Universitat de les Illes Balears

CATÀLEG DE PROJECTES D'INVESTIGACIÓ

2005

Palma, 2006

ÍNDEX

PROJECTES DE RECERCA
EN EL MARC DE LA UNIÓ EUROPEA

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)
Direcca 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 insectivides 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: INCO-CT-2004-509140.
Títol: *Improvement of native perennial forage plants for sustainability of Mediterranean farming systems*.
Acrònim: PERMED.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: CIFRE LLOMPART, Josep.
Categoria: P. Col. (àrea de coneixement: Producció Vegetal).
Inici: 2004. **Fi**: 2008.

Socis

Institut Nacional de la Recherche Agronomique d'Algerie (Algèria)
Institut Nacional de la Recherche Agronomique (Marroc)
Institut des Regions Arides (Tunísia)
Consiglio Nazionale delle Richerche (Itàlia)
Instituto de Investigaçao Agraria e das Pescas (Portugal)
Universitat de Barcelona (Espanya)
Institution de Recherche et d'Enseignement Superieur Agronomique (Tunísia)
Istituto Sperimentale per le Colture Foraggere (Itàlia)
Coordinador: Institut Nacional de la Recherche Agronomique (França)

Summary
The amount of water available to agriculture in the Mediterranean is declining because of increasing population pressure and greater incidence of drought. Therefore, the efficiency of the use of water for agricultural production must be maximized, and in this context perennial forage species have a number of advantages in comparison to the predominantly used annuals. They can utilize water throughout the whole year besides being able to halt rangeland degradation, restore soil fertility and enhance forage production, thereby contributing to greater sustainability of rain-fed agricultural systems in the southern European Union and North Africa.
Despite these advantages, the small size of individual national markets has so far worked against the development of a viable forage industry based on perennials. Therefore, by adopting a multi-national approach and targeting the key breeding objectives of superior drought resistance and water use efficiency (WUE), this project aims to produce commercially viable cultivars of a select number of species of broad regional interest and adaptation.
Ten research groups from southern Europe and North Africa will combine to work on species including lucerne, cocksfoot, tall fescue and sulla to enhance cultivar development across environments ranging from the sub-humid to arid.
Complementary Workpackages will (i) complete North African forage germplasm collection and evaluation, (ii) assess the use of molecular genetics in breeding of drought resistant lucerne, (iii) evaluate elite forage populations across the region for high WUE and adaptation to drought as bases for new cultivars, (iv) enhance knowledge of physiological traits for drought survival and WUE, and (v) determine optimal use of perennial forages in four representative farming systems. Their results will contribute to the development of technical packages for easy on-farm adoption across the western Mediterranean, thereby ensuring a long-term interest of the seed industry.

DEPARTAMENT DE BIOLOGIA FONAMENTAL I CIÈNCIES DE LA SALUT

Referència: FOOD-CT-2004-506360.
Modalitat: Network of exellence.
Títol: *European nutrigenomics organisation-linking genomics, nutrition and health research.*
Acrònim: NUGO.
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: 2004. **Fi**: 2009.

Socis

Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (Holanda)
Rikilt (Holanda)
Nutrition and Toxicology Research Institute Maastricht (Holanda)
Rijksintituut voor Volksgezondheid en Milieu (Holanda)
University College Cork, National University of Ireland (Irlanda)
Trinity College Dublin (Irlanda)
University of Ulster (Regne Unit)
Deutches Institut fuer Ernaehrunbsforschung (Alemanya)
Technische Universitaet Muenchen (Alemanya)
Institute of Food Research (Regne Unit)
Rowett Research Institute (Regne Unit)
University of Reading (Regne Unit)
Universita degli Studi di Firenze (Itàlia)
Uniwersytet Jagiellonski (Polònia)
Lunds Universitet (Suècia)
University of Newcastle upon Tyne (Regne Unit)
Instiut Nacional de la Sante et de la Recherche Medicale (França)
Universitetet I Oslo (Noruega)
European Molecular Biology Laboratory (Alemanya)
Topshare International BV (Holanda)
Coordinador: Wageningen Universiteit (Holanda)

Summary
The primary aim of NuGO is integration, making future nutrigenomics research easier. Twenty-two partners organisations from ten European countries form the core of The European Nutrigenomics Organisation (NuGO). The specific aims of NuGO are to:
Strengthen the European scientific and technological excellence in nutrigenomics by bringing together the critical mass of resources and expertise needed to offer leadership in this rapidly developing field
Define individual response to nutrients and refine the requirements for population sub-groups based on genetic variations (nutrigenetics), sex, and the different life-stages
Determine the relative health benefits and risks of food compounds for different population sub-groups and improve public health
Spread excellence in nutrigenomics beyond the partnership through training, sharing of methods and facilities, dissemination and exploitation, and enter into dialogue with

stakeholder groups. Support the competitive arm of the European food industry, facilitating its growth as a knowledge-based business, with a view to evidence-based healthier food production
Promote understanding in the ethical, social, legal, economical and scientific issues of concern in nutrigenomics
There are four related activities to help this process, each with complementary tasks:
Integration Activities which will harmonise, stimulate and facilitate new technologies, informatics and systems for common use, and underpin research activities
Joint Research Activities, which exploit the technological and scientific innovations in a number of key areas of nutrition and health research as well as consolidate the research effort in Europe
Spreading of Excellence will build upon the acquired knowledge, sharing it with stakeholder groups including researchers, industry, society and healthcare
NuGO is funded by the European Commission's Research Directorate General under the Food Quality and Safety Priority of the Sixth Framework Programme for Research and Technological Development. The project began in January 2004 and will be funded until December 2009, but expects to be self-funding after this date.

DEPARTAMENT DE CIÈNCIES MATEMÀTIQUES I INFORMÀTICA

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.

Referència: INTAS-04-77-7178.
Modalitat: Information technology.
Títol: *Global and local protein matching*.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: ROCHA CÁRDENAS, Jairo.
Categoria: Contr. dr. (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).
Inici: 2005. **Fi**: 2007.

Socis

University of York (Regne Unit)
Belarusian Research Institute of Microbiology and Epidemiology (Bielorússia)
Moscow State University (Rússia)
United Institute of Informatics Problems (Bielorússia)
Coordinador: Universitat de les Illes Balears

Summary
A novel method based on EM-SVD apply to protein comparison will be developed both for global and local similarities. A method for prediction of local antigen sites in primary structure as well as their comparison will be developed. The methods, that combine the stochastic approach of Expectation Maximization with the use of spectral graph theory for the Singular Value Decomposition, are expected to outperform most popular matching algorithms for proteins. This belief is supported by the fact that the EM-SVD approach has been very successful in image matching. The application of the methods above to real proteins as well as in vitro verification will be fulfilled. The databases with the results of comparison as well as the developed software will be available at the web site.

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 tehir 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 topisc related to the teaghing of tourism related subjects for both confirmed teaching staff involved in the development of tourisme courses in the home institution (Guangzhou University) and administrators in charge of implementing the credit transfer system.
Sandwich courses and intership opportunities will be added to the above-mentitoned 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.

Referència: GOCE-CT-2003-003933.
Modalitat: Integrating and strengthening the European Research Area.
Títol: *Thresholds of environmental sustainability*.
Acrònim: THRESHOLDS.
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: RIERA FONT, Antoni.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2005. **Fi**: 2008.

Socis

Istituto di Studi per l'Integrazione dei Sistemi (Itàlia)
Universitaet Stuttgart (Alemanya)
Uppsala Univesity (Suècia)
National Environmental Research Institute (Dinamarca)
European Comission (Bèlgica)
Suomen Ympäristökeskus (Finlàndia)
University of Southern Denmark (Dinamarca)
University of Kalmar (Suècia)
Université Pierre et Marie Curie (França)
Norsk Institutt for Vannforskning (Noruega)
Intitut Français de Recherche pour l'Exploitation de la Mer (França)
Université Libre de Bruxelles (Bèlgica)
University of Oslo (Noruega)
Ringkjoebing County (Dinamarca)
University of Bath (Regne Unit)
TerrAquat (Alemanya)
Centrale Recherche SA (França)
ARDMPI (França)
Intitut of Oceanology (Bulgària)
University of Tartu (Estònia)
Coordinador: Consell Superior d'Investigacions Científiques (Espanya)

Summary
THRESHOLDS seeks to contribute to the development of Sustainibility Science and through the implementation of a procedure for policy formulation based on the development of a target setting process that integrates scientific knowledge on thresholds of inicators of environmental sustainability, the socio-economic activities that impinge in these indicators and the components of their vulnerability, and the evaluation of the resultint externalities associated with these socioeconomic activities. THRESHOLDS carries out innovative crosscutting researhc to develop, improve and integrate tols and methods to provide the basis to formulate sustainable strategies through research to deliver the scientific tools to identify Theresholds and Points of Noreturn of Environmental Sustainibility and externality valuations required to define targets fort he development of the European sustainable Development Strategy. The THRESHOLDS IP will confront complex behaviour of ecosystems, such as regime shifts between alternative stable states, and complexity in valuation of the sectors affecting environmental quality, such as nonlinear cost-accommodate to the complexity of the socio-economic and environmental systems. The tools developed will be applied to cas estudies in the European coastal zone, where policy needs are pressing, involving increasing levels of complexity, from local to pan-European.

THRESHOLDS IP will draw on the extensive data sets and research results produced on the basis of national efforts as well as previous framework programmes, which have focussed on major environmental problems and have delivered models and data which can be used to define Theresholds and Points of No Return. The THRESHOLDS IP, will, therefore, build on the European Research Area concept and add value to the applications of results derived from nbational and FP 6-funde research.

DEPARTAMENT DE FÍSICA

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, endurable 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.

Referència: INTERREG IIIB-MEDOC.
Títol: *Application des methodologies de previsions hydrometeorologiques orientees aux risques environnementaux.*
Acrònim: AMPHORE.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: ROMERO MARCH, Romuald.
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2004. **Fi**: 2006.

Socis

Université Joseph Fournier (França)
METO-France/CNRM (França)
Fundació Bosch i Gimpera (Espanya)
Agenzia Regionale per la Protezione dell'Ambiente Ligure (Itàlia)
Centro Interuniversitario di Monitoraggio Ambientale (Itàlia)
Agenzia Regionale per la Protezione dell'Ambiente della Calabria (Itàlia)
Agnezia Regionale Protezione Ambientale Emilia Romagna (Itàlia)
Dipartimento della Protezione Civile (Itàlia)
Coordinador: Agenzia Regionale per la Protezione Ambientale del Piemonte (Itàlia)

Summary
The project Amphore belongs to the context of prediction and prevention of natural risks, with particular attention to risks due to intense hydrometeorological phenomena in the Mediterranean region. The project seeks a combined experience of objective methodologies directed towards the improvement of quantitative precipitation forecasts that are applied in the hydrometeorological alert systems. The main objective is the optimisation of these alert systems taking into account the particularities of the Mediterranean region. The diversity of involved partners allows the disposal of multiple scenarios of forecast rainfall owing to the different modelling and production techniques available. An essential aspect of the project is its emphasis on probabilistic forecasts rather than deterministic methods. That is, a recognition of the value of uncertainty and complexity for the hydrometeorological chain.

Referència: MIF1-CT-2004-003027.
Modalitat: Marie Curie incoming fellowships.
Títol: *Autonomous vehicle for underwater inspections.*
Acrònim: AUVI.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: CALVO IBÁÑEZ, Óscar Alberto.
Categoria: TEU int. (àrea de coneixement: Tecnologia Electrònica).
Inici: 2004. **Fi**: 2006.

Socis

Coordinador: Universitat de les Illes Balears (Espanya)

Summary
This project proposes the research in reactive path planning for mobile robots in real environment using artificial intellingence (AI) techniques. An experimental prototype will be used in a first stage as a testbed for proposals (an autonomous underwater vehicle (AUV). Among the multiple disciplines that converge in the development of a cost effective and useful for inspections AUV, the navigation control as well as the path planning exhibits particular interest. Effectively, although a lot of proposals may be found in the literature since the last decade, there is a lack of a reliable set of tracking and obstacle avoidance systems to allow the vehicle to follow a certain pattern in the seabed. A potential application is pipeline, electric and telephone cables tracking. However, the scopes of this research are not limited to this application (i.e., study of coastal ecosystems). Thus, given the multiple possible scenarios in an underwater world, AI techniques will be used to cope with these unknown situations. To face them it requires safe navigation systems that are not yet available for autonomous operations. The main objective of this project is to design and to develop a cost-efficiency technology for autonomous navigation in complex environments. The project includes development of an autonomous tracking and a safe low-altitude navigation for an AUV prototype, which could hadle sea trials. The particular objectives are: 1. To develop a software module responsible for providing the desired AUV trajectory, resorting to AI techniques, particularly knowledge-based system; 2. To apply the resulting prototype to subsea pipeline and cable inspections (in 1 and 2 this project is linked to the EU AUTOTRACKER-GRD1-2000-25150); 3. To develop a mobile robot laboratory in the outgoing host institution(Electromechanicla Department of the Engineering Faculty at UNCPBA).

Referència: RII3-CT-2004-506222.
Modalitat: Research infrastructures action.
Títol: *Integrated large infrasctructures for astroparticle science*.
Acrònim: ILIAS.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigadora responsable: SINTES OLIVES, Alícia Magdalena.
Categoria: TEU (àrea de coneixement: Física Teòrica).
Inici: 2005. **Fi**: 2008.

Socis

Centre National de la Recherche Scientifique (França)
Istituto Nazionale di Fisica Nucleare (Itàlia)
Universitat de Zaragoza (Espanya)
University of Sheffield (Regne Unit)
Czech Technical University (Txèquia)
University of Southern Denmark (Dinamarca)
University of Jyväskylä (Finlàndia)
Max Planck Society for he Advancement of Science (Alemanya)
Technische Universität München (Alemanya)
Eberhard Karls Universität Tübingen (Alemanya)
Aristotle University of Thessaloniki (Grècia)
Istituto di Fotonica e Nanotecnologie (Itàlia)
European Gravitational Observatory (Itàlia)
Leiden University (Holanda)
Comenius University (Eslovàquia)
European Organization for Nuclear Research (Suïssa)
Bogazici University (Turquia)
University of Glasgow (Regne Unit)
University College London (Regne Unit)
Coordinador: European Gravitational Observatory (Itàlia)

Summary
ILLIAS is an integrated infrastructure initiative that has pulled together all of Europe's leading infrastructures in astroparticle Physics to produce a focused, coherent and integrated project to improve the existing infrastructures and their operation as well as to organise and structure the scientific community to prepare the best infrastructures for the future. ILIAS results from an extensive consultation of the community and an internal review process through the Astroparticle Physics European Co-ordination (ApPEC).
ILIAS has 20 participants. In addition, there are numerous institutions that will contribute to the activities of ILIAS (but are not signatories to the contract). ILIAS will strengthen the new coordination by focusing on the following three scientific poles:

- Physics in deep underground laboratories.
- Gravitational wave detection.
- Theoretical astroparticle physics.

Referència: MSCF-CT-2004-013119.
Modalitat: Marie Curie conferences and training courses.
Títol: *Interactive training and research in nonlinear science from physics to biology*.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: TORAL GARCÉS, Raúl.
Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2005. **Fi**: 2008.

Socis

Centre National de la Recherche Scientifique (França)
Universität Bayreuth (Alemanya)
Coordinador: Research Institute for Solid State Physics and Optics (Hongria)

DEPARTAMENT DE PEDAGOGIA APLICADA I PSICOLOGIA DE L'EDUCACIÓ

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 Pedagogia Aplicada i Psicologia 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.

INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS (IMEDEA)

Referència: LIFE00NAT/E/7303.
Modalitat: LIFE nature.
Títol: *Protection of Posidonia grasses in SCIs of Baleares.*
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 (overexplotation, 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: 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).
Inici: 2002. **Fi**: 2005.

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)
Enviromental Agency of the Republic of Solovenia (Eslovènia)
Institute of Meteorological and Water Management (Polònia)
Hydrographic Institute of the Republic of Croatia (Croàcia)
University of Zagreb (Croàcia)
Technische Universitaet 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.

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)
Instituto 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.DF.LPO)
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: Instituto 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.

Referència: GOCE-CT-2003-505446.
Modalitat: Network of excellence.
Títol: *Marine biodiversity and ecosystem functioning*.
Acrònim: MARBEF.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: DUARTE QUESADA, Carlos.
Categoria: Professor d'investigació del CSIC.
Inici: 2004. **Fi**: 2009.

Socis

The Natural History Museum (Regne Unit)
Plymouth Marine Laboratory (Regne Unit)
The University Court of the University of St Andrews (Regne Unit)
Stazione Zoologica Anton Dohrn (Itàlia)
Vlaams Instituut Voor de Zee (Bèlgica)
Ecological Consultancy Services, LTD (Irlanda)
Natural Environment Research Council (Regne Unit)
Senchenbergische Naturforschende Gesellschaft (Alemanya)
Max Planck Gesellschaft zur Foerderung der Wissenschaften E.V. (alemanya)
Universidade dos Açores (Portugal)
Instytut Oceanologii (Polònia)
Stiftung Alfred Wegener Institut fuer Polar und Meeresforschung (Alemanya)
Abo Akademi University (Finlàndia)
University of Southampton (Regne Unit)
Nacionalni Institut za Biologijo (Eslovènia)
Danmarks Fiskeriundersoegelser (Dinamarca)
Institut fuer Ostseeforschung Warnemuende (Alemanya)
Consell Superior d'Investigacions Científiques (Espanya)
Universiteit Gent (Bélgica)
Consorcio Nazionale Interuniversitario per le Scienze del Mare (Italia)
Sir Alister Hardy Foundation for Ocean Science (Regne Unit)
National University of Ireland (Irlanda)
Institut fuer Meereskunde an der Universitaet (Alemanya)
Rijksuniversiteit Groningen (Holanda)
Consiglio Nazionale delle Ricerche (Itàlia)
University of Hull (Regne Unit)
Syddansk Universiteit (Dinamarca)
Akvaplan-Niva AS (Noruega)
Netherlands Institute for Fisheries Research (Holanda)
Centro Interdisciplinar de Investigaçao Marinha e Ambiental (Portugal)
Universitetet I Oslo (Noruega)
Klaipedos Universitetas (Lituània)
Institut Français de Recherche pour l'Exploitation de la Mer (França)
Universiteit van Amsterdam (Holanda)
The Center for Environment, Fisheries and Aquaculture Science (Regne Unit)
Uniwersytet Gdanski (Polònia)
Expert Center for Taxonomic Identification (Holanda)
Rijkinstituut voor Kust en Zee (Holanda)
Institute of Marine Biology of Crete (Grècia)
Marine Biological Association of the United Kingdom (Regne Unit)

Centre National de la Recherche Scientifique (França)
Nationaal Natuurhistorisch Museum (Holanda)
Goeteborg Universitet (Suècia)
Universiteit Maastricht (Holanda)
University of Wales (Regne Unit)
Wageningen Universiteit (Holanda)
Università degli Studi dei Pisa (Itàlia)
Stichting Nederlands Instituut loor Onderzoek der Zee (Holanda)
Havforskningsinstitutet (Noruega)
Coordinador: Netherlands Institute of Ecology (Holanda)

Summary
The creation of the network of excellence MARBEF (Marine Biodiversity and Ecosystem Functioning) aims at integrating research efforts by forming a dedicated group of marine scientists and institutes and creating a virtual European institute with a long-term research programme and dedicated links with industry and the public at large. This involves besides coordination of research the training, exchange and outreach activities in several relevant fields of science, including marine ecology and biogeochemistry, fisheries biology, taxonomy and socio-economic sciences. Better integration of research is also required to support the legal obligations of the EU and its member states and associated states for the Convention for Biological Diversity, the OSPAR and Barcelona conventions as well as several EU directives (Bird Directive, Habitat Directive, Water Framework Directive). The network will also improve links with the large and growing number of industries depending on the sustainable use and exploitation of marine biodiversity. This includes tourism, fisheries and aquaculture but also new industries that explore and commercialise marine genetic and chemical products.

Referència: LSHB-CT-2004-005137.
Modalitat: Network of excellence.
Títol: *Biosimulation. A new tool in drug development*.
Acrònim: BioSim.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: TORAL GARCÉS, Raúl.
Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2004. **Fi**: 2009.

Socis

VrijeUniversiteit Amsterdam/Faculteit Aard en Levenswetenschappen (Holanda)
The Cancellor, Master and Scholars of the University of Oxford (Regne Unit)
Phillips-Universitaet Marburg (Alemany)
University of Manchester (Regne Unit)
Universitaet Postdam (Alemanya)
Forshungszentrum Juelich GmbH (Alemanya)
Lund University (Suècia)
Linkoeping University (Suècia)
Université Libre de Bruxelles (Bèlgica)
Universitat de València (Espanya)
University of Copenhaguen (Dinamarca)
University of Warwick (Regne Unit)
University of Sheffield (Regne Unit)
Danish University of Pharmaceutical Sciences (Dinamarca)
Technishe Universitatet of Dresden (Alemanya)
Institute of Experimental Pharmacology (Eslovàquia)
Institut of Enzymology (Hongria)
Charite Universitatsmedizin Berlin (Alemanya)
University of Bordeaux 2 (França)
University of Leeds (Regne Unit)
Institut National de la Sante et de la Recherche Medicale (França)
EML Research gGmbH (Alemanya)
Simcyp Limited (Regne Unit)
InNetics AB (Suècia)
MXM Laboratories, SA (França)
InterActive Systems GmbH (Alemanya)
Fraunhofer-Chalmers Research Centre for Industrial Mathematics (Suècia)
SOLVO Biotechnology Inc. (Hongria)
Zealand Pharma A/S (Dinamarca)
Novo Nordisk A/S (Dinamarca)
Danish Medicines Agency (Dinamarca)
Agencia Española de Medicamentos y Productos Sanitarios (Espanya)
Medicines Evaluation Board (Holanda)
Medical Products Agency (Suècia)
Lasdale Limited (Regne Unit)
Coordinador: Technical University of Denmark (Dinamarca)

Summary
The BIOSIM network focuses on the structuring of efforts devoted to the development of simulation models for the design, selection and testing of drugs. In silico simulation models using pharmacokinetic, function mechanism and side-effect describing parameters and interaction profiles should be developed for biological systems (cells and tissues) enabling to predict the efficacy of drugs. The integration of regulatory and industrial aspects is particularly important to the success of research under this line.
International competition in the pharmaceutical industry is increasingly becoming a competition with respect to the ability to understand complex biological processes and exploit the rapidly growing amount of biological information. The methods that are currently applied in the development of new medicines suffer from the lack of effective means to evaluate, combine, and accumulate biological knowledge. Essential improvements must involve the use of computational models that can provide a dynamic and more quantitative description of the relevant biological, pathological, and pharmacokinetic processes.
The BIOSIM Network of Excellence aims to restructure and strengthen the area of biosimulation by focusing on the development of professional, physiologically-based models that can help the pharmaceutical industry develop safe and effective drugs at significantly lower costs. The modelling approach is strongly recommended by the American Food and Drug Administration that already uses mathematical models in its evaluation of applications for drug approval. Academic institutions in Europe have significant expertise in biological modelling, and several groups are individually at the research front in their specific areas. At the present, however, the research is strongly fragmented, and the industry itself has relatively few qualified experts in the field. The Network will provide a new forum for collaboration across disciplinary boundaries as well as between industry, regulatory authorities, and academia.
The BioSim Network involves 26 academic organisations, 9 small and medium-sized enterprises, 1 large pharmaceutical company, and the Danish, Spanish, Dutch, and Swedish regulatory agencies. The Network collaborates with the European Federation for Pharmaceutical Sciences (EUFEPS).

Referència: SIP3-CT-2003-502885.
Títol: *Marine Environment and Security for the European Area.*
Acrònim: MERSEA.
Investigador responsable: ÁLVAREZ DÍAZ, Alberto.
Categoria: Investigador científic del CSIC.
Inici: 2004. **Fi**: 2008.

Summary
MERSEA aims to develop a European system for operational monitoring and forecasting on global and regional scales of the ocean physics, biogeochemistry and ecosystems. The prediction time scales of interest extend from days to months.This integrated system will be the Ocean component of the future GMES system.At the core of the system is the collection, validation and assimilation of remote sensed and in situ data into ocean circulation models that allow for the self consistent merging of the data types, interpolation in time and space for uniform coverage, nowcasting (i.e. data synthesis in real-time), forecasting, and hindcasting, and delivery of information products.
The project will develop Marine Applications addressing the needs of both intermediate and end-users, whether institutional or from the private sector, with the objective to improve the safety and efficiency of maritime transport and naval operations ; to enable the sustainable exploitation and management of ocean resources (offshore oil and gas industry, fisheries); to more efficiently mitigate the effects of environmental hazards and pollution crisis (oil spills, harmful algal blooms) ; to improve contribution to ocean climate variability studies and seasonal climate prediction and its effects on coastal populations; to improve national security and reduce public health risks ; and to advance marine research with the aim to better understand the global climate, the ocean and its ecosystems.
The project will lead to a single high-resolution global ocean forecasting system shared by European partners together with a coordinated network of regional systems for European waters which will provide the platform required for coastal forecasting systems. During the project the main preoperational systems will be transitioned towards operational status and three of the centres will converge on a single ocean model framework suitable for both the deep ocean and shelf-seas.

Referència: STREP FP6-2003-Global-2.
Títol: *Life cycle transformations among HAB species, and the environmental and physiological factors that regulate them.*
Acrònim: SEED.
Investigador responsable: BASTERRECHEA OYARZÁBAL, Gotzon.
Inici: 2004. **Fi**: 2007.

Summary
SEED aims to understand how and to what extent anthropogenic forces influence the non-vegetative stages of the life cycles of harmful algal species thereby contributing to the increase in harmful algal blooms in European marine, brackish and fresh waters systems. The overall objectives are to improve and extend our understanding of the transition between the different life history stages to identify the environmental and physiological factors that regulate those transitions, and hence the relative importance of anthropogenic versus natural causes, and to integrate the recent acquire knowledge in the development of new simulation model or refining existing ones. This will allow improved prediction, mitigation and management strategies. The approach of SEED is comparative, from species to ecosystem level. It is imperative to recognize common patterns of response among species to facilitate the development of conceptual and numerical models of HAB dynamics. SEED will focus on an array of target HAB species, ranging from marine to brackish to fresh water organisms, and covering a broad range of phylogenetic types. SEED research is multifaceted, as the problems in life history transitions are complex and processes occur over a wide range of scales. SEED will combine field studies and laboratory experiments. Field work is centered on areas where ongoing monitoring programs and much baseline information about distribution of species and physical-chemical data already exists. The innovation is to implement the most appropriate research strategies to be applied to the non-vegetative phases which determine the success of HABs and their expansion due to anthropogenic forcing. Moreover, a mitigation strategy, analogous to sterile insect releases that are an effective element of agricultural pest control on land will be investigated for the dormancy stages of HAS.

Referència: EVR1-CT-2002-40029.
Títol: *Creating a long term infrastructure for Marine Biodiversity Research in the Eurpean economic area and the newly associated states.*
Acrònim: MARBENA.
Investigador responsable: JAUME LLABRÉS, Damià.
Inici: 2003. **Fi**: 2005.

