miquel	116
Oliver Rullan, Francesc	176
Oliver Torelló, Josep L.	121

Oliver Trobat, Miquel F. ....	118
Oliver Vara, Paula ....	104, 109, 110, 112
OLMOS BONAFÈ, Gabriel ....	78, 97, 98
Oms Mollà, Maria Teresa ....	241
Ordina Pons, Catalina ....	120
Ordinas Garau, Antoni ....	131, 134
Orfila Forster, Alejandro ....	278
Orfila Sintes, Francina M. ....	179
ORO DE RIVAS, Daniel ....	62, 256, 269, 294, 298
Oromí Masoliver, Pedro ....	93, 81
ORTE SOCIAS, M. del Carme ....	121
Ortega Terol, Juan Miguel ....	171
Ortiz Rodríguez, Alberto ....	155, 278
Oterino Echávarri, Fernando ....	212
OTERO AREÁN, Carlos ....	244
Pablo Cànaves, Josep A. ....	102, 104, 248
Palencia Martínez, Manuel ....	120
Palenzuela Luque, Carlos ....	208
PALMER POL, Alfons Lluís ....	224, 231, 232
Palmer Rodríguez, Pere A. ....	153
Palmer Vidal, Miquel ....	273
Palou Franco, Josefina ....	139
PALOU OLIVER, Andreu ....	102, 19, 101, 104, 109, 110, 112, 290, 307
Palou Sampol, Miquel ....	118
Palou Sampol, Pere ....	122
Pardo Gamundí, Isabel ....	87
Pareja Bezares, Antonio ....	110
Parrera Nicolau, M. Antònia ....	176
Pascual Ascaso, Ananda ....	264
Pascual Fuster, Bartomeu ....	179
Pastor Homs, Maria ....	119
Payeras Capellà, Magdalena ....	156, 165
PAYERAS GRAU, Maria ....	190, 191
Pazos Arciniega, María ....	120
PERALES LÓPEZ, Francisco José ....	28, 153, 290
Perelló Bestard, Joan ....	247
Pérez Garcias, Adolfina ....	116, 120
PÉREZ PAREJA, F. Javier ....	231
Periàñez Morales, José Antonio ....	230
PETITPIERRE VALL, Eduard ....	81, 93, 94, 255
Petro Balaguer, Ana Belén ....	149
PICH SOLÉ, Jordi ....	223
PICÓ SEGURA, Catalina ....	101, 102, 104, 109, 110, 112
Picornell Alou, Catalina ....	204
Picornell Alou, Maria À. ....	205
Picornell Bauzà, Climent ....	128
PICORNELL RIGO, Antònia ....	79, 95, 233, 300
Picos Gayà, Rodrigo ....	212
Pieras Ayala, Enrique C. ....	247
Piña Capó, Maria Neus ....	243
Piro Perusin, Oreste ....	253
Piro Perusín, Oreste ....	260
POMAR GOMÀ, Lluís ....	129
Pomares Padilla, Alejandro ....	159
PONS BIESCAS, Antoni ....	108, 300
Pons Bosch, Jordi ....	141
Pons Buades, Guillem Xavier ....	130, 277
Pons Homar, Gabriel ....	138