Summary
We propose to create a European Marine Biodiversity Network of marine scientists with links to the different stakeholders in marine biodiversity issues, from the EU-EEA and the Newly Associated States, that prepares and exploits the possibilities of the next framework programme and the European Research Area, improves the infrastructure for marine research and its utilization by scientists, and increases the visibility of marine biodiversity issues for science managers, politicians and other end users, including the public at large. MARBENA will perform the following activities: To develop a network and open its activities and engages cooperation with any interested partner, including museums of natural history, universities and government laboratories; to create a long-term research infrastructure, to create visibility for marine biodiversity issues and maintain the network via: communication with other initiatives, internet, (electronic) conferences, workshops, and projects.

Referència: G5CA-CT-2002-01891.
Títol: *Towards accreditation and certification of age determination of aquatic resources.*
Acrònim: TACADAR.
Investigadora responsable: MORALES NIN, Beatriz.
Categoria: Científica titular del CSIC.
Inici: 2002. **Fi**: 2006.

Summary
The main objective is to increase the reliability of age reading procedures in the European Community, also in the light of future establishment of European wide international fisheries laboratories. TACADAR aims to increase the adoption of working procedures that include quality assurance and quality control mechanisms, for the improvement of stock assessment and environmental magement techniques and to stimulate the achievement of a higher level of quality within and integration between the member institutions of TACADAR, concerning fish age determination.

Referència: GOCE-CT-2004-505403. Network of Excellence.
Títol: *Implementation of high-throughput genomic approaches to investigate the functioning of marine ecosystems and the biology of marine organisms.*
Acrònim: MARINE GENOMICS.
Investigador responsable: ROSSELLÓ MORA, Ramon.
Categoria: Científic titular del CSIC.
Inici: 2004. **Fi**: 2008.

Summary
Experts in genomics, proteomics and bioinformatics from several Centres of Excellence in genomics in Europe will be grouped and networked with marine biologists who can make use of high-throughput genomics data. The network aims among others at sharing existing technological platforms; enabling access to major genomic centres; establishing a common DNA Stock Centre and a common Bioinformatics Centre. Marine Genomics will also develop complementary dissemination strategies, targeting public, private and institutional communities with the purpose of enhancing the integration of marine biologists in the ERA.

Referència: 022745 (SSP8).
Títol: *Probabilistic assessment, management and advice model for fishery management in the case of poor data availability.*
Acrònim: POORFISH.
Investigadora responsable: MORALES NIN, Beatriz.
Categoria: Científica titular del CSIC.
Inici: 2005. **Fi**: 2008.

Socis

The Secretary of State for Environment, Food and Rural Affairs (Regne Unit)
Institute de Recherche pour le Developpement (França)
Helsingin Yliopisto (Finlàndia)
Suomen Ymparistokeskus (Finlàndia)
Coordinador: Univesity of Portsmouth (Regne Unit)

Referència: 015539.
Modalitat: Integrating and strengtherning the European Resecarch Area.
Títol: *Open network for connecting excellence in complex systems*.
Acrònim: ONCE-CS.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: SAN MIGUEL RUIBAL, Maximino.
Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2005. **Fi**: 2008.

Socis

Centre National de la Recherche Scientifique (França)
Ecole Normale Superieure de Lyon (França)
University of Oxford (Regne Unit)
Fondazione Istituto per l'Intercambio Scientifico (Itàlia)
International University Bremen (Alemanya)
University of Surrey (Regne Unit)
Institut National de Recherche en Informatique et en Automatique (França)
Collegium Budapest (Hongria)
Politechnika Warszawska (Polònia)
Koebenhavns Universitet (Dinamarca)
Universidad de Chile (Xile)
Genopole Evry (França)
Max-Planck Gesellschaft zur Foerderung der Wissenshchaften (Alemanya)
Santa Fe Institute (EUA)
Universitaet Wien (Àustria)
Vrije Universiteit Brussel (Bèlgica)
The London School of Economics and Political Science (Regne Unit)
Budapesti Muszaki es Gazdasagtudomany Egyetem (Hongria)
Institut za Matematiko, Fiziko in Mehaniko (Eslovènia)
Protolife S.R.L. (Itàlia)
Ecole Polytechnique Federale de Laussane (Suïssa)
Hadassah Medical Organization (Israel)
Coordinador: The Open University (Regne Unit)

Summary
ONCE-CS will strengthen the network of the Complex Systems community in Europe by coordinating the currently fragmented organisation of meetings, workshops, and conferences. It will connect the different parts of the community reducing the possibility of clashing events as currently happens. It will organise Thematic Institutes, Thematic Schools, and Thematic Workshops where these are needed to coordinate the academic community, and connect it better to industry and government. It will pay special attention to integrating the new and applicant states. It will actively link the European CS community to the rest of the world. ONCE-CS has strong mission in coordinating education in the CS community. It will do this by combining existing open-source methods for individual scientists to create interdisciplinary courses, using a well managed and well indexed database open sources resources such as images, videoclips, text, presentations, software, data and so on. It will use the well-supported open source authoring and content management software. ONCE-CS will coordinate scientific research in the community by providing open source simulation software and open source data sets provided by the

CS community, allowing replication of innovative experiments, rapid research progress arising from them, and rapid dissemination. The ONCE-CS project centres on the web-based Portal which will use robust professionally-managed industrial hardware-software infrastructure to provide all the above services to the community. The content of the interactive portal will be community driven. The success of ONCE-CS can be measured objectively by network measures including the number of new nodes and links added, vertically in terms of countries, institutions, individuals, and horizontally in terms of the academic, industry and government networks.

Referència: LIFE NAT 2002/0502. Programa LIFE.
Títol: *Conservación de la gaviota de Audouin en el Delta del Ebro.*
Investigador responsable: ORO DE RIVAS, Daniel.
Categoria: Científic titular del CSIC.
Inici: 2003. **Fi**: 2005.

Referència: LIFE02/NAT/E/8608. Programa LIFE.
Títol: *Estudio de las poblaciones de aves marinas en las islas Columbretes y en los islotes de Benidorm.*
Acrònim: AUDOVAL.
Investigador responsable: ORO DE RIVAS, Daniel.
Categoria: Científic titular del CSIC.
Inici: 2002. **Fi**: 2006.

Referència: LIFE03 NAT/E/000061. Programa LIFE.
Títol: *Modelo demográfico de la metapoblación de gaviota de Audouin: factores locales y repercusión de las actuaciones de conservación. Influencia de las actividades pesqueras en la dinámica de poblaciones locales y en los procesos de emigración-inmigración.*
Acrònim: AUDOMUR.
Investigador responsable: ORO DE RIVAS, Daniel.
Categoria: Científic titular del CSIC.
Inici: 2004. **Fi**: 2007.

Referència: 2004-04-4.3-F-099.
Modalitat: INTERREG III B.
Títol: *Mytilos*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigadora responsable: DEUDERO COMPANY, Salut.
Categoria: Aj. U (àrea de coneixement: Zoologia).
Inici: 2004. **Fi**: 2006.

Socis

Institut Français de Recherche pour l'Exploitaition de la Mer (França)
Instiut Espanyol d'Oceanografia (Espanya)
Istituto Centrale per la Ricerca Scientifica e Tecnologica Applicata al Mare (Itàlia)
PSTS S.c.p.a. (Itàlia)
Institut d'Investigacions Químiques i Ambientals de Barcelona (Espanya)
Coordinador: Toulon Var Technologies (França)

Summary
At the Mediterranean Sea most of the anthropogenic problems are mainly encountered at the coastal zone. The risk of pollution at the littoral zone is highly increased by industrial activities and coastal uses mainly linked with organic loads. Pollution input and dispersal can be diffuse or localised due to hydrodynamics. This project aims to set a network of biomonitoring at the western Mediterranean basin in order to provide information available to the regional governments regarding a set of measures for prevention of environmental disasters. The interest of the 'sentinel' organisms as indicators for the assessment of contaminants at the marine environment is well known worldwide. The bioaccumulation capacities of the mussels Mytilos galloprovincialis will allow to measure the background levels of pollution and to discern effects in critical areas such as aquaculture production zones, touristic areas. The project focus in the evaluation of the chemical contamination of the natural water masses within the Water Framework Directive.

PROJECTES FINANÇATS PEL GOVERN ESPANYOL

I PEL GOVERN DE LES ILLES BALEARS

DEPARTAMENT DE BIOLOGIA

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 (EDP)	**Categoria**	**Dedicació**
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 interdiciplinary 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 mesophyl 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: 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 Casasnovas.
Investigadora responsable: ALEMANY FERRÀ, Aina.
Categoria: TU (àrea de coneixement: Zoologia).
Inici: 2002. **Fi**: 2005.

Membres de l'equip	**Categoria**	**Dedicació**
Alemany Ferrá, Aina	TU	Compartida
Andrés Yeves, Marifé		
Martínez Beringola, M. Luisa		
Durà Blasco, Antoni		
Rallo Garcia, Joan		
Mayol Colom, Bartomeu		
Salto Jáudenes, M. Teresa		
Alonso Frau, Raquel	B	Compartida

Nombre total d'investigadors a la UIB: 2.

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 (EDP)	**Categoria**	**Dedicació**
Escribá Ruiz, Pablo Vicente	TU	0.5
Besalduch Vidal, Joan		0.5
Barceló Mairata, Francesca M.	TU	0.5
Gutiérrez García, Antonio Manuel		0.5
Barturen Fernández, Fernando		0.5
Rodríguez Diaz-Pavón, José		0.5
Ventayol Bosch, Pere	Tèc.	1
Vögler, Oliver	B	1
Nagy, Tünde	B	1
Borchert, Gudrun	B	1
Baamonde Calzada, Carmela	B	1
Castro Marrero, Jesús	B	1
Terés Jiménez, Silvia	B	1
Casas Rodríguez, Jesús	B	1
Martínez Serra, Jorge	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 memrane 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 de 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 $p21^{Cip1}$, 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 a 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 asessed, among other experimental approaches, by genomic analyses. Our preliminary results indicate that Minerval induces revertion of various types of tumor processes. In addtion, the lack of important side-effects, its low toxicity and the oral administration of this drug suggest that this molecule cab be used in human therapies. The results derived from this project may bring important advances in human health and basic knowledge.

Referència: SAF2004-05249. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biomedicina.
Títol: *Bases moleculares del efecto hipotensor del ácido hidroxioleico.*
Acrònim: BMEHAH.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ESCRIBÁ RUIZ, Pablo Vicente.
Categoria: TU (àrea de coneixement: Biologia Cel·lular).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Escribá Ruiz, Pablo Vicente	TU	0.5
Barceló Mairata, Francisca	TU	0.5
López Bellan, Alicia	Tèc.	1
Barturen Fernández, Fernando		0.5
Serra Trespallé, Juan Enrique		1
Egea Merlos, Carolina	B	0.5

Investigadors d'altres entitats

Bachiler, Daniel	UCLA School of Medicine

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

Summary
The project would continue project SAF2001-0839, entitled "Pharmacological modulation of blood pressure through lipids that alter the structure of membranes". As a result of such project, we designed and patented a molecule, 2-hydroxyoleic acid (2OHOA), which has a marked hypotensive activity, lacks of side-effects and has an oral administration. In this project we propose the study of the molecular bases of the pharmacological effects mediated by this compound, which can be a valuable tool in the treatment of cardivascular pathologies. The present study will be carried out at five levels. (1) Study of the modulation of the membrane lipid structure by 2OHOA. (2) Research on the effect of such modulation on the plasma membrane-protein interactions of signaling proteins involved in the control of blood pressure. (3) Study of the regulation of membrane lipid levels after 2OHOA tretaments. (4) Regulation of the expression of signaling proteins (G protein-coupled receptor pathways) involved in blood pressure regulation. (5) Generation of an animal model (knockout for PKCα) and investigation of the signaling mechanisms modulated by 2OHOA to exert its action. For these reasons, the present project has a great interest in basic science. Being cardivascular pathologies the main cause of death in our country, the clinical implication of this project result of special relevance.

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 Casasnovas.
Investigador responsable: JUAN CLAR, Carles.
Categoria: TU (àrea de coneixement: Genètica).
Inici: 2003. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Juan Clar, Carles	TU	0.5
Petitpierre Vall, Eduard	CU	0.5
Contreras Díaz, Hermans G.	B	1
Moyà 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 subfamilia 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Petitpierre Vall, Eduard	CU	0.5
Juan Clar, Carles	TU	0.5
Tous Pascual, Maria Esperança	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 interelationships, 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 Casasnovas.
Investigadora responsable: RAMON JUANPERE, Misericòrdia.
Categoria: TU (àrea de coneixement: Genètica).
Inici: 2003. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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 Baleares 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 Casasnovas.
Investigadora responsable: ALEMANY ALONSO, Regina.
Categoria: INVESTIGADORA CONTRACTADA.
Inici: 2003. **Fi**: 2006.

Membres de l'equip	**Categoria**
Alemany Alonso, Regina	Investigadora
Delgado Ramis, Carlos	Col.
Egea Merlos, Carolina	B
Baamonde Calzada, Carmela	B
Terés Jiménez, Silvia	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 pacients with cardiovascular patologies, 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 derivates 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 patologies. 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-depht 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: SAF2004-03685. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biomedicina.
Títol: *La vía de señalización del receptor FAS/FADD en la adicción a opiáceos*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: GARCÍA SEVILLA, Jesús A.
Categoria: CU (àrea de coneixement: Farmacologia).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
García Sevilla, Jesús A.	CU	1
Miralles Socias, Antoni	TU	1
Moranta Mesquida, David	B	1
García Fuster, Maria J.	B	1

Investigadors d'altres entitats

Saus Sarrias, Carles	IB-SALUT

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

Summary
The aim of this project is to investigate the interactions between opioid receptors and the signaling pathway of the Fas/FADD (Fas Associated-Death Domain) receptor, involved in the regulation of apoptosis and neuronal plasticity. Previously, it has been shown that opiate addiction (tolerance and dependence) is associated with increases of native and glycosylated Fas in rat brain. This project postulates that opiate drugs and opiate addiction modulate key elements of the Fas receptor pathway (Fas aggregates, adaptor FADD and caspases 8 and 3) and/or other apoptotic proteins of the mitochondrial pathway (cytocrome C, Bax, Bid) in brain, and that the interactions between opioid receptors and Fas might be mediated directly (protein contacts between Gi/FADD) or indirecly through other intracellular signaling proteins (p35/cdk-5, ERK1/2). The main aims are: 1) to quantitate the acute and chronic effects of opiate drugs (agonists and antagonists of μ-, δ-, κ-opioid receptors) on the signaling pathway of Fas; 2) to identify the opioid receptor type (animals genetically deficient in opioid receptors) that modulates the effector complex Fas/FADD; 3) to localize the groups of neurones that co-express both Fas and opioid receptors; and 4) to investigate in vivo and in vitro some mechanisms related to opioid receptors/Fas and ERK-cdk5/Fas interactions.

Referència: CGL2004-00838/BOS. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Análisis de secuencias multilocus en estudios de taxonomía, filogenia y evolución de pseudomonas*.
Acrònim: PseudoMLSA.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigadora responsable: GARCÍA-VALDÉS PUKKITS, Elena.
Categoria: TU (àrea de coneixement: Microbiologia).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
García-Valdés Pukkits, Elena	TU	1
Lalucat Jo, Jordi	CU	0.5
Bennàsar Figueras, Antoni	Contr. dr.	0.5
Cladera Cerdà, Aina	B	1
Ramon Manera, Cristina	Tèc.	1
Rúa Amo, Beatriz	Tèc.	0.5

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

Summary
The genus *Pseudomonas* includes many species of environmental, clinical, agricultural and biotechnological interests. It is well defined phenotypically and genotypically. However, numerous new species are being described continuously within the genus. The accepted method for discriminating bacterial species is the DNA-DNA hybridization, but this method has limitations (time consuming, needs experience to be done, does not define distances between species, is not accumulative). In this project, we propose the development of a new, accumulative and reliable method for the species definition in the genus *Pseudomonas* based on the MLST (Multilocus Sequence Typing) method. Main objectives of the project are:
1. Maintenance of a well described *Pseudomonas* strains collection.
2. Construction of a sequence-based database of selected genes of members of the genus.
3. Implementation of analytical bioinformatic tools for the multi-sequence-based identification of *Pseudomonas* species.

Referència: AGL2005-06927-C02-01/AGR. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.
Títol: *Optimización del uso del agua en la vid: regulación y control fisiológico y agronómico y efectos en la calidad del fruto*.
Acrònim: AGUAVID.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: MEDRANO GIL, Hipólito.
Categoria: CU (àrea de coneixement: Fisiologia Vegetal).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Medrano Gil, Hipólito	CU	1
Bota Salort, Josefina	Col.	0.5
Gulias León, Javier	Aj.	1
Cifre Llompart, Josep	Col.	0.5
Sánchez Forss, Antonio L.	Tèc.	0.5
Vadell Adrover, Jaume	TEU	0.5

Investigadors d'altres entitats

García Escudero, Enrique	Govern de La Rioja
Ibáñez Pascual, Sergio	Govern de La Rioja
Schubert, Andrea	Università degli Studi di Torino

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

Referència: CTM2005-01783/MAR. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies mediambientals.
Títol: *Respuesta de comunidades microbianas marinas a contaminación por hidrocarburos: diversificación, funcionalidad y mecanismos genéticos de adaptación*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigadora responsable: NOGALES FERNÁNDEZ, Balbina.
Categoria: INVESTIGADORA CONTRACTADA.
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Nogales Fernández, Balbina	Investigadora	1
Bosch Zaragoza, Rafel	TEU	1
Martín Cardona, Celia	B	1
Lanfranconi, Mariana Patricia	B	1
Christie Oleza, Joseph Alexander	B	1

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

Summary
Hydrocarbon pollution is very frequent in the marine environment and it is especially important in coastal areas, which have great economical and recreational relevance. The conservation of the integrity of the ecosystem is paramount for a sustainable development of the coastal environment. Therefore, a good knowledge on the impact that hydrocarbon pollution has in the coastal ecosystem is necessary.
Despite the fact that microorganisms are the main players in hydrocarbon degradation in marine environments, information on the microbial communities in hydrocarbon polluted environments, their functionality and adaptation mechanisms is scarce. This project proposes a study of microbial communities of coastal environments, in order to elucidate the impact of hydrocarbon pollution on them. The analysis will be based in the use of molecular biology techniques, the analysis of environmental samples, experiments in microcosms subjected to different treatments, and with the isolation of bacteria from the environments studied. Firstly, the structure and composition of the microbial communities in the presence and absence of hydrocarbons will be compared and changes in response to pollution will be analysed. Special attention will be dedicated to the study of two important marine bacterial groups, SAR11 and *Roseobacter* groups. Secondly, the changes in community global gene expression will be analysed, as well as the expression of selected functional genes, important for the functionality of the community (photosynthesis, carbon fixation, processes in the nitrogen cycle, hydrocarbon degradation genes). Following these two approaches, the response of the communities by proliferation and/or disappearance of certain microorganisms will be determined, but also information about the functional response of the community to the presence of pollutants will be obtained by following changes in gene expression. Finally, mechanisms for the genetic adaptation of bacterial populations within the community to the stress caused by hydrocarbon pollution will be studied. In particular, the role of insertion sequences and hypermutation in the adaptation to the presence of hydrocarbons in the environment will be analysed.

Referència: BFU2005-03102/BFI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biologia fonamental.
Títol: *Efecto de la sequía sobre la fotosíntesis y la respiración: aclimatación y recuperación*.
Acrònim: FORESER.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: FLEXAS SANS, Jaume.
Categoria: TEU (àrea de coneixement: Fisiologia Vegetal).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Flexas Sans, Jaume	TEU	1
Ribas Carbó, Miquel	Investigador	1
Galmés Galmés, Jeroni	Aj.	1
Pons Ros, Rosa	As.	0.5

Investigadors d'altres entitats

Lambers, Johannes Thieo	University of Western Australia

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

Summary
The study the combined responses of photosynthesis and respiration to water stres is of significant importance to understand the underlyng physiological mechanisms that permit plants to survive under arid and semi-arid conditions, with an important effect on agricultural production and water economy. In the previous project the physiological basis of these processes were determined as a function of the instity of the stress and its timing. However, it is important not only to know the response of these processes during the imposition of the stress but also its acclimation and it recovery capacity. The present proposal intends to study these aspects rather unknown regardless of its unmistakable relevance.
The core of this proposal is the hypothesis that foresees that the intensity of the stress would affect the recovery of both the photosynthetic and the respiratory metabolism after the stress. It also predics that the physiological response to both the stress imposition and its recovery will depend on previous acclimation to the stress. Furthermore, the hypothesis suggest that photosyntheis and respiration interact closey during the stress, its acclimation and its recovery, and particularly, the hypothesis gives and important role to the cyanide-resistant alternative respiration during the recovery period. These interactions between intensity, acclimation and recovery and between photosynthesis and respiration should have a clear sign with the specific patterns of gene expression. The specific objectives of this proposal are the following:
1. To confirm that CO^2 availability at the chloroplast level is the main limiting factor of photosynthesis under water stress conditions and during plant recovery.
2. To elucidate how the inenstity of water stress affects the velocity and the degree of the photosynthetic recovery after re-hydration, as well to find out which physiological mechanisms are the most limiting for each recovery case.
3. To discover the main physiological adjustements contributing to the acclimation of photosynthesis and respiration to water stress.

4. To study the regulation of respiration in different tissues under simulated and its relation with phyosynthesis and the total plant carbon balance.
5. To analyse the possible role of the cyanide-resistant respiration on the recovery of photosynthesis after severe water stress.
6. To relate gene expression with the physiological response to different water stress scenarios.

Referència: AGL2005-06150/GAN. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.
Títol: *Desarrollo de estrategias de control de las poblaciones de culicoides (Diptera; Ceratopogonidae), vectores del virus de la lengua azul*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: MIRANDA CHUECA, Miguel Ángel.
Categoria: TEU (àrea de coneixement: Zoologia).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Miranda Chueca, Miguel Ángel	TEU	1
Rincón Otero, Cristina	As.	1

Investigadors d'altres entitats

Borràs Borràs, David	Institut de Biologia Animal

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

Summary
The Blue Tongue (BT) is a disease of ruminants with a wide distribution in the Mediterranean Basin. BT is included in the List A from the OIE that includes obligatory declaration diseases that have important impact on the economy of farmers and affects very seriously the trade of animals in the areas where it is present.
In recent years the BT has been detected in our country. Firstly, during 2000 and 2003 in the Balearic Islands, and secondly, during autumn 2004 in the South of Spain, in particular in Andalucia and Extremadura regions. In all these episodes, the main hypothesis that explains the incursion of BT virus (BTV) in Spain is based on the fact that the BTV could be introduced by vector insects that are transported by air streams from the neighboring areas that are already infected with the BTV. Within these areas we should include Corsica, Sardinia and Sicily in the case of the introduction in the Balearics, and Morocco in the case of the Peninsula.
The vectors are the only way for transmitting the virus among animals, thus, they have an enormous importance in epidemiology issues and for this reason, the main objectives from this proposal have been focused on the following points:
1.- To study the biology of the vectors as a basic background knowledge for controlling their populations. This objective is specially focused on the larvae and pupae environmental breeding sites.
2.- To evaluate the activity periods of *Culicoides* adults in relationship with their haematofagous feeding behavior, in order to develop efficacious strategies for controlling them.
3.- To evaluate which strategies related with farming managing could decrease *Culicoides* populations, specially those related with managing of possible breeding sites.
4.- To evaluate the efficacy of insecticides and repellents as a method for the reduction of bite rate and then causing a decrease of the virus transmission.

Referència: SAF2005-01466. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biomedicina
Títol: *Caracterización molecular de nuevos mecanismos de resistencia a los antimicrobianos.*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: ALBERTÍ SERRANO, Sebastià.
Categoria: TEU (àrea de coneixement: Microbiologia).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Albertí Serrano, Sebastià	TEU	1
Hernández Allés, Santiago	Tèc.	1
Franco Capó, Marta	B	1

Investigadors d'altres entitats

Doménech Sánchez, Antonio	Saniconsult Mallorca

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

Summary
Bacterial resistance to antimicrobial agents represents a worldwide problem that is very frequent in our country and results in an increase of the morbility and mortality of the infectious diseases.
Among the general mechanisms exhibit by the microorganisms to resist the antimicrobial agents: inactivating enzymes, target modifications and reduction of intracellular antimicrobial agent concentration, it is probably the last mechanism the most common among different bacterial species. In addition, the combination of this mechanism with one of the other mechanisms results in a very efficient reduction of the antimicrobial drug effects.
Using as model *K. pneumoniae*, we have described two mechanisms that allows to the pathogen to reduce the intracellular antimicrobial drug concentration: reduction of porin expression and expression of efflux pumps. However, the molecular mechanisms that reduce porin expression and the factors involved in this reduction as well as the efflux pumps systems of this microorganism are poorly studied. The goal of this project is to characterize both mechanisms using molecular biology techniques in order to design better treatments to avoid antimicrobial resistance and to identify novel mechanisms of resistance to develop new antimicrobial drugs. It is likely that results obtained in this project will be useful for other microorganisms since antimicrobial resistance mechanisms are quite similar among different pathogens.

Referència: PI05-1340. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Estudio farmacológico y molecular del efecto de ácidos grasos naturales y modificados sobre la obesidad y patologías relacionadas.*
Centre: Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: VÖGLER, Bernhard Oliver.
Categoria: INVESTIGADOR CONTRACTAT.
Inici: 2005. **Fi**: 2008.

Membres de l'equip	**Categoria**
Vögler, Bernhard Oliver	Investigador
Alemany Alonso, Regina	Investigadora
Tofe Povedano, Santiago	

Summary
The prevalence of obesity has increased to epidemic proportions in many parts of the world, reflection an imbalance between energy uptake (by food intake) and energy expenditure (by metabolization). Food intake is basically regulated in the hypthalamus, which stimulates or inhibits appetite due to the energetic state of the organism. On the other hand, energy expenditure is regulated by the activation of certain nuclear receptors (PPAR), which are able to augment energy consumption by expression of metabolic enzymes, and by uncloupling proteins (UCP), which increase energy expenditure by thermogenesis. It has been demonstrated that the function of the hypothalamus as well as the activation of PPARs and the expression of UCPs can be modulated by fatty acids. In this context, modifcation of the chemical structure of fatty acids could become a valuable tool to potentitate their pharmacological efficiency and to develop new potent drugs for the treatment of obesity. Recently, our laboratory has patented a synthetic derivative of oleic acid, 2-hydroxioleic acid, that reduces very efficently body weight in animals. Moreover, in order to extend our knowledge about this prhysiological effect of structural modifcations, we have planned to synthetize other modified fatty acids, e.g. 2-methyloleic acid. This project proposes a pharmacological and molecular study of four natural fatty acids (stearic, elaidic, oleic and linoleic acid) and two modified ones (2-hydroxyoleic and 2-methyloleic acid) to evaluate their effects on body weight, food intake, lipid metabolism and thermogenesis in animals. Furthermore, the capacity of these fatty acids in reverting the pathological changes observed in obesity, like the plasma levles of glucose and insulin, triglycerides, cholesterol and the profile of the lipoproteins LDL/HDL, will be investigated in an obese animal model. The results will elucidate the role that the chemical structure of the fatty acid has on its effect and the mechanisms by which certain fatty acids regualte body weight.

Referència: 201/2004/1. Ministeri de Medi Ambient.
Modalitat: Pla nacional de residus i recuperació de sóls contaminats.
Títol: *Proyecto demostrativo para un parque integrado de depuración alternativa de aguas residuales y compostage de lodos de depuración*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: MARTÍNEZ TABERNER, Antoni.
Categoria: TU (àrea de coneixement: Ecologia).
Inici: 2004. **Fi**: 2007.

Membres de l'equip	**Categoria**
Martínez Taberner, Antoni	TU
Moyà Niell, Gabriel	TU
Ramon Pérez de Rada, Guillem	TU
Vadell Adrover, Jaume	TEU
Moià Pol, Andreu Antoni	P. col.
Martínez Moll, Víctor	TEU
Coll Mayor, M. Dèbora	P. col.
Cladera Bohigas, Antoni	P. col.

Referència: Ministeri d'Agricultura, Pesca i Alimentació.
Modalitat: Acció estratègica conservació dels recursos genètics d'interès agroalimentari.
Títol: *Caracterización, saneamiento y conservación del principal material vegetal vitícola de la isla de Mallorca (islas Baleares).*
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: CIFRE LLOMPART, Josep.
Categoria: P. Col. (àrea de coneixement: Producció Vegetal).
Inici: 2004. **Fi**: 2006.

Membres de l'equip	**Categoria**
Cifre Llompart, Josep	P. Col.
Medrano Gil, Hipólito	CU
Escalona Lorenzo, José M.	As.
Rosselló Veny, Joan	As.
Sampol Trujillo, Bartomeu	B
Martorell Nicolau, Antoni	

Referència: PRIB2004-10144. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Variabilitat en l'eficiència en l'ús de l'aigua per les plantes: optimització del seu ús*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: MEDRANO GIL, Hipólito.
Categoria: CU (àrea de coneixement: Fisiologia Vegetal).
Inici: 2004. **Fi**: 2005.

Referència: PRIB2004-10147. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Proteínas apoptóticas y mecanismo de acción de los fármacos opiáceos. Relevancia en la adicción a la heroína*.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: MIRALLES SOCIAS, Antoni.
Categoria: TU (àrea de coneixement: Biologia Cel·lular).
Inici: 2004. **Fi**: 2007.

Referència: PRIB2004-10319. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Identificación y tipado molecular de mycobacterias ambientales*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: LALUCAT JO, Jordi.
Categoria: CU (àrea de coneixement: Microbiologia).
Inici: 2004. **Fi**: 2006.

Referència: 15AA/2004. Conselleria de Salut i Consum del Govern de les Illes Balears.
Títol: *Estudi de les bases moleculars de la pèrdua de massa muscular*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigadora responsable: LLADÓ VICH, Jerònia.
Categoria: Investigadora
Inici: 2004. **Fi**: 2006.

Referència: Conselleria d'Economia, Hisenda i Innovació del Govern de les Illes Balears.
Títol: *Identificación y caracterización de nuevos mecanismos de resistencia bacteriana a los antimicrobianos*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: ALBERTÍ SERRANO, Sebastià.
Categoria: TEU (àrea de coneixement: Microbiologia).
Inici: 2004. **Fi**: 2007.

Referència: 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: *Caracterització de la malvasia a Banyalbufar*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: MEDRANO GIL, Hipólito.
Categoria: CU (àrea de coneixement: Fisiologia Vegetal).
Inici: 2004. **Fi**: 2005.

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: CGl2004-00223/BOS. Ministeri d'Educació i Ciència.
Títol: *Estudio filogeográfico del endemismo vegetal tirrénico.*
Investigadora responsable: MAYOL MARTÍNEZ, Maria.
Centre: Universitat de Barcelona.
Investigador de la UIB: Mus Amézquita, Maurici.
Categoria: TEU (àrea de coneixement: Botànica).
Inici: 2004. **Fi**: 2007.

Referència: 034/2002 Ministeri de Medi Ambient.
Títol: *Diversidad genética y microespeciación en especies vegetales endémicas del parque nacional del archipiélago de Cabrera (Islas Baleares): implicaciones para la gestión.* **Investigador responsable**: ROSSELLÓ PICORNELL, Josep A.
Centre: Institut Botànic Cavanilles. Universitat de València.
Investigador de la UIB: Mus Amézquita, Maurici.
Categoria: TEU (àrea de coneixement: Botànica).
Inici: 2003. **Fi**: 2006.

DEPARTAMENT DE BIOLOGIA FONAMENTAL
I CIÈNCIES DE LA SALUT

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 (EDP)	**Categoria**	**Dedicació**
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 phasocitic function. In vitro studies also performed in our laboratory showed that melatonin, both at physiological and phamacological concentrations, have a stimulant effect over incubated phagocites. 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 additiona study, most specially after the new developments in the sleep of primitive mammals. This project aims at studiying sleep and inmunity in the turtle dove used as a model of the circadian changes produced by age. The correlation between typtophan 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 Casasnovas.
Investigador responsable: GARCÍA PALMER, Francisco José.
Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2002. **Fi**: 2005.

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

Membres de l'equip	**Categoria**
Tur Marí, Josep Antoni	TU
Pons Biescas, Antoni	TU
Fuentespina Vidal, Emilia	
Llompart Alabern, Isabel	
Aguiló Pons, Antoni	
Tauler Riera, Pedro J.	B
Cases Porcel, Núria	B
Riesco Prieto, Maria del T.	
Córdova Martínez, Alfredo	

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 sinergy 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 Casasnovas.
Investigador responsable: PALOU OLIVER, Andreu.
Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2002. **Fi**: 2005.

Membres de l'equip	**Categoria**
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
Sandbichler, Sandra	Tèc.

Summary
A thematic network that comprises nine biomedical research groups and whose objective is to address the basic mechanisms that lay the foundations of obesity treatment is herewith proposed. The research topics will be: Evaluation of neuroendocrine markers such as growth hormone, leptin and ghrelin, in different energy homeostasis states. Leptin secretion by adipose tissue and the modulation and intracellular signalling of ghrelin. Role of the adipose tissue in disease states such as insulin resistance and its role in cardiovascular complications. The systematic collection of adipose tissue will allow the study of differential gene expression. DNA samples will allow pharmacogenomics and nutrigenomics studies. Two drugs developed by network members, tungstate and oleylethanolamide, will be tested as putative treatments for obesity. The network will be endowed with coordination nodes such as the Network Centralised Database, the Bank of DNA samples, and the Bank of adipose tissue. A registry of bariatic surgery will be established. A working area will be the centre for interface with industry and to assess sanitary administrations, for the transfer of scientific knowledge to the industry and to the health system. Finally, the network will be managing a highly sophisticated training program for the members of the groups working in the topic, which will enhance the know-how and the technological knowledge dissemination among the young members of the network.

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 Casasnovas.
Investigador responsable: PALOU OLIVER, Andreu.
Categoria: CU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2003. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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, M. 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, cointinuosly suported 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 hypotesis 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:
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 adipostiy.
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.
To characterize the gastric leptin system and is 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.
To study the differential expression of genes in adipose tissue depots of lean and obese humans and its eventual reversion upon body wight normalization. To analize its potential relation to specific genetics variants.
To develop a transcriptomic and proteomic approach to the effect of selected nutrients on adipose tissue and skeletal muscle samples.

Referència: AGL2004-07496/ALI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de recursos i tecnologies agroalimentàries.
Títol: *Bases científicas de ingredientes alimentarios funcionales de potencial aplicación en la obesidad. Interrelaciones y aspectos mecanísticos de interés en la evaluación del balance beneficio/riesgo*.
Acrònim: ALIOBEN.
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: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Palou Oliver, Andreu	CU	1
Bonet Piña, M. Lluïsa	CEU	1
Picó Segura, Catalina	CEU	1
Serra Vich Francesca	CEU	1
Ribot Riutort, Joan	TEU int.	1
Oliver Vara, Paula	TEU int.	1
Rodríguez Guerrero, Ana M.	Aj.	1
Miralles Barrachina, Olga	As.	1
Sánchez Roig, Joana	B	1
Rodríguez Parrona, Enrique	B	1
Felipe Legaz, Francisco	B	1
Fuster Roca, M. Antònia	B	1
Mercader Barceló, Josep	B	1
Dietrich Planas, Lucrecia	B	1
Van Hoeck, Els	B	1
Sandbichler, Sandra	Tèc.	1

Investigadors d'altres entitats

Caimari Jaume, Maria	Ib-Salut
Román Piñana, Juana María	Ib-Salut

EDP del grup investigador de l'entitat sol·licitant: 16.

Summary
The project is envisaged to study the scientific basis of the activity of potentially functional ingredients to control body weight and of their balance benefit/risk. Scientific evidences supporting health claims, in particular those based in the knowledge of mechanistic aspects and on safety are critical aspects in the evaluation of new functional foods. This research may orientate the design and development of novel functional foods of interest in obesity, contributing to establish the molecular basis of their beneficial effects, characterizing undesirable side-effects and defining function biomarkers associated to exposure and end-points biomarkers. The socio-economical interest of the topic is enormous, particularly because of the importance of the obesity problem in our society.

The initial hypothesis, supported by previous contributions made by the research team

and others, is that the enrichment of diets with specific nutrients may favour a reduction in adiposity as a consequence of the largely confluent effects of these nutrients on key biochemical processes involved in the regulation of the energy balance. The specific aims of the project are:

1.- Characterization of the molecular basis of the slimming effect of dietary calcium and the influence of the dietary source of calcium on this effect.

2.- Study of the effects of selected nutrients (vitamin A, conjugated linoleic acid) on lipolysis in white adipose tissue and on the thermogenic capacity and fatty oxidation in target tissues. Benefit/risk of diet enrichment with these nutrients.

3.- Analysis of the potential of β-carotene on the protection against obesity. Benefit/risk of supplementation with β-carotene.

4.- Study of peptides present in maternal milk, particularly leptin. Determination of its function in the neonatal development and its repercussion in adulthood. Benefit/risk of the use of leptin as a nutritional supplement.

5.- Analysis of the effect of combination of the nutrients and doses selected in a dairy vehicle on the development of dietary obesity and on the slimming during caloric restriction.

The project is a continuation of the labor of a consolidated group of researchers in the field of obesity, with participation in national and EU programs since more than 17 years, with previous collaborative experience with industries and integrated in a Research European Network of Excellence in Nutrigenomics.

Referència: PI05-1276. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Estudio de la prevalencia de la obesidad infantil y juvenil en las Islas Baleares (estudio OBIB).*
Centre: Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.
Investigador responsable: TUR MARÍ, Josep Antoni.
Categoria: TU (àrea de coneixement: Fisiologia).
Inici: 2005. **Fi**: 2008.

Membres de l'equip	**Categoria**
Tur Marí, Josep Antoni	TU
Pons Biescas, Antoni	TU
Aguiló Pons, Antoni	P. col.
Fuentespina Vidal, Emilia	
Llompart Alabern, Isabel	
Riesco Prieto, Maria del T.	
Tauler Riera, Pere J.	B
Romaguera Bosch, Maria A.	B
Reynés Ferrer, Miquel D.	B

Summary
The main objective of this project is to know the current obesity and overweight prevalence in the child and youth population of the Balearic Islands, its predictive factors (diet quality, physical activity, socio-demographic factors, lifestyle, and the biochemical, hematic and genetic profile) and comorbididity, evolution and trends durign the next trhee years. A longitudinal epidemilogical study will be carried out on a poblational based sample. The sample population will be all residents aged 2 to 18 years registered in the official population census of the Balearic Islands. The estimated theoretical sample size is 2000 individuals, radomly selected from natural clusters of individiuals (conglomerates) in the study population of the Balearic Islands. The estimate theoretical sample size population of the Balearic Islands. The sampling technique includes stratification according to 5 geographycal areas (Mallorca, Menorca, Ibiza, Formentera and Palma de Mallorca) x 4 age groups (2-5 years, 6-9 years, 10-13 years and 14-18 years) x 2 sexes: 40 strtes of 50 individuals. Each selected individual will be interviewed twice, first at the beginning of the study and secondly during ghe last year of the study; therefore 4000 interviews will be carried out in two stages of 2000 interviews each stage. These individuals will undergone an anthopometric study, nutritional status assesment throught a semiquantitative food frequency questionnaire adn a 24 hours recall, descrkiption of their socio-demographic status and lifestyle, assessment of their nutrional knowledge, opinions and preferences, measurements of bioquemical parameters and genetic factors of obestiy, and measurement of the arterial pressure. The description of the profile of obese children in the Balearic Islands will be carried out, as well as the distribution map of overweight and obesity prevalence in children and adolescents of the Balearic Islands. Trends to excess weight in children and adolescents and its projection will be described, as well as the influence of the predictive factors on this tendency.

Referència: PI05-2174. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Fundamentos biológicos en la terapia de la obesidad.*
Centre: 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: 2005. **Fi**: 2006.

Membres de l'equip	**Categoria**
Palou Oliver, Andreu	CU
Picó Segura, Catalina	CEU
Bonet Piña, M. Lluïssa	CEU
Serra Vich, Francesca	CEU
Ribot Riutort, Joan	TEU
Oliver Vara, Paula	CEU
Rodríguez Guerrero, Ana Maria	TEU
Sánchez Roig, Joana	B
Priego Cuadra, Teresa	Investigadora
Miralles Barrachina, Olga	B
Caimari Palou, Antoni	B
Mercader Barceló, Josep	B
González Galindo, José Luis	B
Parra Moyà, Pilar	B
Amengual Terrasa, Jaume	B

Summary
In the present project, our group intends to continue with the study of the mechanisms involved in body weight control and, in particular, the effect of specific nutrients (carotenoids, retinoic acid, calcium, and fatty acids and derived) on the thermogenic system, the adipogenesis and their impact on the body adiposity, and we have characterized the effect of thses nutrients on the expression and secretion of diverse adipoquines and its relation with the medical complications of the obesity, in particular insulin resistance. It is planned to finalize these studies in animals and based on these results and genes identified in this first stage, we will check in humans the effect of the ingestion of certain nutrients on the expressión of key genes in bdo weight control. On the other hand, we have results in animal models showing the importance of the gastric leptin, pointing their possible implication in the control of the short- and medium- term system of food intake. The effect of the intake of leptin during lactation on food intake has been characterized in neonate rats. In this project we will continue the study of the characterization of the gastric leptin system, its regulation, and its possible implication in the control of body weight in different experimental models. The project also includes the application of the transcriptomics and proteomics methodologies in the field of nutrition and nutrigenomics, functional foods and the treatment of obesity for the characterization of the effect of specific nutrients and the identification of early biomarkers of interest in this scope.

Referència: PI04-2294. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Poliformismos de genes candidatos de riesgo cardiovascular en la respuesta a la dieta mediterránea. Estudio de modelos animales de las bases moleculares que relacionan el estrés oxidativo con el proceso aterogénico*.
Centre: Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.
Investigadora responsable: PROENZA ARENAS, Ana María.
Categoria: TEU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2004. **Fi**: 2007.

Membres de l'equip	**Categoria**
Proenza Arenas, Ana María	TEU
Gianotti Bauzà, Magdalena	CEU
Roca Salom, Maria Pilar	TU
García Palmer, Francisco José	TU
Lladó Sampol, Isabel	TEU
Oliver Oliver, Jordi	TEU
Balaguer Covas, Jaume	As.
Fiol Sala, Miquel	
Thomàs Moyà, Elena	B
Valle Gómez, Adamo	

Summary
The aims of the project are:
1. To assess whether the possible beneficial effects of Mediterranean Diet on cardivascular risk factors are modulated by polymorphisms of candidate genes. To determine the consequences of the supplementation withs specific foods.
2. To determine the atherogenic effect and the oxidate stress induced by a cafeteria diet and the consequences of a dietary supplementation with foods that have a potential antioxidant effect.
3. To investigate the role of PON1 in the response to the oxidate stress induced by dietary factors and the obese status, and its regulation by Mediterranean Diet.
4. To establish a relationship between the diet and obesity-induced oxidative stress and the fibrinolic process by studying the signal pathways leading to PAI-1 expression.
5. To determine the influence of the diet on the function of NADH/NADPH oxidase p22phox subunit in the respiratory chain (the main source of ROS production in endothelial cells). To make a comprehensive study of the molecular mechanisms implicated in p22phox function.
6. To establish a relationship between diet- and obesity-induced oxidative stress on endothelial function by studying the eNOS.
In order to reach these objectives, it has been devised an experimental design tha includes studies both in high cardivascular risk patients undergoing a diet intervention and studies in animal models of cafeteria diet induced-obesity (an oxidative stress generator) supplemented with specific foods.

Referència: PI04-2377. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Implicación del estrés oxidativo inducido por una dieta hiperlipídica en la alteración de la sensibilidad y la secreción de insulina. Diferencias entre géneros*.
Centre: Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.
Investigadora responsable: LLADÓ SAMPOL, Isabel.
Categoria: TEU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2004. **Fi**: 2007.

Membres de l'equip	**Categoria**
Lladó Sampol, Isabel	TEU
Gianotti Bauzà, Magdalena	CEU
Roca Salom, Maria Pilar	TU
García Palmer, Francisco José	TU
Proenza Arenas, Ana María	TEU
Oliver Oliver, Jordi	TEU
Pablo Cánaves, Josep A.	B
Pisano Pérez, Maria Estela	
Alcolea Delgado, Maria del Pilar	B
Colom Pomar, Bartomeu	B

Summary
The aim of this project is to analyze the molecular mechanisms inherent to the different incidence between genders of insulin resistance development and the dysfunction of pancreatic beta cells. Both events can be related to the intake of a high fat diet which is inductive of oxidative stress.
The basic goals of the project are the following:
1. To determine the oxidative stress status generated by feeding a high fat diet and the degree of insulin resistance induced in skeletal muscle.
2. To study the effects of high fat diet induced oxidative stress on pancreatic beta cell functionally.
3. To determine the expression and secretion of pro-inflammatory cytokines by adipose tissue in relation to the oxidative stress situation generated by the diet.
4. To analyze the effect of these pro-inflammatory cytokines on pancreatic beta cell functionally and the potential mechanisms of this effect.
5. To determine the effect of sex hormones on pancreatic beta cell functionally and insulin resistance parameters in skeletal muscle.
The achievement of thses proposed goals involve the concurrent development of both in vitro and invivo studies. In vivo studies will use adult Wistar rats of boths genders, which will be feed with an oxidative stress inducing high fat diet. In vitro studies will allow us to go further into the knowledge of the underlying molecular mechanimsms using isolated cells and/or cell lines.

Referència: CAL03-060-C4-2. Institut Nacional d'Investigació i Tecnologia Agrària i Alimentària.
Títol: *Estudio de las variables que afectan al mecanismo de formación de acrilamida durante el procesado industrial de alimentos, evaluación de su biodisponibilidad en alimentos*.
Centre: Biologia Fonamental i Ciències de la Salut. Edifici Guillem Colom Casasnovas.
Investigadora responsable: PICÓ SEGURA, Catalina.
Categoria: CEU (àrea de coneixement: Bioquímica i Biologia Molecular).
Inici: 2004. **Fi**: 2006.

Membres de l'equip	**Categoria**
Picó Segura, Catalina	CEU
Palou Oliver, Andreu	CU
Bonet Piña, M. Lluïsa	CEU
Serra Vich, Francesca	CEU
Oliver Vara, Paula	CEU
Ribot Riutort, Joan	TEU
Rodríguez Guerrero, Ana María	TEU

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.

Membres de l'equip	**Categoria**
Gianotti Bauzà, Magdalena	CEU
Roca Salom, Maria Pilar	TU
García Palmer, Francisco José	TU
Lladó Sampol, Isabel	TEU
Proenza Arenas, Ana María	TEU
Oliver Oliver, Jordi	TEU
Balaguer Covas, Jaume	As.

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 Casasnovas.
Investigador responsable: FORNÓS ASTÓ, Joan Josep.
Categoria: TU (àrea de coneixement: Estratigrafia).
Inici: 2002. **Fi**: 2005.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Fornós Astó, Joan Josep	TU	1
Ginés Gracia, Ángel	As.	1
Ginés Gracia, Joaquim	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 Politechnic 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 pluridisciplinar 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 prelitoral 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 entrenchement by collapse of dolines, that improve meander bends. Balearic model will be tested on valencian coastal and prelitoral 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 (gemorphological 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 Polithecnic University of Valencia become absolutely necessary. The effort make 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: 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 Casasnovas.
Investigador responsable: BINIMELIS SEBASTIÁN, Jaume.
Categoria: CEU (àrea de coneixement: Geografia Humana).
Inici: 2003. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Binimelis Sebastián, Jaume	CEU	1
Ginard Bujosa, Antoni	TU	1
Ordinas Garau, Antoni	TEU	1
Salvà Tomàs, Pere A.	CU	1

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

Summary
The project studies the process of change of the sector cattle raiser of Majorca island. The integration in the European Union marked the traffic of the sector cattle raiser that had been headed from the sixties by the bovine subsector, subsector that had been guaranteed in a state of intensive exploitation and capitalized. Currently, thanks to impulse of the agrarian politics that bet on sustainable and extensive states and to the processes of endogenous rural change, the panorama of the sector cattle raiser is presided by a vaccine stockbreeding subsector in franca regression, the control of the extensive, ovine subsector, subsidized and of subsistence and the cattle raisers of new modalities emergency connected with the activities of leisure and recreation.

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 Casasnovas.
Investigador responsable: BRUNET ESTARELLAS, Pere Joan.
Categoria: TU (àrea de coneixement: Geografia Humana).
Inici: 2004. **Fi**: 2005.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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 specifities 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.

Referència: CGL2005-07664-C02-02/CLI. Ministeri d'Educació i Ciència.
Títol: *Análisis de la irregularidad pluviométrica a diferentes escalas temporales en la península ibérica y Baleares y sus conexiones regionales.*
Acrònim: IPIBEX.
Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.
Investigador responsable: GRIMALT GELABERT, Miquel.
Categoria: TU (àrea de coneixement: Geografia Física).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Grimalt Gelabert, Miquel	TU	1
Laita Ruíz de Asúa, Mercedes	CEU	0.5
Florit Alomar, Francesca	CEU	1
Rosselló Geli, Joan	As.	1
González de Alaiza, José Javier	TEU	1
Ramon Molinas, Jerònia	As.	0.5

Investigadors d'altres entitats

Tudela Villalonga, Lluís (Balears)	Fundació Universitat-Empresa

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

Referència: CGL2005-00537/BTE. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Análisis genético de plataformas carbonatadas mesozoicas y cenozoicas; la arquitectura de facies en función de los cambios de producción de sedimento y de acomodación*.
Acrònim: GEPLAT.
Centre: Departament de Ciències de la Terra. Edifici Guillem Colom Casasnovas.
Investigador responsable: POMAR GOMÀ, Lluís.
Categoria: CU (àrea de coneixement: Estratigrafia).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Pomar Gomà, Lluís	CU	1
Mateu Vicens, Guillem	B	1

Investigadors d'altres entitats

Obrador Tudurí, Antoni	Universitat Autònoma de Barcelona
Bossellini, Francesca	Università di Modena e Reggio Emilia

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

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: 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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 20th century, namely in their most complex articulation.
The history of each of this organizations will be covered its fundation 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 20th century, the twenties, the pre-civil ward period, the sixties, the democratic transition and the Autonomous Comunities 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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 exericse 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 tehir 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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 Nievas, Enrique	B	0.5

Investigadors d'altres entitats

Urgell Hernández, Ricard	Govern Balear
Maíz Chacón, Jorge	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.
The technical structure: a) indirect consumer taxes; b) indirect commercial taxes; c) the method of receipt and collection.
The legal structure: a) the applicable regulation and its development; b) a legal study of leasehold contracts.
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.

Referència: HUM2004-00750/HIST. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Recursos y subsistencia en un medio insular mediterráneo. Las comunidades humanas baleáricas durante la prehistoria*.
Acrònim: ARQUIB.
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: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Guerrero Ayuso, Víctor Manuel	TU	1
Calvo Trias, Manuel	Aj. EU	1
Ensenyat Alcover, Josep Francesc	As.	1
Salvà Simonet, Bartomeu	As.	1
Gornés Hachero, Josep Simó	As.	1
Garcia Rosselló, Jaume	B	1
Fornés Bisquerra, Joan	B	1
Quintana Abraham, Carles		1
Juncosa Vecchierini, Elena		1

Investigadors d'altres entitats

Albert Cristóbal, Rosa Maria	Universitat de Barcelona

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

Summary
Island environments are known to be less variable ecologically as well as more fragile than the continental ones. This is more so in the case of a relatively small group of islands like the Balearics. The present project will try to study the management strategies for both biotic and non-biotic resources by the Balearic communities throughout prehistory (c.3000-123 BC). We know that each basic archaeological period, Chalcolithic (c. 2500-1900 BC), Bronze Age (c. 1900/1800-1000 BC) and Iron Age (c.1000/900 BC) had different subsistence models although the empirical basis that sustain the models currently in use are not strong enough. The available studies are still partial and geographically biased. Chalcolithic and Bronze Age do not have enough archaeological record for a deep and detailed scientific discussion while the Iron Age, even though is better documented the archaeological record is restricted to few sites (one in Menorca and two in Mallorca). The research group is currently conducting the archaeological excavation of five major sites: Son Gallard, Son Torrella, Clossos de Ca'n Gaià, and La Morisca, in Mallorca, and Biniparratxet, in Menorca. These sites cover the full chronological sequence between c. 3000 and 200/123 BC, which guarantees the possibility of a wide comparative cultural and diachronic study. The project's basic strategic objectives are:
Reconstruction of the vegetal landscape during the chronological stages cited.
Establish clear relationships between each social group and the changes recorded in the island's environment.

Consider in each case how husbandry and agriculture operate. Study the exploitation of non-biotic resources in each phase, particularly imports of metal raw materials. A complete study of the relationship between the islander and the sea in its two fundamental aspects: the exploration of marine resources (fishing and salt) and the sea as communication and extra-insular exchange route among the islands of the archipelago and between the islands and the continent. Definition of the gene pool of the insular prehistoric communities.

Referència: HUM2005-03467/HIST. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Oligarquías y grupos de poder en la Mallorca Moderna*.
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: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Juan Vidal, Josep	CU	1
Vaquer Bennàssar, Onofre	As.	1
Picazo Muntaner, Antoni	As.	1

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

Summary
The study of the power élites existing in Mallorca during the 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 other hand jurors, advisors, officials, lawyers and councillors as well as important people who, in the service of 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: HUM2005-04035/ARTE. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Guillem Sagrera y la escultura arquitectónica del siglo XV*.
Acrònim: GSEA.
Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.
Investigadora responsable: SABATER REBASSA, Sebastiana M.
Categoria: TU (àrea de coneixement: Història de l'Art).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Sabater Rebassa, Sebastiana M.	TU	1
Escandell Proust, Isabel Joana	TEU	1
Capellà Galmés, Miquel À.	TEU	1

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

Referència: HUM2005-05819/ARTE. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Pintura y crítica en las Islas Baleares (1898-1936).*
Acrònim: PINCRIBA.
Centre: Departament de Ciències Històriques i Teoria de les Arts. Edifici Ramon Llull.
Investigadora responsable: CANTARELLAS CAMPS, Catalina.
Categoria: CU (àrea de coneixement: Història de l'Art).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Cantarellas Camps, Catalina	CU	1
Lladó Pol, Francesca	TU	1
Falero Folgoso, Francisco José	TU	1
Brotons Capó, M. Magdalena	TEU	1

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

Referència: HUM2005-06200/HIST. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Organización y práctica de la sanidad marítima en España, 1720-1904. Un estudio regional.*
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: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Moll Blanes, Isabel	CU	0.5
Salas Vives, Pere	As.	1
Canaleta Safont, Eva	B	1
Pujadas Mora, Joana Maria	B	1

Investigadors d'altres entitats

Montaner Alonso, Pere	Reial Acadèmia de Medicina i Cirurgia

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

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 (EDP)	**Categoria**	**Dedicació**
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 form 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: TIN2004-07926. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies informàtiques.
Títol: *Integración de escenarios virtuales con agentes inteligentes 3D.*
Acrònim: INEVAI3D.
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: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Perales López, Francisco José	TU	1
Jaume Capó, Antoni	Tèc.	1
Fontanet Nadal, Gabriel	TEU	1
Bibiloni Coll, Antoni	TEU	0.5
Mas Sansó, Ramon	TU	1
Mascaró Oliver, Miquel	TEU	1
Amengual Salas, Antoni	Tèc.	1
Varona López, Javier	Tèc.	1
Manresa Yee, Cristina-Suemay	Tèc.	1
Igelmo Ganzo, Ángel	CEU	1
González Hidalgo, Manuel	TU	0.5
Miró Julià, Margarita	TEU int.	0.5
Palmer Rodríguez, Pere A.	TEU	1
Mascaró Portells, Miquel	TEU	1
Buades Rubio, Josep M.	P. Col.	1
Abasolo Guerrero, María José	Vis.	1
Clar Matheu, Albert	Tèc.	1
Sola Venteo, Antonio	Tèc.	0.5

Investigadors d'altres entitats

Cruz Berg, Alexandre	ULBRA
Rosecler Bez, Marta	ULBRA
Noll do Matos, Patricia	ULBRA
Baldassarri, Sandra	Universitat de Saragossa
Cerezo Bagdassarian, Eva M.	Universitat de Saragossa
Pulido Trullén, Juan I.	Universitat de Saragossa
Remiro Fernández, Virgino	Universitat de Saragossa
Pina Calafi, Alfredo	Universtiat Pública de Navarra

EDP del grup investigador de l'entitat sol·licitant: 16.

Summary
The present project defines a global and unified framework with intelligent tri-dimensional agents for the actual systems and the future virtual environments. Nowadays electronic communication among persons includes from basic chats and GSM services to virtual immersive sceneries with great realism. The differences are

obvious, and virtual immersive sceneries provide mechanisms for interacting virtual elements (avatars, information, passive objects) with the sceneries that participate virtually in a universe.
This is a very wide and ambitious field and it's necessary to define clearly which are the issues to develop in this project. The four important issues to develop can be summarized in: a) Unified Integration of Virtual Scenarios (Web, GSM, UMTS, chat, TV, 3D, etc.).; b) Intelligent Humanoid simulation (Agents); c) Human Motion Analysis using force sensors; d) New Multimodal Interfaces and their application in domotic environments with 3D Agents.
Tic's impact on the domestic environment is very important and the diversity of intercommunication systems on the networks also. Multiple and heterogeneous communication systems and providers exist (IEEE 802.11x, GPRS, UMTS, Blue Tooth, Mobile IP, Ipv6). All virtual sceneries systems and electronic presence in general are interested in the interaction among remote actors that base their interaction's quality on the network characteristics. Due to this, it is a very important aim to guarantee an interaction's quality independently of the underlying communication systems and to provide a scalable, consistent and fault tolerant requirements' implementation.
Virtual environments own characteristics that allow the user to select their own point of view and to be represented with an avatar. Although a realistic representation of the virtual environment elements is important we consider avatars behaviour simulation as a very interesting field to develop. Intelligent agents will allow the person to interact in the immersive environment through geometric and behaviour models of the virtual elements of the defined world. Persistence and portability guarantee of these agents among the different virtual worlds must be accomplished. Computer interaction is through physical and logical devices; therefore a person human's motion analysis can modify the agents or the elements' behaviour of the virtual scene. Due to this, it is important to consider the inclusion of an avatar analysis and synthesis section using no-invasive techniques and others that allow force captures (haptics).
Through our experience in other projects (TIC2001-0931, TIC1998-0302-C02), we know that computer vision systems allow to capture the motion and to interpret the user's actions. The aim of this project is to advance one more step forward and to use the previous systems including kinetic models and haptic devices for enhancing the studied techniques. The necessity of a visual and physical immersion has to be a key point in the virtual collaborative environments. In previous projects, advanced issues on avatars had not been treated, but in this project have to be studied. In particular, a domotic application on realistic facial modelling would be a key issue to consider. User's expression captures and advanced facial representation of 3D agents that understand those expressions is a new interaction setting in virtual environments. An issue to be treated is the realistic modelling of the multilevel face (cranium, muscles and skin) for studying in example facial aging and to be able to model avatars with these characteristics.
Finally we should be aware that normally virtual or augmented reality systems are very specific and expensive therefore their spreading and their application fields are limited. We think that domotic is a very important field and with a great growing in a near future. The results' application of the previous sections in domotic environments would be achieved with virtual reality domestic systems and 3D agents. The person-home interaction will allow important synergies in both fields. Simultaneously we want to study new communication systems between men-machine, specially directed to disabled persons where their functional limitation can be supported through

advanced domotic systems and specific intelligent interfaces.
As a conclusion, tools and software have to be adapted to the current standards and portability and compatibility properties should be achieved. Previous experiences showed us that using UML methodology for requirements specifying, analysis and process design is necessary in big projects where many physical and logical resources are managed.

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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Mayor Forteza, Gaspar	CU	1
Aguiló Pons, Isabel	TEU	1
Suñer Llabrés, Jaume	TEU	1
Martín Pelayo, Javier	COL.	1
Garí Ruíz, Rut	Aj. EU	0.5

Investigadors d'altres entitats

Calvo Sánchez, Tomasa	Universitat d'Alcalá
Muel Muel, Enriqueta	Universitat d'Alcalá
Lázaro García, Jesús	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 (EDP)	**Categoria**	**Dedicació**
Puigjaner Trepat, 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 requieremetns 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 eway, 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.

Referència: SEG2004-02229. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de seguretat.
Títol: *Repudio en el intercambio de valores equitativo con servicios TTP*.
Acrònim: RIVEST.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: FERRER GOMILA, Josep Lluís.
Categoria: TU (àrea de coneixement: Enginyeria Telemàtica).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Ferrer Gomila, Josep Lluís	TU	0.5
Huguet Rotger, Llorenç	CU	0.5
Payeras Capellà, Magdalena	TEU	0.5
Mut Puigserver, Macià	As.	1
Femenias Nadal, Guillem	TU	0.5
Furió Caldentey, Ignasi	TEU	0.5
Carrasco Martorell, Lorenza	TEU	0.5

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

Summary
The fundamental objective of the project is to design protocols for two cases of fair exchange of values: the electronic signature of contracts and the certified electronic mail. Each part has an element to exchange, but he doesn't want to give its element without having the guarantee that he will receive that of the other part (fairness). The participants should not be able to deny later their participation in the exchange: non repudiation services must be used. It is well known that the only valid solutions are those that count with the existence and possible involvement of a Trusted Third Party (TTP). In a second phase the exchange will be extended to multiple parts (multiple signatories of the same contract or multiple recipients of the certified mail). It is also confronted in this project the objective of defining specifications that allow to settle down standards. In the case of the signature of contracts the initial proposal will head to the use of XML, participating in discussion groups in the W3C. For the certified mail, the initial base will be the *de facto* standard S/MIME, being integrated in working groups of the IETF.
On the other hand, the juridical mark that the European Directive and the Spanish law on electronic commerce settle down, as well as the legislation in relation to electronic notifications, forces us to refocus the investigation being carried out in the technical environment. So, we want to stand out the novel character of the project. This way, the solutions that will be presented will have been revised from a technical analysis of juridical documentation. Also, the pertinent feedback in contrary sense will allow to carry out recommendations so that laws, orders and regulations settle down, more appropriate to the possibilities of the technique.

Referència: HUM2004-04992. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *La recuperación y catalogación del patrimonio científico de las Islas Baleares*.
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: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Bujosa Homar, Francesc	CU	1
Moll Blanes, Isabel	CU	0.5
Sureda Garcia, Bernat	CU	0.5
Marín Gelabert, Miquel	Investigador	1

Investigadors d'altres entitats

Vidal Hernández, Josep M.	Consell de Menorca

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

Referència: MTM2005-08567. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de matemàtiques.
Títol: *Modelos matemáticos para el tratamiento y análisis de imágenes, y aplicaciones*.
Acrònim: MATIMA.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: COLL VICENS, Bartomeu.
Categoria: TU (àrea de coneixement: Matemàtica Aplicada).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Coll Vicens, Bartomeu	TU	1
Sbert Juan, Catalina	TU	1
Lisiani Roca, Josep Lluís	TEU	1
Rocha Cárdenas, Jairo	TEU int.	0.5
Buades Capó, Antoni	B	1
Petro Balaguer, Ana B.	B	1

Investigadors d'altres entitats

Morel, Jean Michel	ENS-CACHAN

EDP del grup investigador de l'entitat sol·licitant: 5.5.

Summary
The proposed project is a project on applied mathematics, with applications to the field of digital images analysis and processing. The main goals of the project are:

1) Experimentation, modelization and mathematical analysis of some problems in the field of digital images analysis and processing. Specifically, these problems are: color images filtering with partial derivatives equations (PDE's); restoration of noisy images (denoising) by using variational and statistical models; study of the halftoning problem, which consists of representing an image with a reduced number of colors, after its modelization as a discrete dinamical system; basic study of colors, having as a goal the automatic classification of the
colors of an image; efficient registration of satellite images.

2) Study and development of the numerical algorithms that correspond to each one of the previously enumerated problems.

3) Practical application of the obtained algorithms and results to different fields such as: restoration of photographic images, with emphasis in the low resolution pictures obtained with cameras such as the ones integrated in mobile telephones; automatic indexing of image
databases, based on color features; fast, automatic and accurate registration of satellite images; improvement in the quality of digital images prints; etc.

Referència: TEC2005-00997/TCM. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.
Títol: *Diseño intercapas aplicado a sistemas basados en MIMO-MC/OFDM-CDMA adaptativo para redes integradas móviles de banda ancha*.
Acrònim: MARIMBA.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: FEMENIAS NADAL, Guillem.
Categoria: TU (àrea de coneixement: Enginyeria Telemàtica).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Femenias Nadal, Guillem	TU	0.5
Riera Palou, Felip	Investigador	1
Cardona Juanals, Gabriel	TEU int.	0.5
Carrasco Martorell, Lorenza	TEU	0.5
Furió Caldentey, Ignasi	TEU	0.5
Ramis Bibiloni, Jaume	As.	1

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

Summary
Project MARIMBA will be dedicated, on the one hand, to the design and analysis of adaptive and reconfigurable MIMO-OFDM/CDMA (Multiple Input-Multiple Output-Orthogonal Frequency Multiplex/Code Division Multiple Division Access) systems and of the corresponding system level control mechanisms, for their incorporation to multiplatform mobile radio environments and, on the other hand, to the implementation of a software demonstrator that allows to validate the previous designs in realistic scenarios. MIMO technology allows the reconfiguration of the system based on the propagation characteristics, the traffic conditions, the service requirements and the number of antennas available at the base stations and mobile terminals. Therefore, it is hoped to obtain an increase of the spectral efficiency at the link level, a capacity increase at a system level and to provide interoperability in environments made up of different mobile systems (multiplatform environments). Although one assumes that in the mobile communication networks beyond the third generation (3G+) and in those of fourth generation (4G) a great variety of systems and services will coexist, project MARIMBA will be centered in UMTS, IEEE 802.xx and HIPERLAN/2 (HIgh PERformance LAN) since these systems seem to have a high commercial interest and are appropriate candidates for mobile communication networks of 3G+ and 4G systems. The best possible performance together with a reasonable complexity will be obtained by jointly optimizing (cross-layer design) all the stages of an adaptive system. The study will include, among others, the analysis of the main functions of physical and MAC/DLC layers, the evaluation of MIMO-OFDM/CDMA techniques, the analysis of antenna and/or beam selection in MIMO-OFDM/CDMA environments, the development of channel estimation and synchronization algorithms, the combination of space-time processing with adaptive modulation techniques and the combination of space-time codes, turbo-codes, LDPC (Low-Density Parity-Check) codes and hybrid-ARQ strategies for the control of errors in physical and MAC layers. The system will not be optimized /a priori/,

instead it will be adapted and reconfigured based on the user needs and on the variable characteristics of the environments. In a sense, this constitutes a step towards what has been called /software radio/ in fourth generation systems and surpasses the present state of the mobile communications systems, including the cellular mobile systems of third generation (p. e., UMTS) and the IEEE 802.xx and HIPERLAN/2 standards.

Referència: DPI2005-09001-C03-02. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de disseny i producció industrial.
Títol: *Guiado y posicionado de un AUV para inspección de cables y emisarios submarinos*.
Acrònim: AIRSUB.
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: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Oliver Codina, Gabriel	TU	1
Guerrero Sastre, José	P. col.	0.5
Rodríguez-Navas González, Guillermo	Aj.	0.5
González Cid, Yolanda	TEU	0.5
Antich Tobaruela, Javier	Aj. EU	0.5
Burguera Burguera, Antoni	Aj. EU	0.5
Rigo Vadell, Joan	As.	0.5
Bonnín Font, Francesc Jesús	As.	1

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

Summary
This project is part of a bigger one in which the researchers propose the design and development of the necessary technologies for the adaptation of the prototypes of the low-cost underwater vehicles GARBIROV, GARBIAUV , URIS and RAO II for their use in shallow waters. First, a catalogue of industrial applications will be created. For each and every of these missions, the adequate scenario will be established, as well as a mission preliminary schedule. Next, each subproject, leaded by a different research group, will be focused in one of these industrial applications: dam inspection of hydroelectric plants by UdG; underwater cable and pipe inspection by UIB and inspection of harbours by UPC.
Concerning the UIB, the main objective of the project is the design of an autonomous video-based cable tracker able to work on real environments. As a natural extension, the vehicle could also be tested, with minor changes, to track any other object similar in appearance to a
cable such as oil, gas or waste water pipes. Moreover, the plans for the cable tracking system include the automatic detection of the more frequent defects and anomalous situations of those equipments including cable coverage loss and free-span. It is essential for the project to
have a vehicle with a structure robust enough to reach and work at depths of almost 100 meters. To this end, the Systems, Robotics and Vision (SRV) group has acquired a unit of the low-cost commercial ROV SeaLion prepared to work at 250 m depth. In this project the vehicle will be mechanically and electronically modified to transform it into a new AUV prototype which will be called RAO-II. As concerns research in robotics, new algorithms of control architectures, computer vision, navigation strategies, behaviours, and learning, among others, will be studied and developed.

Referència: PRIB2004-10135. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Notificacions electròniques (NOTIFEL)*.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: FERRER GOMILA, Josep Lluís.
Categoria: TU (àrea de coneixement: Enginyeria Telemàtica).
Inici: 2004. **Fi**: 2005.

Participació a altres projectes

Referència: MCYT TIN2004-0668C03. Ministeri d'Educació i Ciència
Modalitat: Programa nacional de tecnologies informàtiques.
Títol: *Innovación e integración de métodos para el desarrollo y gestión cuantitativa de proyectos software*.
Acrònim: IN2GESOFT.
Investigador responsable: DOLADO COSÍN, José Javier.
Centre: Universitat del Pais Basc.
Investigadora de la UIB: MAS PICHACO, Antònia.
Categoria: TEU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial.
Inici: 2004. **Fi**: 2007.

DEPARTAMENT DE DRET PRIVAT

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 Nélida	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: 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 (EDP)	**Categoria**	**Dedicació**
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.

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.

Membres de l'equip	**Categoria**	**Dedicació**
Alcover Garau, Guillem	CU	0.5
Mateo Hernández, José Luis	TEU int.	1
Flaquer Riutort, Joan	TU	0.5
Martínez Cañellas, Anselm M.	TEU int.	1
Arbona Femenia, Miquel	As.	1
Oliver Barceló, Santiago	As.	1
Nadal Gómez, Irene	Aj. U	0.5
Conde Tejón, Antonio	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.

Membres de l'equip	**Categoria**	**Dedicació**
Tapia Fernández, Isabel	CU	1
Nadal Gómez, Irene	Aj. U	0.5
López Simó, Francisco	TU	1
Arrom Loscos, Rosa	CEU int.	1

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

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**
Huesa Vinaixa, M. Rosario	CU	1
Rupérez Cornell, Pilar	TEU int.	1
Janer Torrens, Joan David	TU	1
Capellà Roig, Margalida	Aj. EU	1

Investigadors d'altres entitats

Torres García, Carmen I.	Universitat de Castilla-La Mancha
Forcada Barona, Ignacio	Universitat de Castilla-La Mancha
Fernández Tomás, Antonio	Universitat de Castilla-La Mancha
Sánchez Legido, Ángel	Universitat de Castilla-La Mancha
Ortega Terol, Juan Miguel	Universitat de Castilla-La Mancha
Martínez Carmena, María	Universitat de Castilla-La Mancha
Quel López, Francisco J.	Universitat del País Basc
Soroeta Liceras, Juan	Universitat del País Basc
Bollo Arocena, María D.	Universitat del País Basc
Ferrer Lloret, Jaume	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.

Referència: SEJ2004-07831/JURI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *El impacto de la ampliación de la Unión Europea sobre la política común de extranjería*.
Centre: Departament de Dret Públic. Edifici Anselm Turmeda.
Investigador responsable: GARAU JUANEDA, Lluís.
Categoria: CU (àrea de coneixement: Dret Internacional Privat).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Garau Juaneda, Lluís	CU	1
Garau Sobrino, Federico F.	TU	0.5
Tarabini-Castellani Aznar, Margarita	TU	0.5
Álvarez Rodríguez, Aurelia	TU int.	1
Trinidad García, María Luisa	TU int.	1
Vargas Gómez-Urrutia, Marina	As.	0.5
Alcover Casasnovas, Antoni L.	TEU int.	0.5
González González, María J.	TU int.	0.5

EDP del grup investigador de l'entitat sol·licitant: 5.5.

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 (EDP)	**Categoria**	**Dedicació**
Juaneda Sampol, C. Nativitat	CU	1
Sansó Rosselló, Andreu	TU	1
Riera Font, Antoni	TU	1
Sard Bauzà, Maria	TEU	1
Cladera Munar, Magdalena	TEU	1
Alegre Marín, Joaquim	TU	1
Rosselló Nadal, Jaume	TEU	1
Pou Garcias, Llorenç	TEU	1

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

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 apperance 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 whic, 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 (EDP)	**Categoria**	**Dedicació**
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.

Referència: SEJ2004-06649/ECON. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Historia económica del turismo de masas en España, 1940-2000: Las Islas Baleares y los contrastes mediterráneos*.
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: MANERA ERBINA, Carles.
Categoria: CU (àrea de coneixement: Història i Institucions Econòmiques).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Manera Erbina, Carles	CU	1
Escartín Bisbal, Joana M.	TU	1
Morey Tous, Antònia	TEU	0.5
Serra Cantallops, Antoni	TU	1

Investigadors d'altres entitats

Pellejero Martínez, Carmelo	Universitat de Málaga
Martín Rojo, Inmaculada	Universitat de Málaga

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

Summary
The project has as it's principal objective to analyze the evolution of mass tourism in southern Europe and in some concrete chronological coordinates (1940-2000), with special emphasis on a region that occupies in present day a preiminent position in the global tourism economy: the Balearic Islands. It's contrasts with other regional economies –as in Andalucia, also determinent in tourism economy– and in other insular mediterranean economies –in particular, that of Sicily, Sardinia, and Malta– will permit to buy those that are the transits occuring in those economic spaces, that coincide completely with one of the european development axis –Western Europe, from the Tuscan-Ligurian coast to the southern Iberian peninsula, plus the islands that form part of the partnership of the IMEDOC (Islas del Mediterráneo Occidental)–, outline the stimulated touristic typology –cultural, sun and beach, mixed components– and evaluate the threats they currently present to follow it's individual development process, in that the environmental externals have a gradual crucial weight. We have to indicate that, from an evolutionary perspective, until present day this kind of analysis realised in Spain does not exist in the scope of Economic History. That's why the project raises an added value more: the beginning of a new line of investigation in our country, that centers itself in an essential way in the intervention of the regional economic processes, without eluding comparative analysis of international character.

Referència: SEJ2005-08783-C04-03/ECON. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Imposición Óptima Aplicada: una aplicación de la microsimulación*.
Acrònim: IOTAMO.
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: SPADARO, Amedeo.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Spadaro, Amedeo	TU	1
Oliver Rullan, Francesc	TEU	1
Rosselló Villalonga, Joan Carles	TU	1

Investigadors d'altres entitats

Badenes Plá, Núria	Universitat Complutense de Madrid
Racionero Llorente, Maria del M.	Australina National University Canberra
Del Rey Canteli, Elena	Universitat de Girona
Arrondel, Luc	CNRS França
Verdier, Thierry	Ecole des Hautes Etudes en Ciencies Sociales

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

Summary
Several attempts were recently made at analyzing existing redistribution systems in several countries within the framework of optimal taxation theory. The basic question asked in that literature is whether it is possible to justify the most salient features of existing systems by some optimal tax argument. A key element when analyzing these issues, omitted in previous works, is the dynamical one. The economic problem behind this issue is that the agents' productivity (or any other characteristic that can influence the final outcome) evolves in time due to education decisions, learning by doing mechanisms, etc. It seems reasonable to think that this evolution is endogenous to the redistribution at each period. To our knowledge, although a lot of work has been reported on dynamical aspects of capital taxation [in line with Chamley (1986) or Judd (1985) for example], nothing seems to have been done in the direction of dynamical optimal taxation with endogenous productivities. Our research project follows this direction. The main objectives are two. First, to extend the knowledge about the effects of taxation and redistribution both from the efficiency and the equity point of view in a dynamic framework when abilities of agents are endogenous to redistribution. Second, to refine the empirical use of optimal tax theory for the analysis of real redistribution schemes.
The main interest of realizing the work described in our research project consist in having a theoretical and empirical instrument allowing for a better rationalization of the debate efficiency vs. equity. This debate has important implications from

economic, social and political perspectives. This project will contribute to quantify and describe the microeconomic impact of alternative redistribution schemes.

Referència: SEJ2005-07781/ECON. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Modelización de procesos periódicos autorregresivos*.
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: SANSÓ ROSSELLÓ, Andreu.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Sansó Rosselló, Andreu	TU	1

Investigadors d'altres entitats

Del Barrio Castro, Tomás	Universitat de Barcelona
Pons Rotger, Gabriel	University of Copenhagen

EDP del grup investigador de l'entitat sol·licitant: 1.

Summary
The main purpose of this research project is to develop new methodological tools for the periodic autoregressive model. It has been shown in the literature how such stochastic process properly captures the dynamics of a wide range of seasonal economic time series. The representation of periodic processes through a multivariate model for the different seasons turns out to be very useful to discuss relevant issues like stationarity or forecasting. In addition, this multivariate treatment of the periodic autoregressive process allows extending well known methods for macroeconomic time series to periodic variables, i.e. cointegration analysis, or serial correlation common feature analysis.
The specific goals of the research project are organized in five blocks. The first part is devoted to the discussion of Johansen cointegration analysis when some observations are affected by outliers. Then, in the second part we attempt to provide statistical tests capable to detect outliers at periodically correlated time series. The third goal is to analyse the properties of the test for periodic integration of Boswijk and Franses (1996) when: 1) time series are contaminated by atypical observations and 2) when the structural breaks are present at deterministic component of the process. The fourth goal focuses in the study of cointegration relationship and common trends between periodic integrated processes. Finally, the last objective is to propose methods to restrict the periodic autoregressive model, mainly by means of reduced rank type restrictions like common deterministic component or serial correlation common features.

Referència: PRIB2004-10095. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Modelització a partir de dades d'alta freqüència, de la relació entre el Turisme i algunes variables mediambientals i econòmiques*.
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: SANSÓ ROSSELLÓ, Andreu.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2004. **Fi**: 2006.

Referència: PRIB2004-10142. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Competitividad de regiones turísticas, restricciones medioambientales y desarrollo sostenible. El caso de Baleares*.
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: REY-MAQUIEIRA PALMER, Javier.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2004. **Fi**: 2007.

DEPARTAMENT D'ECONOMIA DE L'EMPRESA

Referència: SEJ2004-07530/ECON. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Gobierno de la empresa: estructura de incentivos y eficiencia de mercados.*
Acrònim: GEEIEM.
Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: CRESPÍ CLADERA, Rafel.
Categoria: CU (àrea de coneixement: Economia Financera i Comptabilitat).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Crespí Cladera, Rafel	CU	1
Bru Martínez, Lluís	TU int.	0.5
Calveras Maristany, Aleix	TU	1
Deyà Tortella, Bartomeu	TU	1
Lozano Arnica, Gonzalo	TU	1
Massot Perelló, M. Magdalena	TU	1
Munar Muntaner, Esperança	CEU	1
Orfila Sintes, Francesca M.	Aj. EU	1
Pascual Fuster, Bartomeu	TU	1
Pascual Gascó, Robert	TU int.	1
Solà Belda, Carles	TU	1
Barrera Barceló, Fernando	Tèc.	0.5

Investigadors d'altres entitats

Renneboog, Luc	University of Tilburg

EDP del grup investigador de l'entitat sol·licitant: 11.

Summary
This research programme gathers an important number of researchers interested in the study and development of the competitiveness of Spanish enterprises, combining empirical analysis with a microeconomic perspective, and the application of theoretical models verified in the economic analysis. A considerable number of the researchers in the group has already an extensive experience in the research of different factors that determine the efficiency and competitiveness of the firm. Special emphasis has been given to the organisational solution the firm adopts for its internal structure (ownership structure, the role of boards, management of human resources, organisational and technological changes, R&D activities...) and also to the legal framework relevant to financial and labour issues (on one hand the relations with banks and on the other the influence of bankruptcy and company law). In the past, because of the complexity of the analysis the group has developed different complementary research lines, which this project plans to continue and extend, incorporating other related topics. In particular, we propose to deep further on the consequences that different financial and governance structures have on the efficiency of the firm, on the management of human resources and its relations to technological change and on protection given to creditors.
This project also pretends to extend the research to new areas like the analysis of

growth and development facing family businesses, the role of non-profit organisations competing with listed companies, and the effects that multiple goals have on good governance. However, the main effort will be on studying in depth, both from a theoretical and an empirical point of view, the principal interactions between the different factors already mentioned and their impact on the capacity of the firm to adapt to important technological changes and on the efficiency and competitiveness. In order to achieve this goal a new data set will be created with information from one thousand Spanish firms, that will be collected through personal interviews in the company.

Participació a altres projectes

Referència: SEC2003-04438/ECO. Ministeri de Ciència i Tecnologia.
Títol: *Sistemas contables de costes completos. Integración de costes medioambientales en los informes anuales de las empresas (InCoMIAE).*
Investigador responsable: LARRINAGA GONZÁLEZ, Carlos.
Centre: Universitat de Burgos.
Investigador de la UIB: Llull Gilet, Antoni.
Categoria: TEU (àrea de coneixement: Economia Financera i Comptabilitat).
Inici: 2004. **Fi**: 2006.

DEPARTAMENT DE FILOLOGIA ESPANYOLA, MODERNA I LLATINA

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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Garau Amengual, Jaume	TU	1
Servera Baño, Josep	CU	1
Monterrubio Prieto, Juan Miguel	TU	1

Investigadors d'altres entitats

Cerdán Amorós, Francis	Université de Toulouse Le Miraill

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: 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Payeras Grau, Maria	TU	0.5
Díaz de Castro, Francisco J.	CU	0.5
del Olmo Iturriarte, Almudena	TU	0.5

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

Summary
The project consists of the search, selection, digitalization and edition of poems that affect the self-representation of woman published by authors who occurred to know and developed a significant part of their literary production throughout the period between 1939 and 1959, in order to make a rise of textual corpus corresponding and to allow the later analysis from any possible approach.

Referència: HUM2004-05036/FILO. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Corpus digitalizado de textos bíblicos en español antiguo*.
Acrònim: CORBA.
Centre: Departament de Fiolologia Espanyola, Moderna i Llatina. Edifici Ramon Lull.
Investigador responsable: ENRIQUE ARIAS, Andrés.
Categoria: TU int. (àrea de coneixement: Llengua Espanyola).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Enrique Arias, Andrés	TU int.	1
Bernat Vistarini, Antonio	TU	1

Investigadors d'altres entitats

Matute Martínez, Cristina	Sant Louis University
Davies, Mark	Brigham Young University

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

Summary
The objective of this project is recovering, preserving and disseminating a unique aspect of Spain's cultural heritage-its rich tradition of biblical translation-for interdisciplinary use by creating a corpus of biblical texts transcribed in a scientific and rigorous fashion so it can be also usable as a tool for linguistic and philological research. With these objectives in mind we will a) establish with accuracy the totality of the Old Spanish biblical texts transcribing with sound philological methodology unpublished texts and revising the existing transcriptions b) make available for scholars on Spanish historical linguistics a corpus of texts transcribed with reliable philological criteria and presented in a consistent form c) create an easily accessible computer application in the internet to make these digital texts available to scholars and the general public alike along with their Hebrew and Latin sources.

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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Díaz de Castro, Francisco J.	CU	0.5
del Olmo Iturriarte, Almudena	TU	0.5
Payeras Grau, Maria	TU	0.5

Investigadors d'altres entitats

Jiménez Millán, Antonio G.	Universitat de Málaga
Rovira Planas, Pere	Universitat de Lleida
Lanz Rivera, Juan José	Universitat del País Basc
Celma Valero, María del Pilar	Universitat de Valladolid
Iravedra Valea, Araceli	Universitat de Granada

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

Referència: HUM2005-03913/FILO. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Los textos como fuente de información pragmática: estudio de la gestualidad en la antigüedad romana (II)*.
Centre: Departament de Filologia Espanyola, Moderna i Llatina. Edifici Ramon Llull.
Investigadora responsable: FORNÉS PALLICER, M. Antònia.
Categoria: TU (àrea de coneixement: Filologia Llatina).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Fornés Pallicer, M. Antònia	TU	1
Bosch Juan, M. Carme	CU	1

Investigadors d'altres entitats

Quetglas Nicolau, Pere J.	Universitat de Barcelona
Puig Rodríguez-Escalona, Mercè	Universitat de Barcelona
Cabré Lunas, Laura	Universitat de Barcelona
González Páez, Carmen	Universitat de Barcelona
Gorga López, Gemma	Universitat de Barcelona

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

Summary
This project is embedded within the pragmatical situations and, more precisely, in the field of gesture. The goal of the present application is to continue the research initiated in 2001 under the project "Texts as a source of pragmatical information: study of gesture in the Roman Antiquity" (BFF2001-0916), which aimed at undertaking a thorough analysis of gesture in the Roman Antiquity. The amount of information gathered in this project beat our expectations and we are therefore forced to apply for its continuation. The aim of the project we are applying for is, on the one hand, to finish the study of facial gesture (up to now only gesture of the lower part of the face has been analysed) and, on the other hand, to study hand gesture in order to draw up a repertoire which covers most gesture in the Roman Antiquity. A study on gesture survival up to now will also be carried out and this will allow us to determine the origin and meaning of gesture language so characteristic of the present western culture.

DEPARTAMENT DE FILOSOFIA I TREBALL SOCIAL

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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Ambrogi Álvarez, Adelaida	TU	0.5
Luján López, José Luis	TU	0.5

Investigadors d'altres entitats

Corrales Rosales, José María	Fundació Hospital de Manacor
Morange Morange, Michel	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 thefocus will be the impact of the use of this vocabulary in the properreceptivity and understanding of the advances of human genetics. Starting from the acknowledgement that human genetic is a field of research with highpriority, yet also of high social sensibility, we will try to identify criticalissues associated to the use of key genetic concepts, in the technicalliterature, 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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 projects 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Torres Marí, Francesc	TU	1
Llinàs Begon, Joan Lluís	As.	0.5

Investigadors d'altres entitats

Urbanek, Wladimir	Acadèmia de Ciències de Txèquia
Benes, Jiri	Acadèmia de Ciències de Txèquia

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*.

Referència: HUM2004-02295/FISO. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Ruptura de la tradición. Nihilismo y transformación del tiempo y de la memoria en la formación de la consciencia actual.*
Acrònim: RDLT.
Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.
Investigador responsable: AMENGUAL COLL, Gabriel.
Categoria: CU (àrea de coneixement: Filosofia).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Amengual Coll, Gabriel	CU	0.5
Vermal Beretta, Juan Luis	TU	0.5
Cabot Ramis, Mateu	TEU	1
Pascual Sastre, Sebastià M.	TEU	1

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

Summary
The project's objective is to shed light on the profound change in the formation of the conscience of our time resulting from the radical modification of its relation with tradition. The rupture of tradition occurs throughout the second modernity and becomes a foundational element of the conscience of our time that is apparent in its characterizations with adjectives preceded by post- or with expressions beginning with "end of" or "death of." "Rupture of Tradition" is thus meant to convey that tradition is not in effect, does not direct or orient, and is not transmitted.
This phenomenon is best expressed in nihilism and in W. Benjamin. In F. Nietzsche (1844-1900), nihilism takes the form of a breach of history which starts with Plato and the search for a new beginning with a return to the pre-Socratic origins of philosophy. M. Heidegger (1889-1976) revisits Nietzsche's nihilism in search of its essence with the objective of overcoming it. The work of W. Benjamin (1892-1940) clearly exposes a crisis of historic conscience, both by referring to the breach and the search for a new access to it, and by its new understanding of aesthetics and culture. We intend, in studying these authors, to compare their analyses and to identify contact points in their approaches and their proposals: for instance, their focus on decisive issues of our conscience, such as the creation of identity and the foundation of values, the relation with the past, their criticism of historicism, hermeneutics and narrative, their concept of the future, etc.

Referència: SEJ2004-04197/CPOL. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Globalización, legitimidad democrática y sostenibilidad: crisis del estado del bienestar, cambios en la sociedad del trabajo y consecuencias de la modernidad.*
Acrònim: GLDS.
Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.
Investigador responsable: RIUTORT SERRA, Bernat.
Categoria: TU (àrea de coneixement: Filosofia moral).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Riutort Serra, Bernat	TU	1
Miquel Novajra, Alexandre	TU	0.5
Carbonero Gamundí, M. Antònia	TU	0.5
Valdivielso Navarro, Joaquim	Aj. EU	0.5

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

Summary
The GLDS proposal seeks to develop and address the categories since which precedent projects have driven the research: justice, social change, constrains of Welfare State and sustainability in advanced societies. In this new stage of the research we consider the problems generated by changes in *politics* and *policy* to democratic legitimation in the age of globalisation: global environmental change, the consequences of last modernity, mutation in labour society and welfare regimes, limitations of social citizenship, and deficits in economic and social scope of State faced to social and environmental sustainability challenges. The GLDS proposal keeps on the characteristic approach of the research team. On one hand, it combines the philosophical, epistemologiacal and counter-factual dimensions with some conceptual contribution from social sciencies -mainly sociology, anthropology, political science and economy. On the other, such theoretical analysis are applied to the specific reality of Balearic and Spanish societies as well similar issues posed by European integration and by current social and political ewstructuration in Ibero-American countries.

Referència: HUM2005-07168/FISO. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *La función de los valores en la ciencia reguladora.*
Acrònim: FVCR.
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: 2005. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Luján López, José Luis	TU	0.5

Investigadors d'altres entitats

Rodríguez Alcázar, Francisco Javier	Universitat de Granada

EDP del grup investigador de l'entitat sol·licitant: 0.5.

Summary
The main purpose of this research project is to formulate a model of methodological learning for regulatory science. This model will be achieved through the analysis of a) the function played by values (epistemic and non-epistemic) in science and b) the directives employed by regulatory agencies regarding standards of proof and rules of inference. The changes in these directives will be conceptualized like instances of methodological change. The learning model proposed (based in the interplay between values, substantive contents of scientific knowledge and methodologies) must be compatible with the discovered methodological changes.

Referència: HUM2005-07398/FISO. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional d'humanitats.
Títol: *Edición, con traducción, estudios y notas de 'Vida y doctrina de los filósofos ilustres' de Diogenes Laercio.*
Acrònim: ETENVDFIDL.
Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.
Investigador responsable: CASADESÚS BORDOY, Francesc.
Categoria: TU (àrea de coneixement: Filosofia).
Inici: 2005. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Casadesús Bordoy, Francesc	TU	0.5
Megino Rodríguez, Carlos	B	0.5
Bordoy Fernández, Antoni	B	0.5

Investigadors d'altres entitats

Bares Partal, Juan de Dios	Universitat de València
Román Alcalá, Ramón	Universitat de Córdoba
Zamora Calvo, José María	Universitat Autònoma de Madrid
Domínguez García, Vicente J.	Universitat d'Oviedo
González Escudero, Santiago	Universitat d'Oviedo

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

Summary
This project aims to elaborate an edition with translation, commentaries and notes of the 'Diogenes Laertius life and doctrines of the eminent philosophers'. Moreover, it is aimed to make an exhaustive analysis which takes into account the following aspects: (a) a structural analysis of the book, (b) a study of the philosophical and (c) the comparison of the information given by Diogenes Laertius with other sources to establish reliable criteria. The book will be translated into Spanish and a computerized terminological index will be elaborated. Moreover, a database will be created and it will include the most relevant works of Diogenes Laertius, which will be sorted according to the main topics. The final aim is to obtain a complete and rigorous edition of this work, which is basic to know the Greek philosophy. It is important to remark that this work has not been scientifically studied in Spain yet. Our study will become a point of reference for other scholars.

Referència: PRIB2004-10057. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Proyecto de localización de los orígenes de la cultura material en el Mioceno Superior africano*.
Centre: Departament de Filosofia i Treball Social. Edifici Ramon Llull.
Investigador responsable: CELA CONDE, Camilo José.
Categoria: CU (àrea de coneixement: Filosofia Moral).
Inici: 2004. **Fi**: 2006.

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 (EDP)	**Categoria**	**Dedicació**
Casas Ametller, Montserrat	CU	1
García, Martín Ezequiel	Investigador	1
Serra Crespí, 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 quatum 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 (EDP)	**Categoria**	**Dedicació**
Cesari Aliberch, Eduard	CU	1
Seguí Palmer, M. Concepció	TU	1
Pons Morro, Jaume	TU	0.5
Picornell Alou, Catalina	CEU	1
Santamarta Martínez, Rubén	Aj. U	1

Investigadors d'altres entitats

Muntasell Pla, Joaquim	Universitat Politècnica de Catalunya
Font Ferrer, Joan	Universitat Politècnica de Catalunya
Chernenko, Volodymyr A.	Institute of Magnetism (Ucraïna)

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 Ni_2MnGa) 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 Co_2NiGa) 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^{0}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 plycrystalline 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 (EDP)	**Categoria**	**Dedicació**
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: 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 (EDP)	**Categoria**	**Dedicació**
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 (EDP)	**Categoria**	**Dedicació**
Segura Fuster, Jaume Agapit	TU	1
Roca Adrover, Miquel Jesús	TU	1
Isern Riutort, Eugeni Miquel	TU	0.5
Rosselló Sanz, Josep Lluís	TEU int.	0.5
de Benito Crossetti, Carola	TEU int.	1
Alorda Ladaria, Bartomeu	Aj.	1

Investigadors d'altres entitats

Sainz Gómez, José Antonio	Universitat del País Basc
Gil-García, José M.	Universitat del País Basc
Sánchez Etchegaray, Jesús M.	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 (EDP)	**Categoria**	**Dedicació**
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
Meterorological 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 indivually 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 intrumental observational data and aslo using high-resolution satellite information (starting from 1 km) for irrandance and derived fields.
On the other hand, the high-resolution numerical fields will be used as initial guesses in multiple regresion 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 givern 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 (EDP)	**Categoria**	**Dedicació**
Garcia Moreno, Eugeni	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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Ballester Mortes, Josep Lluís	CU	1
Oliver Herrero, Ramon	TU	1
Carbonell Huguet, Marc	CEU	1
Arregui Uribe-Echevarría, Iñigo	Aj. EU	1
Diaz Medina, Antonio Jesús	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 modesof 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.

Referència: FPA2004-03666. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de física.
Títol: *Fuentes de ondas gravitacionales.*
Acrònim: FOG.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: BONA GARCIA, Carles.
Categoria: CU (àrea de coneixement: Física Teòrica).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Bona Garcia, Carles	CU	0.5
Carot Giner, Jaume Jesús	TU	0.5
Mas Franch, Lluís	CU	0.5
Sintes Olives, Alícia Magdalena	TEU	0.5
Stela Fiol, Joan	TU	0.5
Palenzuela Luque, Carlos	B	0.5

Investigadors d'altres entitats

Husa, Sasha	Max-Plank-Institut für Gravitationsphysik
Luan Bennásar, Manuel	Observatori de Mallorca

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

Summary
We propose to develop a cross-disciplinary project, 'Sources of Gravitational Waves', aimed at developing an understanding of some of the most exotic phenomena believed to exist in the Universe: Black Holes, Neutron stars and Gravitational Waves.

Anticipated for over 30 years, a number of European (GEO600, VIRGO) American (LIGO) and Japanese (TAMA) Gravitational Waves Observatories are now for the first time taking data. This implies an extreme urgency for the scientific community to both study realistic sources of Gravitational Waves and predict the signals they will produce on the detectors. The project will address this priority issues

By incorporating the most recent theoretical developments (constraint control, closeup boundary conditions, etc) in order to allow realistic simulations within the resolution and computer power limitations of present day computers.
By integrating in the team data analysis experts who are working to design algorithms based on such simulations.
By providing our group expertise and proven ability in training young researches in this emergent field.

Referència: CGL2005-07105-C03-01/CLI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Transcla parte III: Estudio de procesos por simulación numérica explícita y de mesoscala y su verificación*.
Acrònim: TRANSCLA.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: CUXART RODAMILANS, Joan.
Categoria: INVESTIGADOR CONTRACTAT.
Inici: 2005. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Cuxart Rodamilans, Joan	Investigador	1

Investigadors d'altres entitats

Conangla Triviño, Laura	Universitat Politècnica de Catalunya
Mahrt, Larry	Oregon State University
Jonker, Harmen	Technical University of Delft

EDP del grup investigador de l'entitat sol·licitant: 1.

Referència: CGL2005-05681/CLI. Ministeri de Ciència i Tecnologia.
Modalitat: Recursos naturals.
Títol: *Aplicación de técnicas de predicción por conjuntos a episodios meteorológicos de gran impacto en el mediterráneo occidental.*
Acrònim: ENSEMBLE.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: HOMAR SANTANER, Víctor.
Categoria: INVESTIGADOR CONTRACTAT.
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Homar Santaner, Víctor	Investigador	1
Ramis Noguera, Climent	TU	0.5
Martín García, Alberto	B	1

Investigadors d'altres entitats

Genovés Terol, Ana	Institut Nacional de Meteorologia
Campins Pons, Joan	Institut Nacional de Meteorologia
García-Moya Zapata, José A.	Institut Nacional de Meteorologia
Santos Burguete, Carlos	Institut Nacional de Meteorologia

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

Summary
Each year, high impact weather episodes affect the Western Mediterranean basin and still numerical models do not provide reliable forecast to forecasters, even for short lead-times (0 to 48 hours). The problem of predicting these episodes is even more difficult when low frequency extreme phenomena such as torrential floods, large hail, strong winds or tornadoes are analyzed. The lack of good severe weather forecasts and the necessity to devote weather research resources to improve them is urged by international projects MEDEX and THORPEX of the World Research program, endorsed by the World Meteorological Organization. Despite the ever-improving quality of the models initial conditions datasets (derived from better observations and analysis techniques) uncertainties in the forecast system exist. How and why errors evolve in the short-term numerical forecast of high impact weather episodes are important questions that require the use of new methods to improve the estimation of potentially hazardous weather cases in the forecast.
The ENSEMBLE project suggests using ensemble prediction systems (EPS) to tackle this problem in the Western Mediterranean. The EPS have been used at the major weather prediction facilities in the world to account for the uncertainties in the medium-range numerical prediction (3 to 15 days). However, the generation, interpretation and application of short-range mesoscale EPS is still currently explored. ENSEMBLE suggests exploring a set of EPS generation techniques focusing on

extreme events in the Western Mediterranean, with special emphasis on techniques that use sensibility fields from lineal adjoint models. On the other hand, several postprocessing techniques that allow one to customize the use of EPS to the statistical forecast of extreme low-frequency events, responsible of the greatest human activity perturbators, will be explored.

Furthermore, as an additional benefit from the proposed project, a climatology of sensitivity fields will be built, that will complement the existing MEDEX and MEDEXIB (from this same *Plan Nacional)* climatology of severe weather cases. Real-time scientific support for the special observations periods within MEDEX is also included in the ENSEMBLE work plan.

ENSEMBLE is aimed at improving the forecast of high-impact weather events by using ensemble prediction systems. The specific objectives of the project are: 1) Study the predictability and the sources of error in mesoscale numerical models in the Western Mediterranean, 2) Determine the optimal EPS generation method for the region, 3) Develop postprocessing techniques focused on severe weather in the region and 4) Implementation of the results in the INM operational framework, as well as in the UIB for academic and research purposes.

The ultimate beneficiaries of the results achieved in the project are the people threatened by severe weather episodes in the western Mediterranean basin. The new developments and conclusions obtained from the project will be directly transferred to the *Instituto Nacional de Meteorología* not only as a clear interested in the project but also as an active part in the research tasks. The use of probabilistic forecasts will be of considerable value to various economic sectors such as the energy, hydrologic, agriculture or aviation.

Referència: CGL2005-03918/CLI. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de biodiversitat, ciències de la terra i canvi global.
Títol: *Diseño de técnicas dinámico-estadísticas para la predicción de precipitación y ciclones mediterráneos*.
Acrònim: PRECIOSO.
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: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Romero March, Romuald	TU	0.5
Alonso Oroza, Sergio	CU	0.5
Ramis Noguera, Climent	TU	0.5
De Luque Sölheim, Ángel Luis	Aj.	0.5
Fita Borrell, Lluís	B	1
Amengual Pou, Arnau	B	1

Investigadors d'altres entitats

Jansà Clar, Agustí	Institut Nacional de Metereologia
Campins Pons, Joan	Institut Nacional de Metereologia
Picornell Alou, M. Àngels	Institut Nacional de Metereologia
Pons Reynés, M. Rosa	Institut Nacional de Metereologia

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

Summary
The western Mediterranean is a very cyclogenetic area and many of the cyclones developed or modified over that region are associated with high impact weather phenomena that affect the society of the coastal countries, very especially heavy precipitations. Both the international WWRP-WMO MEDEX project and the national MEDEXIB project, leaded by the Meteorological Centre of INM at the Balearic Islands (CMTIBAL) and the Meteorology Group of UIB, respectively, have formulated as their main objective the study of the structure and predictability of Mediterranean cyclones that produce hazardous weather and high social impact, by means of the construction of a dynamical climatology of cyclones and the assessment of the physical and dynamical factors that influence their genesis and evolution. Their final aim is to improve the short and mid-range numerical forecasts of cyclones based on the optimization of the observational resources and thus the construction of better initial states for numerical weather prediction models.
This new proposal (PRECIOSO) is complementary to the previous projects since it is also built from a better understanding of the physical and dynamical mechanisms that define the mediterranean precipitation and cyclones. But at the same time it is a natural continuation of the former projects, in that it puts the emphasis on

probabilistic predictions rather than on deterministic ones, aware of the intrinsic uncertainty of any forecast system. It is also recognised the specific complexity of the precipitation variable, which spatial, temporal and quantitative details are so crucial for successful hydrologic simulations, a key tool in flood watching tasks. The specific objectives of the project are: a) Design of dynamical techniques for weather forecasting based on the generation of mesoscale ensembles using the non hydrostatic MM5 model under varying physical parameterizations and initial conditions, b) Design of statistical techniques for the postprocess of meteorological numerical outputs in order to obtain improved precipitation fields (superensemble method, analogue procedure and neural network), c) Coupling of the HEC-HMS hydrological model to the different precipitation outputs, and d) Operational (daily) implementation of the above techniques in the computer systems of the group and dissemination of the results on the web at http://mm5forecasts.uib.es.
Despite the objectives of the project are constructed and tested taking as reference the cyclone and precipitation situations in the Mediterranean owing to its strong social impact, forecasting applications in contiguous regions and for other atmospheric circulation features are in fact considered in the proposed methodology. The real-time results that are pursued within the full prediction system and the expected benefits on the quality of the hydro-meteorological forecasts would remain entirely available to the Instituto Nacional de Meteorología in light of the agreement of scientific collaboration between the Ministerio de Medio Ambiente (which the INM belongs to) and the UIB, signed in July 2001, as well as to the agents involved in Civil Protection and similar tasks.

Referència: TEC2005-07799-C02-01/MIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.
Títol: *Dinámica y sincronización de láseres de semiconductor y aplicaciones*.
Acrònim: LASEA.
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: 2005. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Mirasso Santos, Claudio Rubén	TU	0.5
Colet Rafecas, Pere	Científic titular	
Alessandro Scirè	Investigador	1
Montbrió Fairen, Ernest	Aj.	1
Jacobo, Adrián	B	1
Pérez López, Antonio	B	1

Investigadors d'altres entitats

Fischer, Ingo	Free University of Brussels
Larger, Laurent	University of Franche-Comté
Lin, Fan-Yi	National Tsing Hua University

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

Referència: TEC2005-05712/MIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de tecnologies electrònica i de comunicacions.
Títol: *Análisis estadístico de parámetros en circuitos digitales CMOS nanométricos: aplicación a métodos de diseño y test*.
Acrònim: ANESPA.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: SEGURA FUSTER, Jaume Agapit.
Categoria: TU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Segura Fuster, Jaume Agapit	TU	1
Roca Adrover, Miquel Jesús	TU	1
Isern Riutort, Eugeni Miquel	TU	0.5
Bota Ferragut, Sebastià A.	TU	0.5
Rosselló Sanz, Josep Lluís	TEU	0.5
de Benito Crossetti, Carola	TEU	1
Alorda Ladaria, Bartomeu	P. col.	1
Rosales Palou, Marcos	B	1
Canals Guinand, Vicenç	B	1

Investigadors d'altres entitats

Hawkins, Charles	University of New Mexico
Renovell, Michel	LIRM-CNRS
Comte, Mariane	LIRM-CNRS

EDP del grup investigador de l'entitat sol·licitant: 7.5.

Summary
Technology scaling has surpassed the 100nm barrier and is now rapidly envolving to the 65nm technological node. One of the challenges of today's technology scaling is related to controlling geometric critical dimensions, not only from die-to-die. The impact of poor critical dimensions control results in parameter variations of devices and interconnect. Moreover, recent results point that the relative impact of within-die variations is of the same order than die-to-die variations. Within die variations have a significant impact on present design and test methods, since many of the physical-to-electrical relationships at the circuit level are not deterministic anymore. This poses important challenges in specific design steps (lime critcal path determination) and impacts the development of efficient test methods based on non-logical parameters. This is motivated by two main reasons: the lack of appropriated models to describe variation, and the difficulty in settling pass-fail limit regions in a noisy environment. The lack of appropriated statistical models has an impact on the development of appropriated design and test methods that must rely on worst-case desing techniques. The objective of this project is the development of efficient statistical models fort he key circuit parameters (design, power, and temperature) where the pas/fail region limit is settled according to such statistical models. Another objective of the project is to include the impact of noise mechanisms and environmental fluctuations (temparature and supply voltage) in the models to describe their effect on variation.

Once the models are obtained they will be applied to the development of the parametric-based test methods.

Referència: MAT2005-00093. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de materials.
Títol: *Nuevas aleaciones ferromagnéticas con memoria de forma: interacciones magneto-elásticas, efectos microestructurales, estabilidad y características funcionales*.
Acrònim: NAFMEF.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: PONS MORRO, Jaume.
Categoria: TU (àrea de coneixement: Física Aplicada).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Pons Morro, Jaume	TU	1
Cesari Aliberch, Eduard	CU	1
Seguí Palmer, M. Concepció	TU	1
Picornell Alou, Catalina	CEU	1
Santamarta Martínez, Rubén	Aj.	1
Kustov, Sergey	Investigador	1
Masdeu Mayans, Francesc	B	1

Investigadors d'altres entitats

Muntasell Pla, Joaquim	Universitat Politècnica de Catalunya
Font Ferrer, Joan	Universitat Politècnica de Catalunya
Chernenko, Volodymyr	Institute of Magnetism (Ucraïna)
Ochin, Patrick	Centre d'Etudes de Chimie Métallurgique (França)

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

Summary
The proposed project involves the investigation of fundamental and functional properties o new ferromagnetic shape memory materials (FSMA). The fundamental part of research is concentrated on studying coupling between magnetic and elastic domain systems, using a new experimental approach based on simultaneous studies of non-linear mechanical and magnetic reponse of the FSMA to applied cyclic stress, and on the effects of a large variety of microstructural characteristics on the mobility of martensite boundaries. In parallel, the present project includes the devlopment of new FSMA (mainly Ni-Fe-Ga and Co-Ni-Al) by an exhaustive study of microstructural modifications (generation of γ-phase precipitates, grain size and atomic ordering changes) introduced in these alloys after a variety of thermal treatments. The effect of these microstrutures on the magnetic and martensitic transformations, and on the mechanical and functional properties (conventional and magnetic shape memory effects, superelasticity) will be also studied.
The fundamental part of the project will bring about a better understanding of the magnetic shape memory effect shown by these materials (which is directly related to the mobility of martensite variants). On its turn, thermal treatments suitable to gerate

microstrutural features with positive effects on the magnetic or martensitic transitions and functional properties are expected to be found during the development of the new FSMA. Altogether brings about good expectations about transfer, at medium term, of the results of the project to the improvement of the commercial applications of these materials.

Referència: FIS2005-02796. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de física.
Títol: *Información cuántica y dinámica electrónica en nanoestructuras*.
Acrònim: INDINA.
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: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Casas Ametller, Montserrat	CU	1
Garcias Gomila, Francesca	TU	1
Serra Crespí, Llorenç	TU	1
Puente Ferrà, Antoni	TU	1
Nazmitdinov, Rashid	Investigador	1
López Gonzalo, M. Rosa	Investigadora	1
Sánchez Martín, David	Investigador	1
Batle Vallespir, Josep	B	1

Investigadors d'altres entitats

Plastino, Ángel Luis	Universitat Nacional de La Plata (Argentina)

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

Summary
The main purpose of the present project i to perform a systematic analysis of the time evolution of entangled states in bipartite and multipartite systems with and without ineraction by a systematic survey of pure and mixed states in the Hilbert space of two-qudits (dimenxion DxD) and N-qubits using several quantitative entanglement mesarues. The influence of the effect of different metrics on the Hilbert space in the state simulation will be analyzed, paying special attention to the case of indistinguishable particles (fermions and bosons). The efrect of interaction with the environment will be analyezed a) for multipartite systems as a function of the qubit number, and b) in several quantum algorithms as they envolve with the number of iterations. The purity of entanglement will be used in spin particle systmes as a measure of entanglement and we will consider as well their application to quantum phase transitions.
We shall investigate the use of coupled quantum dots acting as quantum gates by means of numerical simulations in coordinate space and real time. We shall study the coherence time of the entangled states obtanined in these systems as well as the influence upon them of different items, namely a) the spin-orbit interaction, b) the magnetic field, and c) time dependent electric fields. In double quaumt dots we shall analyze the collective modes and the correponding symmetry restoring usint the RPA theory and their extension to finite temperature. We will extend our study to the case where the Kondo correlations became important in the electronic transport. In double quantum dots we analyeze the competition between the Kondo effect and the Ruderman-Kittel-Kasuya-Yoshid (RKKY) interaction in the presence of a magnetic

field. We will compare our theoretical results with those experimentally obtained in, e.g., carbon nanotube quantum dots. We will also study the two-impurity Kondo problem when the contacts are superconductors and then a source of entangled states. We will propose a new steup composed by quantum dots to observe the multi-channel Kondo effect. The spintronic transport will be addressed by attaching real ferromagnets to a quantum dot in the Kondo regime when the spin-orbit interaction is present. Our interest is not only focused on the linear and nonlinear conductacne but also on the shot noise in hubrid (normal, ferromagnetic or superconducting contacts) multiterminal quantum dots in oth Coulomb blockade and Kondo regimes. We will end up with the study of the influence of either vacuun fluctuations of collective osonic excitations (magnons) in the Kondo effect (Fermi-Bose-Kondo model) and in two-level systems (qubits).
We hope that our results will shed some light on the applications of electronic nanostructures as quantum gates, which constitute a subjecto of great interest in the field of quantum computation and as elements of spintronic and low dimensional circuits.

Referència: PRIB2004-10145. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Aplicación de nuevas tecnologías de computación numérica en paralelo a la resolución de problemas astrofísicos*.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: OLIVER HERRERO, Ramón.
Categoria: TU (àrea de coneixement: Astronomia i Astrofísica).
Inici: 2004. **Fi**: 2006.

Referència: PRDIB2002-GC3-17. Conselleria d'Innovació i Energia.
Títol: *Relatividad general: aspectos analíticos y numèricos*.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: CAROT GINER, Jaume Jesús.
Categoria: TU (àrea de coneixement: Física Teòrica).
Inici: 2002. **Fi**: 2005.

Referència: PRIB2004-9765. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Transportes y estados entrelazados en nanoestructuras*.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: SERRA CRESPÍ, Llorenç.
Categoria: TU (àrea de coneixement: Física Atòmica, Molecular i Nuclear).
Inici: 2004. **Fi**: 2007.

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.

Membres de l'equip	**Categoria**
Bover Bover, Andreu	TEU
Gastaldo, Denise	
Calvo Sastre, Ana M.	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 desgin 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.

Referència: PI05-1503. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Trabajadoras latinoamericanas inmigrantes como cuidadoras: globalización, promoción y acceso a la salud.*
Centre: Departament d'Infermeria i Fisioteràpia. Edifici Guillem Cifre de Colonya.
Investigador responsable: BOVER BOVER, Andreu.
Categoria: TEU (àrea de coneixement: Infermeria).
Inici: 2005. **Fi**: 2008.

Membres de l'equip	**Categoria**
Bover Bover, Andreu	TEU
Gastaldo, Denise	
Sáenz de Ormijana Hernández, Amaia	
Juando Prats, Clara	
Robledo Martín, Juana	
Luengo González, Raquel	
Izquierdo Mora, Dolores	
Llabata Pérez, Paloma	

Summary
In recent years the noticeable increase in immigration in Spain has been transforming our social reality, creating new challenges for the welfare and health care systems. It has also created new oportunities for the health promotion and protection of the population. Among the biggest groups and the less studied are how social determinants of health, prevention and health care of dependent individuals. In this study we will explore how social determinants of health, prevention and health cae received influence the health status and well-being of Latin american immigrant women working like care givers in Spanish homes. This is a muti-site study, designed for 4 socio-linguistic zones in Spain: Balearic Islands and Catalonia, Basque Country, Madrid and Canary Islands. The methodology is both qualitative (96 semi-structured interviews) and quantitative (720 questionnaires SF-36) differenciating the following factors/variables: immigration status (resdient or undocumented), visible minority or not, and presence or absence of family network. Participation in the study is voluntary and a conset form will be used with all participants. The appropiate ethics committee will review the project. For the analysis of qualitative data, discourse analysis will be used with the supoort of the software Atlas.ti 5.0. For the quantitative analysis, a descriptive analysis will be employed based on items of the SF-36 survey. The results will be shared with immigrant community groups, health care professionals, and academics.

Participacions a altres projectes

Referència: PI040612. Xarxes Temàtiques d'Investigació Cooperativa. Ministeri de Sanitat i Consum.
Títol: *Identificación y valoración de los registros de enfermería para población igual o mayor de 65 años en Atención Primaria y Sociosanitaria, en relación con las caídas, incontinentcia urinaria y lesiones por presión*.
Investigador responsable: FUENTELSAZ GALLEGO, Carmen.
Centre: Hospital Vall d'Hebron.
Investigadores de la UIB:
Gallego Caminero, Gloria.
Categoria: TEU (àrea de coneixement: Infemeria).
Miró Bonet, Margalida.
Categoria: TEU (àrea de coneixement: Infemeria).
Inici: 2004. **Fi**: 2007.

Referència: PI040612. Xarxes Temàtiques d'Investigació Cooperativa. Ministeri de Sanitat i Consum.
Títol: *RIMARED. Red Temática de Investigación en Cuidados a Personas Mayores. Nodo subtemática de cuidados informales*.
Investigador principal: MORENO CABAS, María Teresa.
Centre: Investén. Instituto Carlos III.
Investigador de la UIB: BOVER BOVER, Andreu.
Categoria: TEU (àrea de coneixement: Infermeria).
Inici: 2003. **Fi**: 2006.

Referència: PI042160. Xarxes Temàtiques d'Investigació Cooperativa. Ministeri de Sanitat i Consum.
Títol: *Identifiación y valoración de los registros de enfermeria para población igual o mayor de 65 años en atención primaria y sociosanitaria, en relación con los cuidados informales*.
Investigadora principal: FUENTELSAZ GALLEGO, Carmen.
Centre: Hospital Vall d'Hebrón.
Investigadors de la UIB: BOVER BOVER, Andreu.
Categoria: TEU (àrea de coneixement: Infermeria).
Inici: 2005. **Fi**: 2007.

DEPARTAMENT DE PEDAGOGIA APLICADA I PSICOLOGIA DE L'EDUCACIÓ

Referència: SEJ2005-06467/EDUC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Estandares e indicadores para analizar la calidad de vida del alumnado con necesidades educativas especiales asociadas a discapacidad en su proceso educativo*.
Acrònim: ACVANEE.
Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonya.
Investigador responsable: MUNTANER GUASP, Joan Jordi.
Categoria: CU (àrea de coneixement: Didáctica i Organització Escolar).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Muntaner Guasp, Joan Jordi	CU	1
Forteza Forteza, M. Dolors	TU	1
Rosselló Ramon, M. Rosa	TU	1
Verger Gelabert, Sebastià	TEU	1
de la Iglesia Mayol, Begoña	P. col.	0.5
Ferrer Cerdà, Elena	As.	1

Nombre total d'investigadors de la UIB: 5.5.

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 Pedagogia Aplicada i Psicologia 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 (EDP)	**Categoria**	**Dedicació**
Salinas Ibáñez, Jesús M.	TU	0.5
Urbina Ramírez, Santos	TEU	0.5
Negre Bennàssar, Francesca	P. Col.	0.5
Pérez Garcias, Adolfina	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.

Summary
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 ñlearning 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 ñlearning 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.

Participacions a altres projectes

Referència: TIC2003-09288-C02-01. Ministeri de Ciència i Tecnologia.
Modalitat: Programa nacional de de tecnologia de la informació i comunicacions.
Títol: *PLANET: plataforma de colaboración aumentada para el acceso y distribución de contenidos educativos*.
Investigador responsable: GARCÍA LÓPEZ, Pedro Antonio.
Centre: Universitat Rovira i Virgili.
Investigador de la UIB: Urbina Ramírez, Santos
Categoria: TEU (àrea de coneixement: Didàctica i Organització Escolar).
Inici: 2003. **Fi**: 2006.

DEPARTAMENT DE PEDAGOGIA I DIDÀCTIQUES ESPECÍFIQUES

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 Pedagogia i Didàctiques Específiques. 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 (EDP)	**Categoria**	**Dedicació**
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; ths 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 questionnaries (students, teachers and parents), which will be statistically analysed.

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 Pedagogia i Didàctiques Específiques. 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Orte Socias, M. del Carme	TU	1
Ballester Brage, Lluís	TU	1
March Cerdà, Martí X.	CU	1
Fernández Bennàssar, M. Carme	CEU	1
Oliver Torelló, Josep L.	TEU	1
Touza Garma, M. del Carmen	TEU	1

Investigadors d'altres entitats

Mestre Moyà, M. Lluïsa	Hospital Universitari Son dureta
Fernández Coll, Cristina	Projecte Home

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.

Referència: PRIB2004-9956. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Prevenció del consum de drogues en la família: programa de competència parental per a drogodependents en tractament*.
Centre: Departament de Pedagogia i Didàctiques Específiques. Edifici Guillem Cifre de Colonya.
Investigadora responsable: ORTE SOCIAS, M. del Carme.
Categoria: TU (àrea de coneixement: Teoria i Història de l'Educació).
Inici: 2004. **Fi**: 2006.

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 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 (EDP)	**Categoria**	**Dedicació**
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	Univierstat 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 Dinamical 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 chaocity/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 trough 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: SEJ2004-01332/PSIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Evaluación del procesamiento de la información en el dolor crónico con resonancia magnética funcional*.
Acrònim: PAINBRAIN.
Centre: Departament de Psicologia. Edifici Beatriu de Pinós.
Investigador responsable: MONTOYA JIMÉNEZ, Pedro.
Categoria: TU (àrea de coneixement: Psicobiologia).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Montoya Jiménez, Pedro	TU	1
Sitges Quirós, Carol	B	1

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

Summary
This research proposal is a continuation of our line of work initiated with the project BSO2001-0693. The major aim of this research is to analyze the brain activity in chronic pain patients using functional magnetic resonance imaging (fMRI). The underlying hypothesis is that chronic pain is characterized by plastic changes in the nervous system. Our experimental design pursues to demonstrate the existence of abnormal pattern in the brain processing of somatic information in chronic pain patients. In addition, we are interested on the influence of cognitive and affective factors on brain plastic changes. Three patients groups with similar sociodemographic, but different clinical characteristics will be examined: fibromyagia, complex regional pain syndrome and rheumatoid arthritis. Brain activity will be recorded during nociceptive and non-nociceptive stimulation using fMRI. In addition, psychological characteristics of pain, neuropsychological functioning and pain thresholds will be examined.

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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Manassero Mas, M. Antònia	CU	1
Gili Planas, Margalida	TEU	0.5
Ramis Palmer, M. Carme	As.	0.5
Garcia Buades, M. Esther	TEU int.	0.5

Investigadors d'altres entitats

Roca Moll, Joan	Escola d'Hoteleria
Ferré Roig, Maria del Mar	Escola d'Hoteleria

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 works 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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
Vilarroya 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 commited 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 prefering 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-C03-03. 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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Roca Bennàsar, Miquel A.	TU	0.5
Gili Planas, Margalida	TU	0.5

Investigadors d'altres entitats

Bernardo Arroyo, Miquel	Universitat de Barcelona
López-Ibor Alcocer, María I.	Universitat Complutense de Madrid

EDP del grup investigador de l'entitat sol·licitant: 1.

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 projects is a continuation of a previous one that established what an 'aesthetic stimulus', grounding it on the preferences shown by participants. Several essays of localisation where 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. After, the project implies to perform factorial analyses introducing variables such as gender and previous training in either Art or History of Art. Finally, a model of aesthetic perception and its brain correlates would be reached.

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 (EDP)	**Categoria**	**Dedicació**
Barceló Galindo, Francesc	TU	0.5
Periañez Morales, José Antonio	Aj. EU	1

Investigadors d'altres entitats

Yagüez 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.

Referència: SEJ2004-01363/PSIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Evaluación de la atención sostenida y el control atencional en el trastorno por déficit de atención con hiperactividad (TDAH): una aproximación conductual, neuropsicológica y electrofisiológica*.
Acrònim: EATDAH.
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: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Servera Barceló, Mateu	TU	1
Barceló Galindo, Francesc	TU	0.5

Investigadors d'altres entitats

Cardo Jalón, Maria Esther	Fundació Hospital Son Llàtzer

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

Summary
Our main objective is to determine the relationship between various tasks and measures of sustained and executive attention with various behavioral and clinical markers of the attention deficit hyperactivity disorder (ADHD), in order to better understand the type of attentional dysfunctions associated with this developmental disorder. A battery of attentional tasks will be administered to children diagnosed with different subtypes of ADHD in order to determine specific attentional deficits in relation to normal controls, as well as distinctive features across ADHD subtypes and in relation with other attentional disorders. Three Continuous Performance Tests (CPTs) and a modified version of the Wisconsin Card Sorting Test (WCST) will be used as measures of sustained attention and executive attention, respectively. The task battery will consist of a no-X CPT as a measure of inhibitory function; a AX-CPT as an index of vigilance; and two modified AX-CPT and WCST tasks to assess selective attention and executive control in a task switching paradigm. For each of these tasks we will obtain different types of indicators: behavioural (hits, omission/commission errors, and reaction times), neuropsychological (indicators of sensibility and response bias based on signal detection theory). The integration of evidence from this three-way interaction of factors (task x measure x deficit) is expected to provide solid grounds for theorising about the nature of the attentional dysfunctions observed in ADHD.

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.

Membres de l'equip	**Categoria**
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*: Marcadores de vulnerabilidad genética y neurobiológica de trastornos psiquiátricos en las Islas Baleares*.
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: ROCA BENNÀSAR, Miquel À.
Categoria: TU (àrea de coneixement: Psiquiatria).
Inici: 2002. **Fi**: 2005.

Membres de l'equip	**Categoria**
Roca Bennàsar, Miquel À.	TU
Cañellas Dols, Francesca	As.
Gili Planas, Margalida	TEU
Ramon Juanpere, Misericòrdia	TU
Castro Ocón, José Aurelio	TU
Picornell Rigo, Antònia	TEU
Serrano Ripoll, M. Jesús	B

Summary
Genotyping for the identification of genetic factors of susceptibility of mental disorders. Evaluations of the genetic-hereditary component of the psychiatric disorders under investigation. Identification of the genetic factors of susceptibility to psychiatric disorders.

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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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: SEJ2005-00899/PSIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Dinámica no lineal de la ansiedad: nueva perspectiva en la evaluación y el tratamiento de los trastornos fóbicos*.
Acrònim: DiNLA.
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: LLABRÉS BORDOY, Jordi.
Categoria: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Llabrés Bordoy, Jordi	TEU	1
Bornas Agustí, F. Xavier	TU	1
Tortella Feliu, Miquel Rafael	CEU	0.5

Investigadors d'altres entitats

López Jiménez, Ana	Universitat de Sevilla
Noguera Batlle, Miquel	Universitat Politècnica de Catalunya
Fullana Rivas, Miquel À.	Universitat Autònoma de Barcelona

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

Referència: SEJ2005-05331/PSIC. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències socials, econòmiques i jurídiques.
Títol: *Cortisol en saliva: comparaciones entre una condición estresante y una condición no estresante*.
Acrònim: CORSO.
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: GARCÍA DE LA BANDA GARCÍA, Gloria.
Categoria: TEU (àrea de coneixement: Personalitat, Avaluació i Tractament Psicològics).
Inici: 2005. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
García de la Banda, Gloria	TEU	1
Fornès Vives, Joana	CEU	1

Investigadors d'altres entitats

Riesco Prieto, María	IB-SALUT
Pérez Esteban, Gerardo	IB-SALUT
Pastor García, María	IB-SALUT

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

Summary
Glucocorticoide and Catecholomine secretion are part of the organism's response to environmental challenges. Cortisol, a glucocorticoide, is regularly secreted by the adrenal cortex with a marked circadian rhythm. On top of this basal activity it has been described as an increase in cortisol production in response to unpredictable and threatening events. More recent results, however, have challenged this view. It has been observed that not all individuals respond to a stressor by increasing cortisol levels; in some cases the level of circulating cortisol decreased instead.
Our hypothesis is that the reduction in cortisol response to the stressor is linked to high basal cortisol secretion. Furthermore, we propose that this paradoxical reaction - high basal cortisol levels followed by cortisol reduction upon exposure to the stressor - is an indication of hypothalamic-pituitary-adrenal (HPA) malfunction, and a predictor of future physical and psychological failures. Finally, we also believe that personality plays a major role both in basal and reactive HPA activity. To test these hypotheses we propose the following specific aims:
1) To study the influence of basal cortisol levels over cortisol response under stress.
2) To determine the influence of personality on cortisol secretion
3) To explore the connection between cortisol levels and physical and psychological wellbeing. To assess the physiological response we will collect 12 different saliva samples from 60 university students in two different conditions: 6 stressful (public speaking) and 6 non-stressful (regular class). To evaluate the personality traits, we will use the NEO-FFI, EPQ-R and ECQ questionnaires. Anxiety will be measured by the ISRA test, Liebowitz's Social Phobia Scale and Paul's Fear of Public Speaking. In order to take into account other stressful events that may influence cortisol secretion, students will be asked about stressful life events, minor stressful events and general perceived stress. We will also take into account each student's expectations about his

or her results before the oral presentation. Finally, physical symptoms will be measured by the MSCL, and psychological distress by the SCL90-R test.

Referència: PRIB2004-10136. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Detección del deterioro cognitivo leve en el envejecimiento normal y patológico*.
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: BARCELÓ GALINDO, Francesc.
Categoria: TU (àrea de coneixement: Psicobiologia).
Inici: 2004. **Fi**: 2006.

DEPARTAMENT DE QUÍMICA

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 (EDP)	**Categoria**	**Dedicació**
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, Ángel	TU	1

EDP del grup investigador de l'entitat sol·licitant: 3.83.

Summary
The presence of purine and pyrimidine rings into chemical compounds in 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 wiht pharmacological properties will be studied.

Referència: CTQ2004-01201/BQU. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies químiques.
Títol: *Desarrollo de métodos automáticos en flujo para la monitorización y control de biorreactores y depuradoras de aguas residuales*.
Acrònim: ANABIO.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: CERDÀ MARTÍN, Víctor.
Categoria: CU (àrea de coneixement: Química Analítica).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Cerdà Martín, Víctor	CU	1
Forteza Coll, Rafael A.	TU	1
Leal Quezada, Luz Olivia	B	1
Horskotte, Burkhard	B	1
Pons Bonafé, Carme	B	1

Investigadors d'altres entitats

Bauzà de Mirabó Darder, Francesca	TIRME
Elsholz, Olaf	Universitat de Ciències Aplicades d'Hamburg

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

Summary
The goal of the project is to develop flow automatic system of analysis in order to monitor and control two different king of bioreactors: one use in the production of pharmaceutical products, and the other a biological wastewater plant. The flow techniques which will be mainly applied sequential injection analysis (SIA), and the multisyringe flow injection analysis (MSFIA). Both have the advantages of being very robust without the need of a frequent calibration, and they need only very small amounts of sample and reagent, sometimes very expensive in this kind of applications (enzymes).
SIA is a true multiparametric flow technique very well adapted to the purpose of the project, and MSFIA has the advantage of a higher sample troughput. With both techniques we will develop expert (intelligent) systems which will be able to allow the monitoring of the main parameters necessary to control the right operation of both bioreactors through the measuring of both physical and chemical parameters (organic and inorganic).

Referència: CTQ2004-02375/BQU. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies químiques.
Títol: *Lantánidos en catálisis enantioselectivas*.
Acrònim: LA CATENA.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: SAÁ RODRÍGUEZ, José Manuel.
Categoria: CU (àrea de coneixement: Química Orgànica).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Saá Rodríguez, José Manuel	CU	1
Tur Espinosa, Fernando	B	1

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

Summary
The LA CATENA project (lanthanide complexes for enantioselective catalysis) aims at designing and synthesizing chiral catalysts for enantioselective catalysis both in conventional and non-conventional solvents (water, in particular). The socio-economical interest pursued by this project stands as reaching the gradual replacement of the old synthetic processes employed by the pharmaceutical and fine-chemicals industry for others which comply with the most stringent environmental rules of the XXI century chemical industry. The fundamentals of the plan lie on the principles of self-assembly and self-organisation as we try to reach the thermodynamically stable octahedral complexes of lanthanide (III) salts of the type $M(L^*L)_3 X_3$ (since L*L is a chiral bidentate ligand, the central metal atom will also be chiral) which, by virtue of their kinetical lability can interchange its ligands with external ones of appropriate donicity (the Nu of ad hoc-selected reactions). Thus, as a consequence of the intrinsic kinetic lability of lanthanide complexes, their hard central atom should act as a chiral Lewis acid capable of coordinating both Nu and E and promote enantioselective catalysis upon aldol condensation, nitroaldol condensation (and closely related), as well as Michael, Mannich and related reactions (we expect that turnover will be fast for these reactions). In adition we will study the capacity of Sm or Eu II complexes $M(L^*L)_3 X_2$ to promote the enantioselective reductive coupling of C=O and C=NR moieties. Given their lability, their capacity to work in water requires reaching a compromise between kinetic lability and their hidrolizability. For this reason it will be necessary either search for lanthanide complexes $M(L^*L)_3 X_3$ which employ higher denticity ligands, or move over to complexes of different metals such as In(III), Pb(II), etc, in trying to reach the goals of enantioselective catalysisis in water.

Referència: BQU2002-04651. Ministeri de Ciència i Tecnologia.
Modalitat: Programa nacional de promoció general del coneixement.
Títol: *Estudios relativos a especies surpramoleculares 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 (EDP)	**Categoria**	**Dedicació**
Costa Torres, Antoni	CU	1
Frontera Beccaría, Antoni	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 funcional 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 o 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 comparision 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-Π interactions arising from perfluoaromatics and anions. The resulting host-guest binding force will be applied to the design of a new generation of artificial receptors based on perfluoraromatic compounds.

Referència: MAT2002-03603. Ministeri de Ciència i Tecnologia.
Modalitat: Programes nacionals d'I+D orientada.
Títol: *Nanoestructuras en sólidos 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 (EDP)	**Categoria**	**Dedicació**
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 in also envisaged. The following objectives would be characterization of the materials obtained by using appropiate 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 (EDP)	**Categoria**	**Dedicació**
Rosselló Matas, Carme	TU	1
Simal Florindo, Susana	TU	1
Femenia Marroig, Antoni	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 appropiate 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 appropiate 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 (EDP)	**Categoria**	**Dedicació**
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 β-lactamases and PPE (Porcine Pancreatic Elastase) inhibition. The therapeutic problem posed by class D β-lactamases, a family of serine enzymes that hydrolypse b-lactam antibiotics following an acyclation-deacylation mechanism, are increased by the very low level of sensibility of these enzymes to β-lactamase inhibitors. The PPE usually is taken as a model of the HLE (Human Leukocite 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 sema 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 β-lactamases, HLE and PPE. The hydrolisis, thiolysis and aminolysis of the potential inhibitors will be study by semiempiric, ab initio and DFT calculations. The molecular modelling study will be done by molecular mechanic and molecular dynamic 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 amine 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 (EDP)	**Categoria**	**Dedicació**
Grases Freixedas, Felicià	CU	1
Costa Bauzà, Antònia	TEU	1
Prieto Almirall, Rafel M.	TEU	1
Perelló Bestard, Joan	B	1

Investigadors d'altres entitats

Pieras Ayala, Enrique C.	Hospital Universitari Son Dureta
García González, Ramón	Gestió Sanitària de Mallorca
Ramis Barceló, Margalida	
Muñoz Vélez, Daniel	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 nuclenats, 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 hterogeneous 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: TRA2004-02460/TMAR. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de medis de transport.
Títol: *Caracterización de zonas de refugio para buques siniestrados que transportan hidrocarburos: aplicación a las Islas Baleares.*
Acrònim: PUERTOS.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: BERGUEIRO LÓPEZ, José Ramón.
Categoria: TU (àrea de coneixement: Enginyeria Química).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Bergueiro López, José Ramón	TU	0.5
Serra Socias, Francesca	B	1
Domínguez Laseca, Félix		1
Romero March, Romuald	TU	0.5

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

Summary
The aim of this project is to describe the characteristics of a shelter zone where a ship that transports hydrocarbons could be moved before an emergency. To know if a certain zone meets those characteristics there will be born in mind the type and the quantity of hydrocarbons transported and split to analyze the risks of fire and explosion and its influence on the surrounding environment. It will indicated the way of determining the possibility that the mixture of hydrocarbons burns if it is in the sinister tank or is spilt in the shelter zone, as well as the possibility that the hydrocarbons could spread, disperse or to be emulsified in the water. It will be indicated the procedures to follow for the confinement of the hydrocarbons spilt in the shelter zone, as well the possibility of recovery by means of skimmers shpis or by menas of adsorptive manterials. It will be equally indicated the characteristics that the shelter zonce must have in order to transfer the hydrocarbons to another ship or to deposits in land, as it was realized with the tanker Aegean Sea. It will be indicated the way od determining, by means of simulation models, the path that the spilt of hydrocarbons would follow and the possible coastal zones that it would affect, taking into account the meteorological situation at the moment of the spillage and in the posterior hours. The characteristics of vulnerability, resilence and induced recovery that the shelter zone should fulfill will be also indicated. Finally and provided that the antipollution actions will never be effective in its entirety, there will be shown the systems and the logistics that must be applied for the recovery of the shelter zonce that has been contaminated by the hydrocarbons. The system will be applied in the environment of the points of exhaust of hydrocarbons of the Balearic Islands, under different meteorological situations.

Referència: CTQ2004-03256/BQU. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies químiques.
Títol: *Desarrollo de sistemas automáticos inteligentes para la determinación de analitos de interés medioambiental*.
Acrònim: INTAN.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: ESTELA RIPOLL, Josep Manuel.
Categoria: TU (àrea de coneixement: Química Analítica).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Estela Ripoll, Josep Manuel	TU	1
Caro Fernández, Arturo	TEU	1
Mas Torres, Francesca	Aj. U	1
Ferrer, Laura	B	1
Fajardo González, Yamila	B	1

Investigadors d'altres entitats

Gómez Benito de Valle, Enrique	Govern Balear
Rangel, Antonio	Universitat Catòlica Portuguesa

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

Summary
The development of new advanced automatic systems of flow analysis is proposed in this project, exploiting principally the novel technique multisyringe flow injection analysis (MSFIA) with the following aims:
a). Radioactive isotopes analysis in soil, air and waters
b). Determination of environmental indicators and chemistry elements (including speciation) in different kind of waters (wastewaters, drinking waters, sea water, etc.)
On one hand the elimination or minimization of the manual operations required in the methodologies used nowadays are proposed and in other one, to improve the applicability of the analytical methods, as well as to implement new methods directed to resolving specific problematics.
The projected solutions are based on the simplification of the different stages of chemical analysis using fundamentally system with optrodes. In all cases the established systems will be provided with algorithms that allow taking decisions according to the sample characteristics. Thus, several aspects such as concentration levels, need of speciation, clean-up, changes of detection systems or combination with other flow analysis techniques will be taking into account. At the same time, we propose to improve the robustness of the established methodologies considering chemical and software aspects as well as the instrumental devices.

Referència: CTQ2005-00250/BQU. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies químiques.
Títol: *Inhibición selectiva de enzimas que presentan el PLP como cofactor*.
Acrònim: ISE-PLP.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: MUÑOZ IZQUIERDO, Francisco.
Categoria: CU (àrea de coneixement: Química Física).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Muñoz Izquierdo, Francisco	CU	1
Donoso Pardo, Josefa	CU	1
Frau Munar, Joan	TU	1
Vilanova Canet, Bartomeu	TU	1
Coll Parets, Miquel	As.	1
Garcias Llabrés, Rafael	Aj.	1
Salvà Salvà, Antoni	As.	1
Fenollar Ferrer, Cristina		1
Adrover Estelrich, Miquel		1

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

Summary
In the present research project it is tried to study three PLP-dependent enzymes, aspartate aminotransferase (AAT), alanine racemase (ALR) and ornithine decarboxylase (ODC), in order to determine selective inhibitors of ALR and ODC. The specific inhibition of the ALR would allow the destruction of the bacteria without indirect effect, since the ALR is essential for the formation of the cellular wall of the bacteria and has not been detected in mammals. The inhibition of the ODC has demonstrated effective in the treatment of certain cancers and some parasite diseases. Some inhibitors of these enzymes have been described already, nevertheless all of them are general inhibitors, is to say cause the inhibition of most of the PLP-dependent enzymes, with the consequent not wihsed indirect effect. By means of MM and MD calculations it is tried to make the molecular modelling of the enzymatic active site and by means of calculations of quantum chemistry the theoretical mechanisms of inhibition will be studied, which will allow determining the structural characteristics of inhibitors. Finally the mechanisms of inhibition of the proposed molecules will be determined experimentally by stopped flow measurements.

Referència: MAT2005-05350. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de materials.
Títol: *Materiales porosos para la detección, adsorción y depósito de gases*.
Acrònim: MINAMAT.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: OTERO AREÁN, Carlos.
Categoria: CU (àrea de coneixement: Química Inorgànica).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Otero Areán, Carlos	CU	1
Turnes Palomino, Gemma	TU	1
Rumori, Paolo	As.	1

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

Summary
The study and development of materials having outstanding gas adsorption properties is a forefront issue of present-day research; triggered by strategic industrial and environmental applications, such as gas sensing, separation and storage. This research project aims at a detailed analysis of the adsorption of gas molecules (CO, CO_2, NO_x, H_2 and amines) on microporous (zeolites and active carbons) and nanostructured periodic porous materials (MCMs, SBAs and carbon replicas). Both, gas-solid interaction mechanism and thermodynamics of the adsorption of harmful gases, as well as for reversible hydrogen storage; a subject of current interest for the development of a sustainable (and clean) energy future.

Referència: CTQ2005-08989-C02-01/BQU. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies químiques.
Títol: *Diseño, síntesis y evaluación de estructuras supramoleculares funcionales: sensores, receptores y dispositivos moleculares.*
Acrònim: supramol2005.
Centre: Departament de Química. Edifici Mateu Orfila i Rotger.
Investigador responsable: DEYÀ SERRA, Pere M.
Categoria: CU (àrea de coneixement: Química Orgànica).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Deyà Serra, Pere M.	CU	1
Costa Torres, Antoni	CU	1
Morey Salvà, Jeroni	TU	1
Frontera Beccaría, Antoni	Investigador	1
Rotger Pons, M. del Carme	Investigadora	1
Quiñonero Santiago, David	Investigador	1
Vega Reynés, Manuel	Tèc.	1
Capó Cañellas, Magdalena	As.	1
Garau Rosselló, Carolina	B	1
Castilla Manjón, Ana María	B	1

EDP del grup investigador de l'entitat sol·licitant: 10.

Summary
The evolution of supramolecular chemistry allows, nowadays, the access to well-defined complex structures from simple molecules, taking advantge of the intellinget mixing of covalent and noncovalent bonds. The present project is the result of the natural evolution of the preceding ones, insists in this line of research and pays special attention to the application of the new materials to divese chemical processes. Three main objectives will be endavoured in a multidisciplinary way. The first objective focuses on the development of squaramide-based molecular sensors with application to molecular recognition and determination of oxoanions in aqueous media. The main challenges are both to achieve the solubility in water and the selectivity. The latter will allow the efficient incoporation of transductor elements which can convert a chemical phenomenon into a spectrocoscopical signal.
The second is the design and synthesis of self-assembled nanometric systems capable to perform technological application functions like molecular devices. The efficient use of metal-ligand interactions will allow the access to supramolecules with diverse topology with application as functional devices in different processes. The coordination of amines to metalloporphyrins and their application in charge-transfer processes, photo-induced energy and catalysis will be used to achieve this objective.
Finally, the knowledge learned by means of ab initio calculations regarding interaction between ions and π-systems should allow us to succesfully study the additivity of the anion-π interaction using theoretical methods with the purpose of designing a new family of anion recpetors. The theoretical results will be verified experimentally by synthesizing and testing the recpetors in solution. In addition, the study of the interaction between cations and interesting structural materials (carbon, nanotubes, cyclophanes, etc) is another challenge in our way to the technologic

application of such supramolecular structures (i.e. rechargeable batteries).

INSTITUT MEDITERRANI D'ESTUDIS AVANÇATS
(IMEDEA)
INSTITUT MIXT CSIC-UIB

Referència: FIS2004-00953. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de física.
Títol: *Cooperación y fenómenos no lineales en sistemas complejos extendidos 2*.
Acrònim: CONOCE-2.
Centre: Institut Mediterrani d'Estudis Avançats.
Investigador responsable: SAN MIGUEL RUIBAL, Maximino.
Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
San Miguel Ruibal, Maximino	CU	0.5
Toral Garcés, Raúl	CU	0.5
Hernández García, Emilio	Professor d'investigació	1
Piro Perusín, Oreste	TU	0.5
Mirasso Santos, Claudio	TU	0.5
Colet Rafecas, Pere	Científic titular	1
Matías Muriel, Manuel	Científic titular	0.5
Sintes Olives, Tomàs Miquel	TEU	0.5
Martínez Eguíluz, Víctor	Investigador	0.5
López Sánchez, Cristóbal	Investigador	1
Mulet Pol, Josep	Aj.	0.5
Amengual Marí, Pau	B	1
Chembo Kouomou, Yanne	B	1
Ciszak, Marzena	B	1
Gomes da Silva, Iacyel	B	1
Suchecki, Krzystof	B	1
Tufal Guefen, Idan	B	1
Vicente Zafra, Raúl	B	1
Scirè, Alessandro	B	1
Matas Riera, Sebastià	Tèc.	1

Investigadors d'altres entitats

Hoyelos, Miguel	Universitat de Mar del Plata
Klemm, Konstantin	Universitat de Leipzig
Kurths, Juergen	Universitat de Postdam
Oppo, Gian Luca	Universitat d'Strathclyde
Vulpiani, Angelo	Universitat de Roma La Sapenza
Zimmerman, Martín	Universitat de Buenos Aires

EDP del grup investigador de l'entitat sol·licitant: 16.

Summary
CONOCE-2 is the continuation of a long standing 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 and a new emphasis on the effects of interaction through complex networks. On the one hand the project includes fundamental studies (exploration) with contributions to the development of methods, concepts and description of generic behavior in 6 aspects:

Dynamics of complex networks, Synchronization phenomena, Dynamical systems of moderate dimensionality, Fluctuations and stochastic phenomena, Computational methods in Statistical Physics: Study of biomolecules, and Semianalytical methods in the study of extended systems. On the other hand, it addresses the use (exploitation) of these methods and concepts in specific aspects of 5 lines of strategic research: Transport and mixing in fluids: Active flows and Microfluidics, Patterns and image processing in nonlinear optical cavities, Nonlinear dynamics of semiconductor lasers: Mode locking and synchronization, Nonlinear Phenomena in Ecology and Physiology, and Dynamics of social systems: Agent based models. Some general phenomena considered in the different research lines of the project incluye: Interaction network formation, Chaotic phenomena, Synchronization, Domain formation, and Stochastic phenomena.

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: FIS2004-05073-C04-03. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de física.
Títol: *Fenómenos emergentes en redes biológicas con interacciones complejas*.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: TORAL GARCÉS, Raúl.
Categoria: CU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2004. **Fi**: 2007.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Toral Garcés, Raúl	CU	0.5
Matías Muriel, Manuel A.	Científic titular	0.5
Martínez Eguíluz, Víctor	Investigador	0.5
Cerdà Pino, Juan J.	Aj.	1
D'Ovidio, Francesco	B	1
Tessone, Claudio Juan	B	1

Investigadors d'altres entitats

Gunton, James D.	Lehigh University
Chialvo, Dante Renato	Northwestern University of Chicago

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

Summary
Cooperative phenomena characterize the behaviour of many different complex systems, from low dimensional systems to complex graphs, from disordered systems to biological macromolecules; this has important theoretical implications, and a variety of possible practical applications, ranging from the domain of biomolecular engineering to that of traffic management. This project will be focused on four very related, and complementary, research lines:
- thermodynamics, kinetics and dynamics of protein folding, and its modification during evolution: a striking example of how macroscopic cooperativity can be encoded in an extremely complex system, to ensure its biological function;
- characterization and modelling of dynamics on complex networks, with applications ranging from transport processes in communication, technological, social and biological networks, to the study of models of the evolution of biological networks;
- equilibrium and off-equilibrium Physics for disordered condensed matter systems (structural and spin glasses, diluted systems and colossal magnetoresistance oxides). This is the context where most of the statistical, analytical and numerical Techniques for the study of complex behaviour are developed;
- dynamical processes on low-dimensional complex systems and stochastical systems, which are ideal playgrounds to devise and test new indicators of complex behaviour, and are paradigmatic for many different real dynamical processes.

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 (EDP)	**Categoria**	**Dedicació**
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 asses the risk of reuse and disposal as well for designing simple procedures to asses 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 asses the performance of treatments. Obtain of data on occurrence and levels of pathogens and indicators in regenerated water and different biosolids obtained by sludge treatment and built 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
Ruiz Valero, Simón		Compartida
Basterretxea Oyarzábal, Gotzon		Compartida
Pascual Ascaso, Ananda		Compartida
Flexas Sbert, Maria del Mar		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: 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: Científic titular del CSIC.
Inici: 2002. **Fi**: 2005.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Marbà Bordalba, Núria	Científic titular	0.5
Terrados Muñoz, Jorge	Científic Titular	0.5
Deudero Company, Salut	Aj. U	0.33

EDP del grup investigador de l'entitat sol·licitant: 1.33.

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 *Caulerp*a 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, producion; 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 Ciencia i Tecnología.
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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Oro de Rivas, Daniel	Científic titular	1
Igual Gómez, José Manuel	Tèc.	0.5
Louzao Arsuaga, Maite	B	0.5
Genovart Millet, Meritxell	B	0.5
Martínez Abraín, Alejandro	B	0.5

Investigadors d'altres entitats

Minguez Díaz, Eduardo	Universitat Miguel Hernández
de León Martí, Ana	University of Glasgow
Arcos Pros, José Manuel	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 ultrastructurals 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 diversidd génica de Salinibacter ruber*.
Acrònim: GASA-ANIS.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: ROSSELLÓ MORA, Ramon.
Categoria: Científic titular del CSIC.
Inici: 2003. **Fi**: 2006.

Membres de l'equip	**Categoria**
Rosselló Mora, Ramon	Científic 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) studyof the genome sequence of the type strain, with special emphasis on the ecological and/or evolutively relevant genes, which expression will be studied; (ii) study of the intraespecific 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 phylogeneticaly characterized (in collaboration with the researchers in the second subproject) and their expression studied in different growht 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 intraespecific diversity of the newly characterize genes in the strain collection analysing both their presence/absence and tehir 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 (EDP)	**Categoria**	**Dedicació**
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: 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.

Membres de l'equip	**Categoria**
Traveset Vilaginés, Anna	Investigadora
Santamaría Galdón, Luis E.	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 invasión by other exotic species.

The characteristics of small rodent populations make extremely difficult their complete erradication 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 ecosistems with an análisis of the efficacy and costs of erradication programs. HERBIMPACT will contribute to this objective providing the análisis 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 análisis 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 análisis will be used to generate adaptive management guidelines for the impact of exotic herbivores on the vegetation and to ellaborate 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 biomas (cycle production-grazing-regrowth) and sexual reproduction (seed production, dispersal and seedling predation) of (a) dominant species in the various veegtation 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 quatifying 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 vaious herbivore densities) and laboratory experiments with animals (diet choice0 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 análisis 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 E.
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 polices 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: REN2003-07787-C02-01. Ministeri de Ciència i Tecnologia.
Modalitat: Programa nacional de biodiversidat, ciències de la terra i canvi global.
Título: *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 (EDP)	**Categoria**	**Dedicació**
Álvarez Díaz, Alberto	Investigador científic	1
Tintoré Subirana, Joaquim	Professor d'investigació	0.5
Orfila Förster, Alejandro	Investigador	0.5
Basterretxea Oyarzábal, Gotzon	Investigador	0.5
Antich Tobaruela, Javier	Aj. EU	0.5
Burguera Burguera, Antoni	Aj. EU	0.5
González Cid, Yolanda	TEU	0.5
Guerrero Sastre, José	P. Col.	0.5
Ortiz Rodríguez, Alberto	TEU	0.5
Vidal Rodríguez, Damià	TEU	0.5
Mochnacs, José Luis	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.
Título: *Estructuración, demografía y conservación de la comunidad de aves marinas en el mediterráneo occidental: compración con otras comunidades*.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigadora responsable: GONZÁLEZ FORERO, Manuela.
Categoria: INVESTIGADORA CONTRACTADA.
Inici: 2003. **Fi**: 2006.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
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: REN2002-04165-CO3-O2. 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.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: DUARTE QUESADA, Carlos.
Categoria: Professor d'investigació del CSIC.
Inici: 2000. **Fi**: 2005.

Summary
The main goal of the proposed coordinated project is to quantify, examine, model and validate the complex interactions, invonving direct, indirect and feedback effects, that regulate the planktonic food web in the Southern Ocean with the aim of elucidating the causes underlying the low planktonic biomass and production despite the high nutrient availability there. In particular, the project will evaluate the feedback reactions induced through the role of ammonium, largely released by the large zooplankton swams present in the Southern Ocean, on the resistance to UV stress by the planktonic community,a dn in particular its effects on the nitrogen incorporation rates, both ammonium and nitrate, and the subsequent development of phytoplankton blooms. The project will not only address the problem experimentally but will also consider the complex interactions in the context of the heterogeneous landscape, dominated by small parcels of water, that provides the scenario on which the complex interactions occur. This project will be conducted through two oceanographic cruises, on-board microcosms and mesocosm experiments and modeling exercises.

Referència: CTM2005-05694-C03-01/MAR. Ministeri d'Educació i Ciència.
Modalitat: Programa nacional de ciències i tecnologies mediambientals.
Títol: *Vanimedat (I): caracterización de la variabilidad del nivel del mar.*
Acrònim: VANIMEDAT-I.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: GOMIS BOSCH, Damià.
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2005. **Fi**: 2008.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Gomis Bosch, Damià	TU	1
Monserrat Tomàs, Sebastià	TU	0.5
Marcos Moreno, Marta	Aj.	0.5
Pascual Ascaso, Ananda		

Investigadors d'altres entitats

Ruiz Valero, Simón	Collecte Localisation Satellites
Larnicol, Gilles	Collecte Localisation Satellites

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

Summary
Sea-level variability has a significant environmental and socio-economic impact on coastal regions. Presently, most important risks come from two phenomena: the slow but continuous sea level rise derived from global warming, and eventual modifications in the nature and distribution of extreme events, derived from the expect increased storminess of climate. Further knowledge on both phenomena is required in order to predict their impacts and, if necessary, to set up mitigation strategies.
It is widely accepted that sea level has been rising during the past century at an average global rate of around 1-2 mm/yr, and climate models forecast that this ratio will accelerate during this century. It is also expected that sea level rise will not be uniform over the globe, but will depend on changes in the regional atmospheric forcing and the oceanic circulation. One of the priorities of present research is the quantification of the different processes underlying sea level rise: the ocean mass increase derived from the melting of ice sheets (a global scale phenomena), the volume increment derived from the warming of the oceans, referred to as the steric component, and the meteorological contribution (the two latter processes have a significant regional component). It is also important to determine the extent to which open ocean estimates (given by satellite altimetry or models) are representative of coastal sea level (measured by tide gauges). While this is still uncertain, it has clear practical implications on the extrapolations of open sea results towards the shores. Another topic under debate is whether the trends observed in the occurrence of extreme events is an indirect consequence of sea level rise or, instead, there are other climate processes yielding larger amplitudes extreme events with an increased frequency.
The general objective of this project is to study the decadal and interdecadal sea-level variability, with particular attention to sea level trends and extreme events. All it in

the geographical context of the ocean and seas surrounding the Iberian peninsula. The project will make use of long tide gauge records, improved altimetric data sets and 44 years (1958-2001) of data derived from the HIPOCAS project (a downscaled re-analysis of meteorological and oceanographic fields). Of particular interest are the results of a barotropic sea-level model (HAMSOM) driven by wind and atmospheric pressure. The contribution of temperature and salinity changes in the water column will be assessed from the air-sea heat fluxes provided by the limited-area atmospheric model (REMO) used in HIPOCAS. Finally, the evaporation-precipitation budget of REMO will be useful to close the water budget in the Mediterranean.

The project has several specific objectives. The first one is to determine the spatial and temporal sea-level variability, devoting special attention to the consistency between coastal and open sea observations. To do this, we will take advantage of the complementariness of the data sets: while the altimetry reports the open sea variability with a convenient spatial resolution, tide gauge records mainly correspond to coastal sites and provide the time length requested to study the variability at decadal and interdecadal scales.

The second objective is to quantify the contribution, at a regional level, of the different mechanisms that drive sea-level variability. This will be achieved basing mainly on the results of numerical modelling. Namely, we aim at: i) quantifying the effect of atmospheric pressure and wind forcing on sea level from the analysis of sea-level residuals produced by the model HAMSOM. ii) Quantifying the contribution of the steric component (and the associated circulation patterns) from the results produced by a 3D baroclinic model (POLCOMS) forced by HIPOCAS heat fluxes; the numerical simulations will be compared with previous studies based on the analysis of historical hydrographic data and satellite sea surface temperature.

The third objective will be to estimate the ocean mass increase as the difference between total sea level and the two contributions previously determined. For the Mediterranean Sea, results will be compared with the precipitation-evaporation budget of HIPOCAS, with observations of mass fluxes across the Strait of Gibraltar and with data from the recent gravimetric mission GRACE, with the aim of determining the mass balance in the region.

Finally, the fourth objective will focus on the study of extreme events. Tide-gauge observations and models allow to examine sea-level extremes from a double standpoint: first, by comparing observations and numerical hindcasts, in order to assess the prediction capabilities of the numerical model; second, by investigating trends in the frequency and amplitude of extremes occurrence (which can take place simultaneously to the other trends referred above, in order to assess future coastal risks.

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: TIC2002-04255-C04-03. Ministeri de Ciència i Tecnologia.
Modalitat: Progama nacional de tecnologies de la producció i les comunicacions.
Títol: *Láseres y amplificadores de cavidad vertical para comunicaciones ópticas y procesado óptico de señal.*
Investigador responsable: BALLE MONJO, Salvador.
Categoria: TU (àrea de coneixement: Física de la Matèria Condensada).
Inici: 2002. **Fi**: 2005.

Referència: CTM2004-06842-CO3-02. Ministeri de Ciència i Tecnologia.
Títol: *Remolinos oceánicos y deposición atmosférica: efectos biológicos y biogeoquímicos en aguas superficiales del océano Atlántico Este.*
Investigadora responsable: AGUSTÍ REQUENA, Susana.
Categoria: Científica titular del CSIC.
Inici: 2004. **Fi**: 2007.

Referència: VEM2003-20052. Ministeri de Ciència i Tecnologia.
Modalitat: Acció estratègica vessaments marins accidentals.
Títol: *Las aves marinas como bioindicadoras espacio-temporales de contaminación por el vertido del buque Prestige en el litoral gallego.*
Investigador responsable: ORO DE RIVAS, Daniel.
Categoria: Científic titular del CSIC.
Inici: 2003. **Fi**: 2006.

Referència: VEM2003-20075-C02-01. Ministeri de Ciència i Tecnologia.
Modalitat: Acció estratègica vessaments marins accidentals.
Títol: *Biodegradación anaerobia de residuos de petróleo por bacterias sulfatorreductoras y biodiversidad en la eliminación microbiana de crudo en sedimentos marinos.*
Investigador responsable: ROSSELLÓ MORA, Ramon.
Categoria: Científic titular del CSIC.
Inici: 2003. **Fi**: 2006.

Referència: VEM2003-20577-C14-08. Ministeri de Ciència i Tecnologia.
Modalitat: Acció estratègica vessaments marins accidentals.
Títol: *OPSDAS. Sistema de predicción oceánica con asimilación de datos en tiempo real.*
Investigador responsable: TINTORÉ SUBIRANA, Joaquim.
Categoria: Professor d'investigació del CSIC.
Inici: 2003. **Fi**: 2006.

Referència: CGL2004-04612/BTE. Ministeri de Ciència i Tecnologia.
Títol: *Cronología y causas de las extinciones de vertebrados autóctonos en Canarias y Baleares: un análisis comparativo.*
Investigador responsable: ALCOVER TOMÀS, Josep A.
Categoria: Investigador científic del CSIC.
Inici: 2004. **Fi**: 2007.

Referència: CGL2004-04884-C02-01. Ministeri de Ciència i Tecnologia.
Modalitat: Plan Nacional de I+D.
Títol: *Determinantes de la invasibilidad de los ecosistemas. Papel de los mutualismos planta-animal.*
Investigadora responsable: TRAVESET VILAGINÉS, Anna.
Categoria: Investigadora científica del CSIC.
Inici: 2004. **Fi**: 2007.

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.

Membres de l'equip (EDP)	**Categoria**	**Dedicació**
Rosselló Llompart, Francesc A.	CEU	1
Alberich Martí, Ricard	TEU	1
Casasnovas Casasnovas, Jaume	CEU	1
Llabrés Segura, Mercè	TEU	1
Miró Julià, Josep J. 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.

Referència: PI04-0196. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Neuroquímica, farmacología y genética de la depresión. Regulación molecular y farmacológica de los alfa2A-adrenoceptores y repectores 5-HT2A en plaquetas de pacientes con depresión mayor*.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: GARCÍA SEVILLA, Jesús Andrés.
Categoria: CU (àrea de coneixement: Farmacologia).
Inici: 2004. **Fi**: 2007.

Membres de l'equip	**Categoria**
García Sevilla, Jesús A.	CU
Miralles Socias, Antoni	TU
Esteban Valdés, Susana	TU

Summary
Major depression is associated with up-regulation of alpha2A-adrenoceptors and 5-HT receptors (coupled receptors to trimetic Galpha, beta, gamma proteins) in brain and blood platelets. Activation of these receptors induces receptor phosphorylation by specific G protein-coupled receptor kinases and other proteins (GRKs/beta-arrestins), which results in receptor desensitization and down-regulation. A defect in GRK could be an important mechanism in the regulation and expression of receptors (e.g. decreased receptor prhosphorylation by a specific GRK in depression could induce functional receptor up-regulation). Therefore, abnormalities in GRKs could represent a specific defect contributing to the pathophysiology of major depression. In this project, it is hypothesized that major depression is associated with down-regulation of specific platelet GRKs. The aims are to assess the statusof platelet GRKs (mainly GRK2/3 regulated by Gbeta, gamma-subunits and GRK5/6 insensitive to Gbeta, gamma), associated regulatory proteins (b-arrestins 2/3, phosphatase PP-2A) and target receptors (a2A-adrenoceptors and 5-HT2A receptors) in patients with major depression. Also, to unravel whether the abnormalities in GRKs are related to the severity of major depression, to the densities of alpha2A-adrenoceptors and/or 5-HT2A receptors, and to investigate the effects of antidpressant drugs on GRKs, associated proteins and receptors in platelets. The methods to be used involve quantitative immunoblot analyses of the target proteins with specific antibodies. An important aim is to ascertain whether a defect of a specific platelet GRK is a marker of major depression.

Referència: PI04-1507. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Efectos de citoquinas proinflamatorias sobre células musculares y motoneuronas: implicaciones en la etiopatología de la pérdida de masa muscular en pacientes con EPOC.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: OLMOS BONAFÈ, Gabriel.
Categoria: TU (àrea de coneixement: Biologia Cel·lular).
Inici: 2004. **Fi**: 2007.

Membres de l'equip	**Categoria**
Olmos Bonafè, Gabriel	TU
Lladó Vich, Jerònia	Investigadora
Miralles Morell, Francesc Xavier	
Mir Mas, Margalida	B

Summary
Muscle wasting (cachexia) is a disease associated with several chronic disorders such as chronic obstructive pulmonary disease (COPD). Cachexia is clinically relevant as it negatively influences prognosis and qualitiy of life of patients and increases the utilization of health care resources. Most of the molecular basis of cachexia are currently unknown, thus precluding the development of new therapeutic approaches. Cachexia is associated with increased plasma levels of tumor necrosis factor alpha (TNF-α, cachexine). This cytokine affects myoblasts and myotubes to induce loss of striated muscle tissue homeostasis, characterized by the atrophy/hypoplasia of myotubes. However, the effects of TNF-α on motoneurons are poorly studied. On the other hand, it has been reported that some cytokines have anti-cachexic effects reverting the effects of TNF-α, this suggests that the cytokine anti-cytokine approach might be a new therapeutic tool.
This project involves both basic and clinical research. Basic research is focused on the *in vitro* study of the molecular mechanisms of TNF-α on the viability of miotubes and spinal motoneurons, especially those related to apoptosis induction. The cytokine anti-cytokine approach will be explored using interferon gamma (IFN-γ), a cytokine with clinical applications, to revert the effects of TNF-α. Clinical research will explore in COPD patients the possible impairment of spinal neurons. Electromyography techniques will be performed on these COPD patients to assess the number of motor units as an estimation of the functional spinal motoneurons; results will be related to the body mass index and plasma levels of TNF-α.

Referència: PI04-1829. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Papel de las proteínas surfactantes en las infecciones respiratorias agudas y crónicas por Pseudomonas aeruginosa*.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ALBERTÍ SERRANO, Sebastià.
Categoria: TEU (àrea de coneixement: Microbiologia).
Inici: 2004. **Fi**: 2007.

Membres de l'equip	**Categoria**
Albertí Serrano, Sebastià	TEU
Oliver Palomo, Antonio	
Bosch Zaragoza, Rafael	TEU
Oliver Bernat, Maria Antònia	

Summary
Surfacatant proteins play a critical role in the defence and inflammatory response of the lung. However, the molecular mechanisms that allow to these proteins to achieve these functions are complex and remain partially unknown. To better understand these mechanisms, we propose a systematic and detailed study of the interactions between surfactant proteins, P. Aeruginosa clinical isolates and human alveolar type II epithelial cells. We will use P. Aeruginosa as model due to its prevalence as respiratory pathongen in immunocompromised patients, causing either acute and chronic infections. We will combine immunology, biochemistry, microbiology and cell biology techniches in order to study i) the interactions between this microorganisms (clinical isolates and laboratory type strains) and the surfactant proteins (purfied proteins and from clinical samples), and ii) their biological effects in the opsonization and immunomodulation carried out by human alveolar type II epithelial cells. We believe that an extensive knowledge of the moecular and cell biology bases of these interactions, together with the functional analysis of their relevance as defence mechanisms, immunomodulators, and its plausible role in pathogenesis of actue and chronic respiratory infections caused by P. Aeruginosa should allow scientific community to develope more efficient treatments for the infections caused by this and other related pathogens.

Referència: PI03-0632. 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: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS)-Hospital Universitari Son Dureta.
Investigador de la UIB: Olmos Bonafè, Gabriel.
Categoria: TU (àrea de coneixement: Biologia Cel·lular).
Inici: 2003. **Fi**: 2006.

Membres de l'equip	**Categoria**
Lladó Vich, Jerònia	Investigadora
Olmos Bonafè Gabriel	TU
Asensio Landa, Víctor J.	B

Summary
Amyotrophic lateral sclerosis (ALS) is a neurodegenerative disease in which there is a selective loss of motoneurons in the motor cortex and spinal cord. Several mechanisms have been proposed for the selective degeneration of motoneurons, but no drugs are available to efficiently treat the disease. Recently, the inability of vascular endothelial growth factor (VEGF) to respond to hypoxia has been shown to induce degeneration of motoneurons reminiscent to the one that occurs in ALS. Motoneurons are the cells in the nervous system with the highest metabolic demands. This makes them especially vulnerable to conditions in which there is a limited energetic supply such as hypoxia. Since VEGF mediates vascular permeability, it has a special role in hypoxic conditions. VEGF also has a direct neurotrophic/neuroprotective role on motoneuron survival. In this project, we will determine the role of VEGF on motoneuron survival in neurodegeneration models that mimic the events that are believed to occur in ALS. The experimental model will be the rat spinal cord organotypic culture, which allows for manipulation of the cultures, pharmacologic treatments and the study of VEGF-regulated intracellular pathways in spinal cord motoneurons.

Referència: PI05-0353. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Modulación por cocaina y opiáceos del complejo apoptótico Fas/FADD/caspasas en la corteza prefrontal de adictos humanos*.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: GARCÍA SEVILLA, Jesús A.
Categoria: CU (àrea de coneixement: Farmacologia).
Inici: 2005. **Fi**: 2006.

Membres de l'equip	**Categoria**
García Sevilla, Jesús A.	CU
García Fuster, Maria J.	B
Miralles Socias, Antoni	TU
Esteban Valdés, Susana	TU

Summary
It is postulated that cocaine addiction in humans modulates certain signaling pathways in the brain (Fas-Fadd and Mapk-Erk kinases), which are involved in neurotoxicity/apoptosis and/or plastic changes in neurons, and that these long-term changes induced by cocaine are relevant in the context of its neurotoxicity. The aim of this project (1 year duration) is to investigate in the postmortem human brain the chronic effects of cocaine addiction, in comparison with the chronic effects induced by opiate drugs, on the components of the apoptic pathway activated by the Fas death receptor (coupling protein Fadd, effecor caspases 8 and 3) as well as on the compnents of the Mapk-Erk signaling (Ras, Raf-1, Med1/2, Erk1/2), which are activzted by the involved receptors (dopamine receptors and opioid receptors), in order to establish a comparison between theses two drugs of abuse. Three groups of addicts will be studied: (1) Pure cocaine addicts (death by cocaine overdose; detection of cocaine and metabolites in blood and hair; no detection of opiates in blood and hair; documented clinical history of cocaine addiction). (2) Mixed cocaine/opiate addicts (death by cocaine overdose mainly; detection of cocaine and opiates in blood and hair; documented clinical history of a mixed addiction). (3) Pure opiate addicts (death by heroin or methadone overdose; detection of opiates and metabolites in blood and hair; no detection of cocaine in blood and hair; documented clinical history of opiate addiction). The density of target proteins will be quantitated by immunodetection with specific antibodies.

Referència: PI05-1189. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Estudio de vías funcionales en enfermedades psiquiátricas. Subproyecto Mallorca. Transtornos bipolares.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ROCA BENNÀSAR, Miquel Àngel.
Categoria: TU (àrea de coneixement: Psiquiatria).
Inici: 2005. **Fi**: 2006.

Membres de l'equip	**Categoria**
Roca Bennàsar, Miquel Àngel	TU
Cañellas Dols, Francesca	
Gili Planas, Margalida	TU
Ramon Juanpere, Misericòrdia	TU
Castro Ocón, José Aurelio	TU
Picornell Rigo, Antònia	TEU
Giner Jiménez, Daniel	

Summary
Identifying the genetic variables implicated in the susceptibility to suffer bipolar disorder. Identifiying the genetic variants implicated in the susceptibility to suffer common disorders to some psychiatric pathologies. Recognizing and modelling possible interactions between different genetic variants of susceptibility to suffer psychiatric disorders. Identifiying genetic variants in bipolar patitents good or bad responders for lithiun treatment how more homogeneous phenotype of bipolar disorder.

Referència: PI05-1886. Fons d'Investigació Sanitària. Ministeri de Sanitat i Consum.
Títol: *Tratamiento cognitivo conductual de pacientes con transtorno de somatización abreviado (SSI, 4,6) en atención primaria.*
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigadora responsable: GILI PLANAS, Margalida.
Categoria: TU (àrea de coneixement: Psicologia Social).
Inici: 2005. **Fi**: 2008.

Membres de l'equip	**Categoria**
Gili Planas, Margalida	TU
Roca Bennàsar, Miquel Àngel	TU
Robles González, Rosa M.	
Giner Jiménez, Daniel	
Vicens Caldentey, Catalina	
Bestard Reus, Francesca	
Quintana Torres, Lourdes J.	
Arenas Abad, Arturo J.	
Llull Serrandel, Maria M.	
Mateu Sabater, Catalina	

Summary
To evaluate the effectiveness and feasibility of a treatment programme for patients who are diagnosed of abridged somatization disorder inprimary care and their consequences in different levels: clinical aspects (decrease of symptomatology, improve of quality of life) and economic aspects (decrease of number of visits to specialist doctors and medication consume, decrease of costs). To analyse the efficacy of an intervention programme applied in two ways: individual and group therapy. To compare this study with a study carried out previously in New Jersey, USA by prof. Escobar and his staff.

Referència: PRIB 2004-10152. Conselleria d'Economia, Hisenda i Innovació.
Modalitat: Projectes de Recerca, Desenvolupament Tecnològic i Innovació.
Títol: *Identificación y caracterización de nuevos mecanismos de resistencia bacteriana a los antimicrobianos*.
Centre: Institut Universitari d'Investigacions en Ciències de la Salut (IUNICS).
Investigador responsable: ALBERTI SERRANO, Sebastià.
Categoria: TEU (àrea de coneixement: Microbiologia).
Inici: 2004. **Fi**: 2007.

ACCIONS INTEGRADES

Referència: HI2003-0213.
Acció: Hispanoitaliana.
Títol: *Limitations to CO2 diffusion imposed by stomacal closure in response to soil drying in grapevines: ecophysiological and molecular aspects*.
Investigador responsable: FLEXAS SANS, Jaume.
Departament: Biologia.
Període: 2004-2005.

Referència: HP2003-0049.
Acció: Hispanoportuguesa.
Títol: *Diseño y construcción de sistemas automáticos en flujo versátiles para la determinación de parámetros ambientales. Aplicación a la caracterización de aguas*.
Investigador responsable: CERDÀ MARTÍN, Víctor.
Departament: Química.
Període: 2004-2005.

Referència: HU2003-0030.
Acció: Hispanoaustríaca.
Títol: *Performance engineering for applications with ambient intelligence*.
Investigador responsable: PUIGJANER TREPAT, Ramon.
Departament: Ciències Matemàtiques i Informàtica.
Període: 2004-2005.

Referència: HU2004-0010.
Acció: Hispanoaustríaca.
Títol: *Plasma dynamics and wave phenomena in solar prominences.*
Investigador responsable: OLIVER HERRERO, Ramon.
Departament: Física.
Període: 2005-2006.

Referència: HA2003-0077.
Acció: Hispanoalemanya.
Títol: *Modelling complex systems as dynamical networks with non-linear units*.
Investigador responsable: MARTÍNEZ EGUÍLUZ, Víctor.
Departament: IMEDEA.
Període: 2004-2005.

Referència: HA2003-0146.
Acció: Hispanoalemanya.
Títol: *Dynamical systems approach to ocean transport*.
Investigador responsable: HERNÁNDEZ GARCÍA, Emilio.
Departament: IMEDEA.
Període: 2004-2005.

Acció: Hispanoportuguesa.
Títol: *Estructura clonal de poblaciones de macrófitos marinos.*
Investigador responsable: DUARTE QUESADA, Carlos M.
Departament: IMEDEA.
Període: 2004-2006.

Acció: Hispanoitaliana.
Títol: *Chemical or biologically interacting substances transported by chaotic flows.*
Investigador responsable: LÓPEZ SÁNCHEZ, Cristóbal.
Departament: IMEDEA.
Període: 2005-2006.

Acció: Hispanoeslovena.
Títol: *Comparación de la diversidad microbiana en sedimentos costeros del Adriático Norte y de Baleares mediante técnicas moleculares-establecimiento de redes moleculares para controles ecológicos.*
Investigador responsable: ROSSELLÓ MORA, Ramon.
Departament: IMEDEA.
Període: 2004-2005.

ACCIONS ESPECIALS

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: 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: TIN2004-20295-E.
Títol: *Third International Workshop on Articulated Motion and Deformable Objects (AMDO'2004).*
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: 2005. **Fi**: 2006.

Referència: TEC2004-20415-E.
Títol: *First International Conference on Network Control and Engineering for QoS Security and Mobility (Net Com 2004).*
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: PUIGJANER TREPAT, Ramon.
Categoria: CU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).
Inici: 2004. **Fi**: 2005.

Referència: TIN2005-24057-E.
Títol: *Wosp 2005*.
Centre: Departament de Ciències Matemàtiques i Informàtica. Edifici Anselm Turmeda.
Investigador responsable: PUIGJANER TREPAT, Ramon.
Categoria: CU (àrea de coneixement: Ciències de la Computació i Intel·ligència Artificial).
Inici: 2005. **Fi**: 2006.

Referència: SEJ2004-20080-E.
Títol: *XII Encuentro de Economía Pública*.
Centre: Departament d'Economia Aplicada. Edifici Gaspar M. de Jovellanos.
Investigador responsable: SPADARO, Amedeo.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2005. **Fi**: 2006.

Referència: SEJ2004-21574-E.
Títol: *VI International Workshop on Corporate Governance and Investment*.
Centre: Departament d'Economia de l'Empresa. Edifici Gaspar M. de Jovellanos.
Investigador responsable: CRESPÍ CLADERA, Rafel.
Categoria: CU (àrea de coneixement: Organització d'Empreses).
Inici: 2005. **Fi**: 2006.

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: REN2002-12052-E/CLI.
Títol: *Red ibérica para la investigación y desarrollo de aplicaciones en base al modelo atmosférico MM5 (fase 2).*
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigador responsable: ROMERO MARCH, Romuald.
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2004. **Fi**: 2006.

Referència: FIS2004-23022-E.
Títol: *International workshop on correlations in quantum systems: quantum dots, quantum gases.*
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: 2005. **Fi**: 2006.

Referència: SEJ2004-22002-E.
Títol: *Niños y niñas rechazados en el contexto escolar.*
Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonya.
Investigadora responsable: SUREDA GARCIA, Immaculada.
Categoria: TU (àrea de coneixement: Psicologia Evolutiva i de l'Educació).
Inici: 2005. **Fi**: 2006.

Referència: BSO2002-12318-E.
Títol: *Red temática neurociencia cognitiva y envejecimiento: avances teóricos y aplicaciones.*
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Investigador responsable: BARCELÓ GALINDO, Francesc.
Categoria: TU (àrea de coneixement: Psicobiologia).
Inici: 2004. **Fi**: 2005.

Referència: SEJ2004-21664-E.
Títol: *Red temàtica: avances en la investigación sobre el TDAH.*
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: 2005. **Fi**: 2006.

Referència: OTR2003-0098-B-C02.
Títol: *Plan de acción coordinado de las OTRIS de Baleares.*
Centre: Oficina de Suport a la Recerca.
Investigadora responsable: TURNES PALOMINO, Gemma.
Categoria: TU (àrea de coneixement: Química Inorgànica).
Inici: 2004. **Fi**: 2006.

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: 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: BFM2002-12792-E.
Títol: *Leyes de escala y topología de redes funcionales cerebrales*.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: MARTÍNEZ EGUÍLUZ, Víctor.
Categoria: INVESTIGADOR CONTRACTAT.
Inici: 2004. **Fi**: 2005.

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: REN2002-11018-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: Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.
Títol: *Aplicació d'una tècnica de genotipació de l'estrés porcí al porc negre mallorquí selecte*.
Centre: Departament de Biologia.
Investigador responsable: CASTRO OCÓN, José Aurelio.
Categoria: TU (àrea de coneixement: Genètica).
Inici: 2004. **Fi**: 2005.

Referència: Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.
Títol: *Projecte d'aplicació de recerca realitzada i consolidació de xarxa.*
Centre: Departament de Física.
Investigador responsable: MARTÍNEZ MOLL, Víctor.
Categoria: TEU (àrea de coneixement: Enginyeria Mecànica).
Inici: 2004. **Fi**: 2005.

Referència: Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.
Títol: *ESPA.*
Centre: Departament de Química.
Investigador responsable: MUÑOZ IZQUIERDO, Francisco.
Categoria: CU (àrea de coneixement: Química Física).
Inici: 2004. **Fi**: 2005.

Referència: Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.
Títol: *Constitució d'un grup interdisciplinari per fer investigació de cèl·lules solars.*
Centre: Departament de Química.
Investigador responsable: FRONTERA BECCARÍA, Antoni.
Categoria: Investigador contractat.
Inici: 2004. **Fi**: 2005.

Referència: Ajudes especials de recerca, desenvolupament tecnològic i innovació del Govern Balear.
Títol: *Adquisición de un micro CTD y un navegador inercial.*
Investigador responsable: ÁLVAREZ DÍAZ, Alberto.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Inici: 2004. **Fi**: 2005.

Referència: Accions especials del Govern Balear.
Títol: *IV Congreso Internacional de AUDEM: Los Feminismos como Herramientas de Cambio Social.*
Investigadora responsable: BOSCH FIOL, Esperança.
Centre: Departament de Psicologia.
Categoria: TU (àrea de coneixement: Psicologia Bàsica).
Inici: 2005. **Fi**: 2005.

Referència: Accions especials del Govern Balear.
Títol: *Desarrollo farmacológico y transferencia industrial del ácido 2-hidroxioleico.*
Investigador responsable: ESCRIBÁ RUIZ, Pablo Vicente.
Centre: Departament de Biologia.
Categoria: TU (àrea de coneixement: Biologia Cel·lular).
Inici: 2005. **Fi**: 2006.

Referència: Accions especials del Govern Balear.
Títol: *Valoración económica de los valores de no-uso: aspectos metodológicos y empíricos.*
Investigador responsable: RIERA FONT, Antoni.
Centre: Departament d'Economia Aplicada.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2005. **Fi**: 2006.

Referència: Accions especials del Govern Balear.
Títol: *Manteniment de la xarxa de recerca sobre modelització de dades turístiques d'alta freqüència.*
Investigador responsable: SANSÓ ROSSELLÓ, Andreu.
Centre: Departament d'Economia Aplicada.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2005. **Fi**: 2006.

Referència: Accions especials del Govern Balear.
Títol: *Workshop: The Future of Copyright in the Digital Age.*
Investigador responsable: CAVANILLAS MÚGICA, Santiago José.
Centre: Departament de Dret Privat.
Categoria: CU (àrea de coneixement: Dret Civil).
Inici: 2005. **Fi**: 2005.

Referència: Accions especials del Govern Balear.
Títol: *Estudi de la reactivitat química i enzimàtica de la vitamina B6 i de les seves aplicacions biològiques (VITB6).*
Investigador responsable: VILANOVA CANET, Bartomeu.
Centre: Departament de Química.
Categoria: TU (àrea de coneixement: Química Física).
Inici: 2005. **Fi**: 2006.

Referència: Accions especials del Govern Balear.
Títol: *La rellevància de l'educació científica*.
Investigador responsable: VÁZQUEZ ALONSO, Ángel.
Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació.
Categoria: As. (àrea de coneixement: Didàctica i Organització Escolar).
Inici: 2005. **Fi**: 2006.

Referència: Accions especials del Govern Balear.
Títol: *Red temática de procesos alimentarios*.
Investigadora responsable: ROSSELLÓ MATAS, Carme.
Centre: Departament de Química.
Categoria: TU (àrea de coneixement: Enginyeria Química).
Inici: 2005. **Fi**: 2006.

Referència: Accions especials del Govern Balear.
Títol: *Jornades sobre Oceà i Clima*.
Investigador responsable: GOMIS BOSCH, Damià.
Centre: IMEDEA.
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2005. **Fi**: 2005.

Referència: Accions especials del Govern Balear.
Títol: *Técnicas moleculares para la cuantificación de la biodiversidad total de eucariotas que integran los ecosistemas marinos*.
Investigador responsable: TERRADOS MUÑOZ, Jorge.
Centre: IMEDEA.
Inici: 2005. **Fi**: 2006.

Referència: Accions especials del Govern Balear.
Títol: *Suport al projecte de localització dels orígens de la cultura material en el Miocè Superior africà*.
Investigador responsable: CELA CONDE, Camilo José.
Centre: Departament de Filosofia i Treball Social.
Categoria: CU (àrea de coneixement: Filosofia Moral).
Inici: 2005. **Fi**: 2006.

Referència: Accions especials del Govern Balear.
Títol: *Estudi de la reactivitat química i enzimàtica de la vitamina B6 i de les seves aplicacions biològiques*.
Investigador responsable: VILANOVA CANET, Bartomeu.
Centre: Departament de Química.
Categoria: TU (àrea de coneixement: Química Física).
Inici: 2005. **Fi**: 2006.

Títol: *Red Temática CLIVAR: Climate Variability.*
Investigador responsable: TINTORÉ SUBIRANA, Joaquim.
Categoria: Professor d'investigació del CSIC.
Inici: 2004. **Fi**: 2006.

Referència: REN2002-12284-E.
Títol*: Flujo de carbono en la región canaria: modificaciones campaña COCA-II.*
Investigadora responsable: AGUSTÍ REQUENA, Susana.
Categoria: Científica titular del CSIC.
Inici: 2004. **Fi**: 2005.

Referència: REN2002-12659-E.
Títol: *Estudio piloto de marcado individual de Merluza (Merluccius Merluccius) en el mar balear.*
Investigadora responsable: MORALES NIN, Beatriz.
Categoria: Científica titular del CSIC.
Inici: 2004. **Fi**: 2006.

ACCIONS COMPLEMENTÀRIES

Referència: AGL2004-22480-E.
Títol: *Native perennial forage plants for sustainability of farming systems in the western mediterranean*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: CIFRE LLOMPART, Josep.
Categoria: P. col. (àrea de coneixement: Producció Vegetal).
Inici: 2005. **Fi**: 2008.

Referència: SAF2004-22971-E.
Títol: *Reunión para la preparación de un proyecto para el VI Programa Marco 'Terapia Lipídica'*.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Investigador responsable: ESCRIBÁ RUIZ, Pablo Vicente.
Categoria: TU (àrea de coneixement: Biologia Cel·lular).
Inici: 2005. **Fi**: 2006.

Referència: TIN2004-20295-E.
Títol: *Third International Workshop on Articulated Motion and Deformable Objects (AMDO'2004)*.
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: 2004. **Fi**: 2005.

Referència: SEJ2004-22042-E.
Títol: *L'influence des sources sur l'unite et la fragmentation du droit international*.
Centre: Departament de Dret Públic. Edifici Anselm Turmeda.
Investigadora responsable: HUESA VINAIXA, M. Rosario.
Categoria: CU (àrea de coneixement: Dret Internacional Públic i R. Internacionals).
Inici: 2005. **Fi**: 2006.

Referència: SEJ2004-20080-E.
Títol: *XII Encuentro de Economía Pública*.
Centre: Departament d'Economia Aplicada. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: SPADARO, Amedeo.
Categoria: TU (àrea de coneixement: Economia Aplicada).
Inici: 2005. **Fi**: 2006.

Referència: FIS2004-23022-E.
Títol: *VI International Workshop on Corporate Governance and Investment*.
Centre: Departament d'Economia de l'Empresa. Edifici Gaspar Melchor de Jovellanos.
Investigador responsable: CRESPÍ CLADERA, Rafel.
Categoria: CU (àrea de coneixement: Organització d'Empreses).
Inici: 2005. **Fi**: 2006.

Referència: FIS2004-23022-E.
Títol: *International Workshop on Correlations in Quantum Systems: Quantum Dots. Quantum Gas*.
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: 2005. **Fi**: 2006.

Referència: SEJ2004-22002-E.
Títol: *Niños y niñas rechazados en el contexto escolar*.
Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació. Edifici Guillem Cifre de Colonya.
Investigadora responsable: SUREDA GARCIA, Immaculada.
Categoria: TU (àrea de coneixement: Psicologia Evolutiva i de l'Educació).
Inici: 2005. **Fi**: 2006.

Referència: SEJ2004-22002-E.
Títol: *Red temàtica: avances en la investigación sobre el TDAH*.
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: 2005. **Fi**: 2006.

Referència: CTM2004-21423-E.
Títol: *XXI Jornadas Científicas del Mediterráneo: El Papel de los Océanos en el Clima*.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: GOMIS BOSCH, Damià.
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2005. **Fi**: 2006.

Referència: CGL2004-20995-E.
Títol: *Preparación de la contribución española al proyecto Ianzone*.
Centre: Institut Mediterrani d'Estudis Avançats (IMEDEA).
Investigador responsable: GOMIS BOSCH, Damià.
Categoria: TU (àrea de coneixement: Física de la Terra).
Inici: 2005. **Fi**: 2006.

ALTRES ACCIONS

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 Casasnovas.
Investigador responsable: MEDRANO GIL, Hipólito.
Categoria: CU (àrea de coneixement: Fisiologia Vegetal).
Inici: 2003. **Fi**: 2009.

Referència: Acció COST P10.
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**: 2007.

Referència: RII3-CT-2003-506222.
Modalitat: Structuring the European Research Area Specific Programme.
Títol: *Integrated large infrastructures for astroparticle science (ILIAS)*.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Investigadora responsable: SINTES OLIVES, Alícia Magdalena.
Categoria: TEU (àrea de coneixement: Física Teòrica).
Inici: 2004. **Fi**: 2009.

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: Projecte AECI.
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. Veneçuela.

Referència: Projecte AECI. Agència Espanyola de Cooperació Internacional.
Modalitat: Ajuts per a projectes conjunts d'investigació i accions complementàries en el marc del programa de cooperació interuniversitària entre Espanya i Tunísia.
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 Casasnovas.
Investigadora responsable: BARCELÓ MAIRATA, Francesca M.
Categoria: TU (àrea de coneixement: Bioquímica i Biologia Molecular).
Organisme: Deutches Electronen-Synchroton.
Inici: 2002. **Fi**: 2005.

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.

Projecte: National Science Foundation-USA.
Títol: *Network Topolgy and the Dynamics of Complex NEtworks.*
Investigador responsable: MARTÍNEZ EGUÍLUZ, Víctor.
Centre: IMEDEA.
Categoria: INVESTIGADOR CONTRACTAT.
Inici: 2004. **Fi**: 2005.

Referència: SSP/STREP/01/0181.
Títol: *Risk analysis for Phytophthora ramorum, a recently recognised pathogen threat to Europe and the cause of Sudden Oak Death in the USA.*
Acrònim: RAPRA.
Investigador responsable: DESCALS CALLISEN, Enrique.
Centre: IMEDEA.
Inici: 2004. **Fi**: 2007.

Projecte: Projecte Intramural núm. 200430E014.
Títol: *Desarrollo de nuevas técnicas de detección temprana de estrés de angiospermas marinas: actividad meristemática.*
Investigador responsable: DUARTE QUESADA, Carlos M.
Centre: IMEDEA.
Inici: 2004. **Fi**: 2006.

Projecte: 024A/2002. Investigació Parcs Nacionals.
Títol: *Investigaciones aplicadas a la conservación de una especie en peligro de extinción: la pardela balear en el Parque Nacional de Cabrera.*
Investigador responsable: ORO DE RIVAS, Daniel.
Centre: IMEDEA.
Inici: 2003. **Fi**: 2005.

Projecte: Projectes d'I+D. Ministeri de Salut del Canadà.
Títol: *International double blind study for the identification of Pseudomonas species.*
Investigador responsable: LALUCAT JO, Jordi.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Inici: 2003. **Fi**: 2006.

Projecte: FAO.
Títol: *A Pilot Study on Operational Units for Coryphaena hippurus fishery.*
Investigadora responsable: MORALES NIN, Beatriz.
Centre: IMEDEA.
Categoria: Científica titular del CSIC.
Inici: 2004. **Fi**: 2005.

Projecte: PTR1995-0810-OP. Projecte PETRI.
Títol: *Aplicación de nuevas metodologías de análisis de imagen en el desarrollo de un programa comercial de la plataforma IPP para el estudio de otolitos: age and shape.*
Investigadora responsable: MORALES NIN, Beatriz.
Centre: IMEDEA.
Categoria: Científica titular del CSIC.
Inici: 2004. **Fi**: 2006.

Projecte: Subvenció Govern Balear.
Títol: *Preparación del proyecto europeo integrado 'Thresholds'.*
Investigador responsable: DUARTE QUESADA, Carlos M.
Centre: IMEDEA.
Inici: 2003. **Fi**: 2005.

Projecte: 2272a. Small Ecological Project Grants. British Ecological Society.
Títol: *Conservation of plant animal mutualisms in islands. Understanding the ecology of endemic lizards (Podarcis lilfordi) as a tool to conserve an endangered plant endemism (Daphne rodriguezii).*
Investigador responsable: SANTAMARÍA GALDÓN, Luis Enrique.
Centre: IMEDEA.
Inici: 2004. **Fi**: 2005.

Projecte: Fundación Biodiversidad.
Títol: *Herbario virtual del mediterráneo occidental.*
Investigador responsable: RITA LARRUCEA, Joan.
Centre: Departament de Biologia. Edifici Guillem Colom Casasnovas.
Inici: 2005. **Fi**: 2006.

Projecte: CBP.EAP.CLG 982075. Projecte NATO.
Títol: Advanced analysis techniques tools for optimization of micro/nano electromagnetics systems (MEMS/NEMS).
Investigador responsable: GARCIA MORENO, Eugeni.
Centre: Departament de Física. Edifici Mateu Orfila i Rotger.
Categoria: CU (àrea de coneixement: Tecnologia Electrònica).
Inici: 2005. **Fi**: 2006.

Títol: *Eivissa-CREA.*
Investigadora responsable: FERRER PÉREZ, Victòria.
Centre: Departament de Psicologia. Edifici Guillem Cifre de Colonya.
Categoria: TU (àrea de coneixement: Psicologia Social).
Inici: 2005. **Fi**: 2007.

Títol: *Equilibrio*.
Investigador responsable: SALINAS IBÁÑEZ, Jesús M.
Centre: Departament de Pedagogia Aplicada i Psicologia de l'Educació.
Categoria: TU (àrea de coneixement: Didàctica i Organització Escolar).
Inici: 2005. **Fi**: 2007.

ÍNDEX D'ABREVIACIONS

Aj.: Ajudant/a
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
Contr. dr.: Contractat doctor
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