Pons Irarazábal, Fèlix	168
PONS MORRO, Jaume	204, 207
Ponseti Verdaguer, F. Javier	122
PORTUGAL MINGUELA, José	113
Pou Garcias, Llorenç	175
Prades, Jesús	77
Prieto Almirall, Rafel M.	247
PROENZA ARENAS, Ana María	102, 104, 107, 113
Proenza Arenas, Julián	155
Prohens Sastre, Rafael Jaume	149
Puente Ferrà, Antoni	203
Puig Rodríguez-Escalona, Mercè	189
PUIGJANER TREPAT, Ramon	157, 159, 309
Pujol Holgado, Maria E.	104, 107
Quel López, Francisco J.	171
Quetglas Nicolau, Pere J.	189
Quevedo Coli, Santiago S.	102, 104, 109
Quintana Abraham, Carles A.	138
Quintero Olivares, Gonzalo	165
Rallo Garcia, Joan	91, 98
RAMÍREZ DOMÍNGUEZ, Juan Antonio	145
Ramis Barceló, Margalida	247
Ramis Bernat, Damià	277
Ramis Morey, Joana M.	104, 109, 110
RAMIS NOGUERA, Climent	205
Ramis Palmer, M. Carme	226
RAMON JUANPERE, Misericòrdia	79, 95, 233, 299
Ramon Molinas, Jerònia	128, 133
Ramon Pérez de Rada, Guillem	<b>83</b> , 87
Ramos, David	133
Reig Morro, Antònia	139
Revert Vidal, Xavier	225, 228
Rial Planas, Rubén Víctor	106
RIBAS CARBÓ, Miquel	89
Ribot Riutort, Joan	104, 109, 110, 112
Riera Font, Antoni	175
Riera Forteza, Bartomeu	120
Riesco Prieto, Maria del T.	108
Rigo Vadell, Joan	155
Rincón Verdera, Juan Carlos	118
Rita Larrucea, Joan	88
RIUTORT SERRA, Bernat	195, 196, 199
Rivas Yarza, Pedro Antonio	179
Roca Adrover, Miquel Jesús	210
ROCA BENNÀSAR, Miquel A.	221, 233, 229
Roca Moll, Joan	226
ROCA SALOM, M. del Pilar	<b>102</b> , 101, 104, 107, 113
Rocha Cárdenas, Jairo	149, 155
Rodeño Arraez, Miguel Jesús	159
Rodríguez Alcázar, Francisco J.	197
Rodríguez Cuenca, Sergio	104, 107
Rodríguez Delgado, Montserrat	244
Rodríguez Diaz-Pavón, José	92
Rodríguez Guerrero, Ana M.	104, 109, 110, 112
Rodríguez Padrona, Enrique	104
Rodríguez Parrona, Enrique	110
Rodríguez-Navas, Guillermo	155
Roman Piñana, Juana María	110

Romera Ciria, Maria Magdalena	192
Romero Bosch, Joan J.	83
ROMERO MARCH, Romuald	205, 291
Roses, A.	231
ROSSELLÓ BOVER, Pere	183
Rosselló Geli, Joan	131
ROSSELLÓ LLOMPART, Francesc A.	150, 283
ROSSELLÓ MATAS, Carme	245
Rosselló Mir, Jaume	221, 228
ROSSELLÓ MORA, Ramon	80, 270
Rosselló Nadal, Jaume	175
Rosselló Ramon, M. Rosa	117
Rosselló Sanz, Josep Lluís	210, 212
Rosselló Vaquer, Joan Josep	120
Rosselló Villalonga, Joan Carles	176
Rovira Planas, Pere	190
Ruiz Altaba, Cristian	195, 199
RUIZ PÉREZ, Maurici	71, 72, 133
Ruiz Valero, Simón	264
Rullan Salamanca, Onofre	136
Rumori, Paolo	240
Rupérez Cornell, Pilar	171
SAÁ RODRÍGUEZ, José Manuel	242
Sabater Rebassa, Sebastiana	139
Sacarés Mas, Antoni	255
Sainz Gómez, José Antonio	210, 212
Sala Sanjaume, Maria	130
Salas Vives, Pere	143
Salazar Tió, Rafael	253
Salgot Marçay, Miquel	83
SALINAS IBÁÑEZ, Jesús M.	12, 116, 120, 301
Salto Jáudenes, M. Teresa	91
Salvà Salvà, Antoni	239
Salvà Simonet, Bartomeu	138
SALVÀ TOMÀS, Pere A.	128, 134
Sampol Mayol, Antònia	107
Sampol Trujillo, Bartomeu	85, 86
SAN MIGUEL RUIBAL, Maximino	59, 60, 253, 287, 293, 298, 307, 308
Sánchez Etchegaray, Jesús M.	210, 212
Sánchez Legido, Àngel	171
Sánchez Nievas, Enrique	142, 144
Sánchez Roig, Joana	109, 110
Sánchez-Mateos Rubio, María	130
Sanmartín Esplugues, José	197
SANSÓ ROSSELLÓ, Andreu	302, 175
SANTAMARÍA GALDÓN, Luis	273, 275
Santamaría Pérez, M. Luisa	157
Santamarta Martínez, Rubén	204
Santos Peña, Jesús	244
Santwichler, Sandra	109
Sard Bauzà, Maria	175
SASTRE ALBERTÍ, Francesc	37
Sastre Moll, Jaume	139
Saus Sarrià, Carles	77, 82
Sbert Juan, Catalina	149
Scire, Alessandro	261
Seguí Aznar, Miquel	145
Seguí Llinàs, Miquel	132

Seguí Palmer, M. Concepció	204
SEGUÍ PONS, Joana Maria	128, 133
Segura Cortés, Pere	131
SEGURA FUSTER, Jaume Agapit	210
Segura Ginard, Miguel F.	78
Serghini, Khadija	77
SERRA BUSQUETS, Sebastià	141
Serra Cifre, Bartomeu Jaume	157
Serra Crespí, Llorenç	203
SERRA VICH, Francesca	101, 102, 104, 109, 110, 112
Serrano Ripoll, M. Jesús	233
Servera Baño, Josep	187, 188
SERVERA BARCELÓ, Mateu	222
Servera Nicolau, Jaume	130
Servera Rullan, Guillem	157
Sesé Abad, Albert	224, 231, 232
Sicard, Etienne	212
Simal Florindo, Susana	245
Sintes Olives, Alícia Magdalena	208
Sintes Olives, Tomàs Miquel	261
Sitjà Rius, Pere	240
Solà Belda, Carles	179
Sola Venteo, Antonio	157
Soler Duffour, Maria Rosa	209
Solis Sanchis, Javier J.	263
Soro Gonsalvez, José Antonio	110
Soroeta Licerias, Juan	171
Sospedra Baeza, M. José	224
Sotillo Méndez, María	228
SPADARO, Amedeo	133, 176, 287, 291, 310
Stela Fiol, Joan	208, 236
Suñer Llabrés, Jaume	152, 158
Suñer Sabater, Guillem	243
SUREDA GARCIA, Bernat	119, 151
SUREDA NEGRE, Jaume	23, 24, 297
TAPIA FERNÁNDEZ, Isabel	167, 310
Tauler Riera, Pedro J.	108
Terés Jiménez, Silvia	92, 96
Terradas Calafell, Jaume	213
Terradellas Jubanteny, Enric	209, 211
TERRADOS MUÑOZ, Jorge	266, 267, 276
Terrasa Pont, Bàrbara	79
TERRON HOMAR, Àngel	237
Theraulaz, Frederic	241
Timmis, Kenneth Nigel	271
TINTORÉ SUBIRANA, Joaquim	56, 57, 58, 68, 264, 278, 294
TOMÁS OLAGUE, Javier	303
TORAL GARCÉS, Raúl	253, 261
Torrandell Serra, Isabel	120
Torrens Sastre, Joan	152
Torres Estarellas, Aina Maria	120
Torres García, Carmen I.	171
TORRES MARÍ, Francesc	200
Tortella Feliu, Miquel Rafael	220
Tous Duran, Pere	153
Tous Pascual, Maria Esperança	94
Touza Garma, M. del Carmen	121
TRAVESET VILAGINÉS, Anna	61, 272, 273, 303, 310

Travieso García, David	227
Tudela Villalonga, Luis	144
Tugores Ques, Maria	176
Tur Faúndez, María Nélide	165
TUR MARÍ, Josep Antoni	108
TURELL JULIÀ, M. Teresa	192
TURNES PALOMINO, Gemma I.	244, 292
Ubeda Cartaña, Xavier	130
Urbanek, Wladimir	200
Urbina Ramírez, Santos	116, 120
Urgell Hernández, Ricard	144
Vadell Adrover, Jaume	83, 85
Valdivielso Navarro, Joaquim	195, 196, 199
Valdivielso Navarro, Joaquín	
Valero Torrijos, Julián	165
Valín Rodríguez, Manuel	203
VALLESPÍR SOLER, Jordi	118, 119
VALVERDE GARCIA, Llorenç	155, 301
Vaqué Vidal, Dolors	254
Vaquer Bennàssar, Onofre	142
Vega Reynés, Manuel	242
Ventayol Bosch, Pere	92
Veny Riera, Guillem	102, 104
VERA REBOLLO, José Fernando	136
VERDAGUER CLAVERA, Isabel	192
Verdera Izquierdo, Beatriz	163, 164
Verger Gelabert, Sebastià	117
Vidal Planas, Josep Lluís	156
Vidal Rodríguez, Damià	157, 278
Vila Ribas, M. del Carme	164
Vilanova Canet, Bartomeu	238, 239, 246
Villarroya Oliver, Òscar	227
Vilimelis Montsó, Josepa	102, 104
Villanueva Bohigas, Gemma	125, 138
Vögler, Oliver	92
Yaguez Hervás, Lidia	230
Zaballa Ogueta, Olga	85

## **ÍNDEX D'ABREVIACIONS**





Aj. EU:	Ajudant/a d'Escola Universitària
Aj. U:	Ajudant/a d'Universitat
AGR:	Programa nacional d'investigació i desenvolupament agrari
ALI:	Programa nacional de tecnologia d'aliments
AMB:	Programa nacional d'I+D en medi ambient
ANT:	Programa nacional d'investigació a l'Antàrtida.
As.:	Associat/associada
B:	Becari/becària
B (reinc.):	Becari/becària postdoctoral de reincorporació
BIO:	Programa nacional de biotecnologia
C:	Col·laborador/a
CEU:	Catedràtic/a d'Escola Universitària
CLI:	Programa nacional d'I+D sobre el clima
COL.:	Professor/a col·laborador/a
CSIC:	Consell Superior d'Investigacions Científiques
CU:	Catedràtic/a d'Universitat
EDP:	Equivalent de dedicació plena
EDP=1:	dedicació única
EDP=0.5:	compartida a dos projectes
EDP=0.33:	compartida a tres projectes
EJC:	Equivalent de jornada completa
FD:	Fons FEDER
FIS:	Fons d'Investigació Sanitària
HID:	Programa nacional de recursos hídrics
IMPIVA:	Institut per a la Modernització dels Processos Industrials de València
MAR:	Programa nacional de ciència i tecnologia marines
MAST:	Marine Sciences and Technologies
MAT:	Programa nacional de materials
MEC:	Ministeri d'Educació i Ciència
PB:	Programa bàsic (Programa sectorial de promoció general del coneixement)
PETRI:	Projecte d'Estímul a la Transferència de Resultats d'Investigació
P. Col.:	Professor/a col·laborador/a
PM:	Programa de medicina
PS:	Programa sectorial
P1:	Projectes d'investigació bàsica no orientada
P2:	Projectes d'investigació bàsica orientada
P3:	Projectes d'investigació aplicada
P4:	Projectes d'I+D en cooperació
RACE:	Research and Technology Development in Advanced Communications Technologies
SC:	Programa sectorial d'I+D agrari i alimentari del MAPA
SM:	Projecte simplificat d'investigació en biomedicina
Tèc.:	Tècnic
TEL:	Programa nacional d'aplicacions i serveis telemàtics
TEU:	Titular d'Escola Universitària
TIC:	Programa nacional de tecnologies de la informació i de les comunicacions
TU:	Titular d'Universitat
UE:	Unió Europea
UNESCO:	United Nations Educational Scientific and Cultural Organization
Visitant:	Professor/a visitant:

