A new family of multidimensional lanthanide-derived systems using dppeO₂ as a ligand yields in systems displaying luminescence and field-induced slow relaxation of the magnetization, a new path to achieve multifunctionality. A work developed with the support of IN2UB (Project ART_2021_3). Kindly provided by Dr. Arnald Grabulosa and Dr. Júlia Mayans.
Dear colleagues and friends,

It is a pleasure to present the Activity Report of IN²UB, reflecting on the contribution of our organization to enhance the scientific and educational excellence of the University of Barcelona, as well as its commitment to our society, during the year 2022.

The year revised has been especial because it has witnessed the renewal of the Steering Committee following an election incorporating the regulations recently approved by the UB Council. I use this opportunity to thank the members that have ended their term after several years of dedication, and welcome the new members, who with their talent and renewed motivation are already contributing to shape the IN²UB of the future. I also thank the new Committee for confirming their trust in my person to lead the Institute for a second term. I hope that this new period will serve to increase the positive impact of the organization in both directions; towards improving the status of its members and towards the exterior.

The year 2022 has witnessed again a net improvement of the IN²UB regarding the most relevant indicators of inputs and outputs. Being one of the largest Institutes of UB, IN²UB is among these that has experienced the biggest improvements in relative terms and the most growing in absolute terms with regard to production and attraction of funds. This is despite the fact that the organization has not enjoyed yet the label of excellence by the AEI and its associated grant, Maria de Maeztu, which continues to be a major goal.

With independence that the above long sought recognition has not yet arrived, the activities and data listed in this report are a satisfying demonstration of the dedication and passion of the IN²UB community for top science, for commitment to teaching and training and for a very active engagement with outreach to the general public.

I hope you enjoy scanning through this display of healthy dedication to serve UB and the society who sustains us.
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1. About in2ub Activity Report 2022
1. About in$^2$UB

1.1. PRESENTATION

The Institute of Nanoscience and Nanotechnology of the University of Barcelona (IN$^2$UB) was created in 2006. Its main goal is to coordinate and enhance multidisciplinary research among research groups from the Faculties of Chemistry, Physics, Pharmacy and Food Sciences, Biology, Earth Sciences and Medicine and Health Sciences that work on the different phenomena occurring at the nanoscale. This collaborative spirit aims at integrating both, internally and internationally, interdisciplinary activities which integrate equally, basic and applied research.

The IN$^2$UB wants to contribute to the progress of science, while spurring, at the same time, industrial excellence. In this sense, several spin-off companies are now led by IN2UB researchers. Finally, all members of the IN2UB are strongly involved in teaching endeavours, the most important programs being the Master of Nanoscience and Nanotechnology and the Doctoral Program of Nanoscience. Research and Education serve us to convey our strong commitment with society.

IN$^2$UB gathers around 200 researchers (including permanent, postdoctoral researchers and Predoctoral Researchers). They are organized in research groups distributed among seven major research areas:

1. Modeling, Simulation and Nanoscopic Methods (NanoMet)
2. Nanobioscience, Nanobiomechanics and BioNanotechnology (NanoBio)
3. Nanopharmaceutics and Nanomedicine (NanoPharmaMed)
4. Nanomagnetism and Spintronics (NanoMagnetics)
5. Nanoelectronics, Nano-optics and Nanophotonics (NanoPhotoElectro)
6. Nanostructured materials (NanosMat)
7. Nanoenergy: Production and Storage (NanoEnergy)

1.2. ORGANIZATION

The Institute is led by the Steering Committee, the Secretary and the Director. Each of the seven research areas has a coordinator. In addition, the Institute receive the advises from internal and external scientific boards.

The Institute currently has 235 researchers.

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*GL: Group Leader, leading an independent research group at the unit
**SR: Senior researcher, Investigator leading one or several projects in a research group, but not being GL
1.2.1. Researchers

Steering Committee

Director: Dr. Guillem Aromí Bedmar
Deputy Director: Dr. Albert Romano Rodríguez

Permanent Collective:
- Dr. Xavier Batlle Gelabert
- Dr. Enric Bertran Serra
- Dr. Martí Duocastella Solà
- Dr. Sònia Estradé Albiol
- Dr. Arantxa Fraile Rodríguez
- Dr. Giancarlo Franzese
- Dr. Martí Duocastella Solà
- Dr. Francesca Peiró Martínez
- Dr. Eva Carolina Sañudo Zotes

Postdoctoral Collective:
- Dr. Pedro Güixens Gallardo

International Scientific Advisory Board
- Dr. Ivan Schuller | UC San Diego (President)
- Dr. Kenneth Dawson | UC Dublin
- Dr. Katja Schenke-Layland | Eberhard Karls University Tübingen
- Dr. María Jesús Vicent | Centro de Investigación Príncipe Felipe

Research Areas Coordinators
1. NanoMet: Dr. Francesca Peiró Martínez
3. NanoPharmaMed: Dr. M José García Celma
4. NanoMagnetics: Dr. Xavier Batlle Gelabert
5. NanoPhotoElectro: Dr. Martí Duocastella Solà
6. NanoMat: Dr. Enric Bertran Serra
7. NanoEnergy: Dr. Narcís Homs Martí

Internal Scientific Board
- Dr. M. Pilar Vinardell Martínez Hidalgo (President)
- Dr. Ramon Farré Ventura
- Dr. Amilcar Labarta Rodríguez
- Dr. Francesc Sagués Mestre

Outreach Commission
Dr. Jordi Díaz Marcos; Dr. Xavier Batlle Gelabert; Dr. Giancarlo Franzese; Dr. M. Aranzazu Fraile Rodríguez; Dr. Blas Garrido Fernández; Dr. Oscar Iglesias Clotas; Dra. Francesca Peiró Martínez; Dr. Laura Rodríguez Raurell; Dr. M. Antònía Busquets Viñas; Dr. Giancarlo Franzese; Dr. Elena Sánchez López; Dr. Sonia Trigueros; Mariona Escoda Torroella, Elena Lopez Aymerich

Contact: in2ub-divulga@ub.edu

Executive Equal Opportunities Committee:
Dr. María Aranzazu Fraile (Coordinator), Dr. Marta Estrader, Dr. Carolina Sañudo, Dr. Ferran Macià, Dr. Sònia Estradé, Dr. Antònía Busquets.
Contact: in2ub.igualtat@ub.edu

Research Management and Promotion
Dr. Ifigènia Saborit Villarroya
1.3. RESEARCH OUTPUTS, FUNDING SOURCES AND TRANSFER INDICATORS

1.3.1. Scientific Production

In2UB is a multidisciplinary research unit, mainly harvesting research in the field of Physics, Chemistry, Material Science, Pharmacology and Biology. Specifically, the following major subject areas represent In2UB scientific production: Chemistry, Physics and Astronomy and Material Science, Biochemistry, Genetics and Molecular Biology, Engineering, Medicine and Chemical Engineering and Pharmacology, Toxicology and Pharmaceutics. The rest of In2UB publications, are integrated in other related subject areas such as Medicine, Computer Science, Energy Environmental Science or Earth and Planetary Sciences. The analysis of these areas during 2022 period, represented 232 papers published in indexed journals in Scopus, with 76.29% of this production at first quartile.

1.3.2. High Index Publications

- Electrodeposition of nanostructured Bi2MoO6@Bi2MoO6—x homojunction films for the enhanced visible–light–driven photocatalytic degradation of antibiotics. Gómez E., Cestaro R., Philippe L., Serrà A. Applied Catalysis B: Environmental, 317, 121703, 2022
1.3.3. Funding Sources  
During 2022 the researchers from IN²UB have been awarded with 6M€ to be distributed in the forthcoming years. The graphic and pie below, show the amount allocated from competitive calls from public organizations achieved by our researchers, provided by GREC UB.

1.3.4. Highlighted Projects  
Form all these projects here we highlight the most relevant ones:

- Oriol Arteaga Barriel amb el projecte “Mueller matrix microscope” amb referència PDC2022–133625–100 finançat pel MCIN/AEI /10.13039/501100011033 i per la Unió Europea Next GenerationEU/ PRTR
- Oscar Castaño Linares amb el projecte “Plataforma de pruebas universal de un vaso sanguíneo cerebral para aplicaciones médicas” amb referència PDC2022–133918–C22 finançat pel MCIN/AEI /10.13039/501100011033 i per la Unió Europea Next GenerationEU/ PRTR
- Estela Martín Badosa amb el projecte “Microscopía de superresolución paralela por ‘agotamiento’” amb referència PDC2022–133351–I00 finançat pel MCIN/AEI /10.13039/501100011033 i per la Unió Europea Next GenerationEU/ PRTR
- Guillem Aromí Bedmar amb el projecte “Química de Coordinación para la Extracción y Separación de Tierras Raras” amb referència PDC2022–133814–I00 finançat pel MCIN/AEI /10.13039/501100011033 i per la Unió Europea Next GenerationEU/ PRTR
- Guillem Domènech-Gil, a former PhD student of UB and who is currently a postdoctoral fellow at Linköping Universitet (Sweden), has been awarded with a Marie Curie Postdoctoral fellowship 20220call, entitled “Volcan Activity monitoring by light cycled dynamic operation of metal oxide gas sensors” (VolcanAI), under the supervision of Albert Romano-Rodriguez.

1.3.5. Transfer Indicators  
A relevant indicator is the number of spin-off companies emerged from IN²UB. The Institute has 7 spin-offs currently active, one of which has been created this year.
• **Nimble Diagnostics**, a newly created (2022) UB, IGTP and UPC spin–off, founded to monitor stent using microwave technology, being Dr. Javier Te-jada Palacios a co-founder of this newly created spin–off. [read more]

• **Impetux Optics, S.L.**, created in 2012 lead by Dr. Mario Montes Usategui. Impetux Optics focuses its activity on Design, Manufacturing and Marketing of optical force measurement systems for Optical Tweezers. The company makes available a patented technology that overcomes existing limitations, providing clear advantages when measuring optical forces. The systems developed, allow force measurements in experiments where trap stiffness calibration is difficult or impossible.

• **Advanced Nanotechnologies, S.L.**, created in 2012 by Dr. Enric Bertran Serra, Dr. Esther Pascual Miralles and Dr. José Luis Andújar Bella. Advanced Nanotechnologies S.L. is devoted to materials and surface applications addressed to general consumers and to the business market. It supports R&D projects by developing specific processes and equipment for each application. The company offers innovative solutions based on nanotechnology adapted to specific developments of the customers, related to the manufacturing of nanostructured materials. It offers also consultancy services.

• **Smalle Technologies, S.L.** (by Dr. Christophe Serre and Dr. Alejandro Pérez Rodríguez), created in 2012. Smalle Technologies is a company that develops new methods for maximizing the benefits from renewable and sustainable energy sources in order to address energy supply shortages of off–grid devices. Smalle Technologies develops generators that transform the energy contained in the waves into electricity to supply power to off–shore devices.

• **EndoASIC, S.L.** (2013) (Dr. Angel Dieguez Barrientos, Dr. Oscar Alonso Casanovas and Dr. Ana Vilà Arbonés, members of the entrepreneurial group). This company develops, using micro and nano–technologies, autonomous minimally invasive systems for the substitution of gastrointestinal endoscopic systems.

• **Enlighting Technologies**, created in 2016 by Dr. Blas Garrido Fernández and Dr. Sergi Hernández Márquez. It aims at achieving a more comfortable and adaptable light to each need and situation. They have developed the FLEXILIGHT–UB technology, which is able to reproduce any spectrum of light accurately and imitate any kind of light.

• **ColorSensing, S.L.**, created in 2018 by Dr. Juan Daniel Prades García, devoted to smart packaging for food processing efficiency, quality, and safety.

During this period, IN²UB has applied for 11 patents.

### 1.3.6. Scientific Highlighted News

• Start of the future Quantum Internet research program in Catalonia with Next Generation funds, with the participation of Dr. Guillem Aromí [read more]

• INFUB researchers, have been awarded with Prova de Concepte (PdC) de la convocatòria Fons per a l’Impuls de la Innovació (F2i) 2021. Dr. Anna Vilà (Faculty of Physics) leading the development of a chip size digital microscope and Dr. Elena Sánchez (Faculty Pharmacy and Food Sciences) leader of a project based on the implementation of a gel with nanoparticles that improves the infection of endodontics. [read more]

• ColorSensing, spin–off of the UB created by Dr. Daniel Prades (Researcher at the IN²UB and the Faculty of Physics), wins the “Sustainability Awards 2022” and the Senén Vilaró Prize to the top innovative company [Sustainability Awards 2022] / [Senén Vilaró Prize]

• UB reaches agreement with Italian company to develop super–resolution microscope. This technology has been developed by the Biophotonics from the IN²UB and the Faculty of Physics [read more]

• Dr. Marta Estrader Bofarull, Ramon y Cajal Researcher, has been awarded with a Beca Leonardo to develop the project “Activación ‘low cost’ de la transición de espín mediante nanofuentes de calor” on Chemistry. [read more]
Thirteen IN²UB researchers among the 2% of the world's most influential scientists according to the Stanford ranking. [read more]

29 Female IN²UB researchers in the ranking of leading female scientists of Spain [read more]

Expert Giancarlo Franzese (Faculty of Physics) takes part in an International Network Initiative on Safe and Sustainable Nanotechnologies [read more]

Researchers Anna Vilà and Ángel Diéguez (Faculty of Physics), are leading a project to develop a high-resolution digital microscope as small as a chip. [read more]

Dr. Stefanos Chaitoglou, post-doctoral researcher at ENPHOMACAT group has been awarded a MSCA individual fellowship from the European Research Executive Agency, to implement his project CARBODOH2.

Expert Oriol Arteaga, from ENPHOCAMAT group, takes part in the international Chiral Materials Team awarded by the UK Royal Society of Chemistry [read more]

Dr. Albert Cirera (Faculty of Physics and IN²UB) in collaboration with the initiative FabCat for the promotion of Catalonia as one of the locations of one of the semiconductor factories to be built in the European Union [read more].

ICREA Academia 2022 – The ICREA Academia programme awards Prof. Francesca Peiró and Prof. Martí Duocastella, researchers at the Faculty of Physics and IN²UB. [read more]
2. Research at in$^2$ub

2.1. RESEARCH LINES

2.1.1. Modeling, Simulation and Nanoscopic Methods (Nanomet)
Coordination: Dr. Francesca Peiró Martínez
This research area develops instrumentation and methodology (employing experimental and theoretical tools) to characterize nanostructures and nanosystems of any nature.
A. Nanobiointeractions: Interactions between biological and nanoscopic systems
B. Confinement-related phenomena: reactivity, magnetism, optoelectronics and quantum photonics
C. Transport and conduction
D. Surface effects
E. Electronic structure and excitations
F. Bose–Einstein condensates and quantum confined gases
G. Advanced Electronic Microscopy (EFM, TEM, STM, EELS, EDS)
H. Instrumentation and Methodology Development in Electron Microscopy

2.1.2. Nanobioscience, Nanobiomechanics and BioNanotechnology (NanoBio)
Coordination: Dr. Núria Gavara Casas
This research area studies the organizational patterns observable in the molecular structures that control and rule the biological systems both at the cellular and at the molecular scales. Its most relevant application is that of developing techniques and devices aimed at prevention and diagnose in nanomedicine.
A. Functionalisation of surfaces
B. Cellular and molecular biomechanics
C. Biomimetic structures and systems
D. Nanofluidics and nanorobotics. Nanomotors
E. Diagnosis in nanomedicine: marking and molecular observation
F. Nanobiosensors; DNA and Protein Chips; lab on chip

2.1.3. Nanopharmaceutics and Nanomedicine (NanoPharmaMed)
Coordination: Dr. M. José García Celma
This area aims at developing nanostructured systems for controlled drug release and to the improvement of drug therapeutic efficiency when administered on targets to treat diseases.
A. Nanostructured systems for controlled drug release. Nanocapsules
B. Nanostructured systems interaction with biological structures
C. Bioavailability, toxicity and therapeutic efficiency of nanostructured systems
D. Non-viral vectors. Gene therapy. Pharmacogenomics and nutrigenomics
E. Molecular internalization, molecular marking and detoxification
2.1.4. Nanomagnetism and Spintronics (NanoMagnetics)

Coordination: Dr. Xavier Batlle Gelabert

The area aims at developing new systems for storage and processing of information at the nanoscopic scale for information processing. It is also devoted to the study of new phenomena appearing at the nanometric size for the implementation of innovative devices of application in healthcare, sustainable energy, environment, healthy food and security.

It is also involved with the preparation and study of multifunctional molecular nanomagnets for spintronics and quantum computing.

A. Magnetic nanoparticles and single molecule magnets
B. Dynamic processes in nanomagnetism and interaction with microwaves
C. Magnetic electronics
D. Spin-based molecular quantum bits and quantum gates for quantum computing

2.1.5. Nanoelectronics, Nano-optics and Nanophotonics (NanoPhotoElectro)

Coordination: Dr. Martí Duocastella Solà

Study and exploitation at the nanoscale of the interaction of electric, magnetic and optical properties for the design of functional nanosystems.

A. NEMS (Nanoelectromechanical Systems)
B. Nanodevices, nanosensors and electronic nanosystems, optoelectronics and photonics. Photonic crystals

2.1.6. Nanostructured materials (NanosMat)

Coordination: Dr. Enric Bertran Serra

This research area aims at developing new nanostructured materials or improving the properties of existing materials. This line also includes knowledge-frontier research in characterization techniques and manipulation tools at the nanoscale (as electron and probe microscopies, surface analysis, or spectroscopic and magnetic characterization).

A. Synthesis, nanomanufacturing and nanomanipulation
B. Thin layers, nanostructured multilayers and coatings
C. Nanoparticles, gels, nanofibers, nanorods, nanothreads and nanotubes
D. Nanostructured metallic oxides
E. Mesoporous materials and nanopatterns

2.1.7. Nanoenergy: Production and Storage (NanoEnergy)

Coordination: Dr. Narcís Homs Martí

The aim of this research line is the application of nanomaterials to energy production and storage to overcome efficiency and lifetime limits.

A. Catalytic nanostructures for energy production. Fuel cells
B. Nanomaterials for solar cells and photocatalytic processes
C. Nanostructured systems for energy storage
2.2. GROUPS AT RESEARCH LINES

In the following section, you will find all research groups distributed along the 7 research lines according to the research developed. However, due to the transversality of the research performed, some groups can be found in more than one main line.

2.2.1. Bioelectrical Characterization at Nanoscale (NanoBio)

Department Electronics and Biomedical Engineering, Faculty Physics

Team

Gabriel Gomila Lluch (Full Professor)
Annalisa Caló (Tenure-Track Lecturer)

Selected Papers


2.2.2. Biomolecule and small–systems physics (NanoBio)

Department Condensed Matter Physics, Faculty Physics

Team

Fèlix Ritort Farran (Full Professor)
Maria Mañosas Castejon (Postdoctoral Researcher Ramon y Cajal)

Selected Papers

- Temperature–dependent elastic properties of DNA. Rico–Pasto M., Ritort F. Biophysical Reports, 2, 3, 100067, 2022
- Measurement of the specific and non–specific binding energies of Mg2+ to RNA. Martinez–Monge A., Pastor I., Bustamante C., Manosas M., Ritort F. Biophysical Journal, 121, 16, 3010, 2022

Selected Projects

- Experimental measurement of entropy and information in single molecules and cells (PID2019–111148GB–I00)
  IP: Félix Ritort/María Mañosas Ministerio de Ciencia e Innovación. (2020–2023)
2.2.3. Biophysics and Bioengineering Unit (NanoBio)
Department Biomedicine, Faculty Medicine

Team
Ramon Farré Ventura (Full Professor)
Pere Roca Cusachs (Associate Professor)
Núria Gavara Casas (Tenure-Track Lecturer — Serra Hunter)
Isaac Almendros López (Associate Professor)
Raimon Sunyer Borrell (Tenure-Track Lecturer)
Jorge Otero Díaz (Tenure-Track Lecturer)
Daniel Navajas Navarro (Emeritus Professor)
Miguel Rodriguez Lazaro (Technician)

Selected Projects
• Condicionamiento biofísico de células madre/estromales mesenquimales para la terapia del síndrome de distrés respiratorio agudo (PID2020–113910RB–I00).
  IP: Farré, Ramon. Ministerio de Ciencia e Innovación (2021–2024)

2.2.4. BiOPT: Optical Trapping Lab – Grup de Biofotònica (NanoBio)
Department Applied Physics, Faculty Physics

Team
Estela Martín Badosa (Associate Professor)
Mario Montes Usategui (Associate Professor)
Antonio Marzoa (Predoctoral Researcher)

Selected Projects
  Ministerio de Ciencia e Innovación (2020–2023)
2.2.5. Cancer therapy group (NanoBio)
Department Biochemistry and Physiology, Faculty Pharmacy and Food Sciences

Team
Carlos Ciudad Gómez (Full Professor)
Verónica Noé Mata (Full Professor)
Judith Cullell Moltó (Predoctoral Researcher)
Simonas Valiuska (Predoctoral Researcher)

Selected Projects
- Terapia genica mediada por PPRHS: vehiculizacion, silenciamiento, reparacion y aproximaciones in vivo. RTI2018-093901-B-I00.
- Diagnòstic i tractament de Sars–Cov–2 per formació de tríplex (MARATO TV3 202110–30).
  IP: Noé, Verónica (2021–2023)

Selected Papers

2.2.6. Catalysis and Advanced Inorganic Materials (MATCAT) (NanoEnergy)
Department Inorganic and Organic Chemistry, Faculty Chemistry

Team
Narcis Homs Martí (Full Professor) Adriá Sánchez Ruiz (Predoctoral Researcher)
Pilar Ramírez de la Piscina (Full Professor) Yan Wang (Predoctoral Researcher)
Maria Lourdes Mestres Vila (Full Professor) Arturo Pajares Rojas (Collaborator)
Xavier Vendrell Villafuerta (Tenure-Track Lecturer)

Selected Papers
- Engineered MoxC/TiO2 interfaces for efficient noble metal–free photocatalytic hydrogen production. Wang Y., Mino L., Pellegrino F., Homs N., Ramírez de la Piscina P. Applied Catalysis B: Environmental, 318, 121783, 2022

Selected Projects
2.2.7. Cellular Responses to Xenobiotics (NanoPharmaMed)
Department Biochemistry and Physiology, Faculty Pharmacy and Food Sciences

Team
Maria Pilar Vinardell Martínez–Hidalgo (Full Professor)  Wawan Kurniawan (Predoctoral Researcher)
Montserrat Mitjans Arnal (Associate Professor)  Michele Ferrari (External Collaborator–CNR–ICMATE)
M del Carmen Moran Bädenas (Associate Professor)  Italy

Selected Papers
- Methodological shortcomings in the reports of the imiquimod psoriatic model. Vinardell M.P. Experimental Dermatology. 31, 3, 299, 2022

2.2.8. Conformational Diseases Group (NanoPharmaMed)
Department Pharmacy and Pharmaceutical Technology and Physical–Chemical, Faculty Pharmacy and Food Sciences

Team
Raimon Sabaté Lagunas (Associate Professor)  Alba Espargaró Colomé (Tenure-Track Lecturer)
M. Antonia Busquets Viñas (Associate Professor)

Selected Papers
- Characterisation of the enzymes involved in the diol synthase metabolic pathway in Pseudomonas aeruginosa. Shaia-Chaghervand S., Castells M., Rabanal F., Cajal Y., Manres A., Estupiñán M., Busquets M. Process Biochemistry, 120, 301, 312, 2022

Selected Projects
2.2.9. Design and Improvement of Processes and Materials (NanoEnergy)

(Department Materials Science and Physical Chemistry, Faculty Chemistry)

Team
Mercè Segarra Rubí (Full Professor)
Elena Xuriguera Martín (Associate Professor)
Joan Formosa Mitjans (Associate Professor)
José Antonio Pandilla Sánchez (Tenure-Track Lecturer)
Rebeca Salgado Pizarro (Predoctoral Researcher)

Selected Papers

Selected Projects


Department Pharmacy and Pharmaceutical Technology and Physical–Chemical, Faculty Pharmacy and Food Sciences

Team
Elvira Escribano Ferrer (Full Professor)
Francesc Xavier García Sala (Adjunct Lecturer)

2.2.11. Engineering of colloidal systems (NanosMat)

Department Chemical Engineering and Analytical Chemistry, Faculty Chemistry

Team
José María Gutiérrez González (Associate Professor)
Alicia Maestro Garriga (Associate Professor)
2.2.12. Genomics, Proteomics and Plant Metabolomics (NanoBio)
Department Biology, Healthcare and the Environment and Department Biochemistry and Physiology, Faculty Pharmacy and Food Sciences

Team
Jaume Bastida Armengol (Full Professor) Montserrat Arró Plans (Associate Professor)
Francesc Viladomat Meya (Full Professor) Laura Torras Claveria (Associate Professor)

Selected Papers

- Alkaloid Composition and Biological Activities of the Amaryllidaceae Species Ismene amancaes (Ker Gawl.) Herb. Soto-Vásquez M.R., Rodríguez-Muñoz C.A., Tallini L.R., Bastida J. Plants, 11, 15, 1906, 2022

2.2.13. Group of Magnetism and Functional Molecules (NanoMagnetics, NanosMat)
Department Inorganic and Organic Chemistry, Faculty Chemistry

Team
Guillem Aromí Bedmar (Full Professor) Verónica Velasco Amigó (Adjunct Lecturer)
Eva Carolina Sañudo (Associate Professor) Rosa Diego Creixenti (Predoctoral Researcher)
David Aguilà Avilés (Tenure-Track Lecturer) Guilem Gabarró Riera (Predoctoral Researcher)
Leoni A. Barrios Moreno (Postdoctoral Researcher) Diamantuula Maniaki (Predoctoral Researcher)

Selected Papers

Selected Projects


Department Condensed Matter Physics, Faculty Physics

Team

Amílcar Labarta Rodríguez (Full Professor) Adriana Isabel Figueroa García (Tenure-Track Lecturer)
Xavier Batlle Gelabert (Full Professor) Carlos Moya Alvarez (Postdoctoral Researcher María Zambrano)
Óscar Iglesias Clotas (Associate Professor) Montserrat García del Muro Solans (Associate Professor) Javier Rodríguez Álvarez (Predoctoral Researcher)
Maria Aranzazu Fraile Rodríguez (Associate Professor) Mariona Escoda i Torroella (Predoctoral Researcher)
Eric Langenberg Perez (Tenure-Track Lecturer) Ana Conde Rubio (External Collaborator)

Selected Papers

• Tunable circular dichroism through absorption in coupled optical modes of twisted triskelia nanostructures. Rodríguez-Álvarez J., García-Martín A., Fraile Rodríguez A., Batlle X., Labarta A. Scientific Reports, 12, 1, 26, 2022

• Magnetic nanoparticles: From the nanostructure to the physical properties. Batlle X., Moya C., Escoda-Torroella M., Iglesias Ò., Fraile Rodríguez A., Labarta A. Journal of Magnetism and Magnetic Materials, 543, 168594, 2022

• Dependence of Exchange Bias on Interparticle Interactions in Co/CoO Core/Shell Nanostructures. Goswami S., Gupta P., Nayak S., Bedanta S., Iglesias Ò., Chakraborty M., De D. Nanomaterials, 12, 18, 3159, 2022

Selected Projects


2.2.15. Homogeneous Catalysis (NanosMat)
Department Inorganic and Organic Chemistry, Faculty Chemistry

Team
Arnald Grabulosa Rodríguez (Associate Professor)  Dana Josa Hidalgo (Predoctoral Researcher)
Daniel Sainz Garcia (Associate Professor)  Alba Martínez Bascuñana (Predoctoral Researcher)
Anton Vidal Ferran (ICREA Researcher)  Javier Eusamio Rodríguez (Predoctoral Researcher)
José Luis Núñez Rico (Postdoctoral Researcher)  Albert Gutierrez Currius (Technician)

Selected Papers

Selected Projects
- Procesos mejorados para la valorización de productos químicos mediante hidroformilaciones reguladas y selectivas. IP: Anton Vidal Ferran PDC2021-120826-I00. MCIN/AEI/10.13039/501100011033 and “NextGenerationEU”/PRTR”.
- Transformaciones catalíticas eficientes sobre productos orgánicos hacia productos de valor añadido para los sectores de ciencias de la vida y química fina (PID2020-115658GB-I00). IP1: Anton Vidal Ferran. Generación de Conocimiento. Ministerio de Ciencia e Innovación. From 2021 to 2025

2.2.16. Instrumentation Systems and Communications (SIC) (NanoPhotoElectro, NanoEnergy)
Department Electronics and Biomedical Engineering, Faculty Physics

Team
Angel Dieguez Barrientos (Full Professor)  Mauricio Moreno Sereno (Associate Professor)
Anna Vilà Arbonés (Associate Professor)  Christophe Serre (Associate Professor)

Selected Papers

Selected Projects
2.2.17. Laboratory of Electron Nanoscopies (LENS) – Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic devices (MIND) (NanoMet)  

(Department Electronics and Biomedical Engineering, Faculty Physics)

Team
Francisca Peiró Martínez (Full Professor)
Sònia Estradé Albiol (Associate Professor)
Lluís Yedra Cardona (Postdoctoral Researcher–Juan de la Cierva)
Daniel del Pozo Bueno (Predoctoral Researcher)
Catalina Coll Benejam (Predoctoral Researcher)
Javier Blanco Portals (Predoctoral Researcher)
Pranjal Nandi (Predoctoral Researcher)
Beatriz Vargas Carosi (Predoctoral Researcher)
Gemma Martín Malpartida (Collaborator)
Josep Manel Rebled Corselles (Collaborator)
Luis López Conesa (Collaborator)

Selected Papers


Selected Projects

- “Herramientas Avanzadas para EELS Cuantitativo”. Francisca Peiró Martínez. PDC2021-121366-I00. MCIN/AEI/10.13039/501100011033 and “NextGenerationEU”/PRTR
2.2.18. Laboratory of Nanostructured and Nanocomposite Materials (LM2N) (NanoMagnetics/NanosMat)
Department Inorganic and Organic Chemistry, Faculty Chemistry

Team
Albert Figuerola Silvestre (Associate Professor)
Marta Estrader Bofarull (Ramón y Cajal Researcher)
Mengxi Lin (Predoctoral Researcher)

Selected Papers

Selected Projects
• Activación ‘low cost’ de la transición de espín mediante nanofuentes de calor”. Becas Leonardo a Investigadores y Creadores Culturales 2022. IP: Marta Estrader

2.2.19. LASER—Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic devices (NanoPhotoElectro)
Department Applied Physics, Faculty Physics

Team
Pere Serra Coromina (Full Professor)
Juan Marcos Fernández Pradas (Associate Professor)
Martí Duocastella Solà (Tenure-Track Lecturer-Serra Húnter — ERC Consolidator Grant (www.ub.edu/dlight))
Ernest Martí Jerez (Predoctoral Researcher)
Narcís Vilar Solé (Industrial Predoctoral Researcher)

Selected Papers
• Optical system for the measurement of the surface topography of additively manufactured parts. Vilar N., Artigas R., Bermudez C., Thompson A., Newton L., Leach R., Duocastella M., Carles G. Measurement Science and Technology, 33, 10, 104001, 2022

Selected Projects
• Technology for real–time visualizing and modelling of fundamental process in living organoids towards new insights into organ–specific health, disease, and recovery (OrganVision). FET OPEN,
2. Research at in2ub

2.2.20. Magnetic Interactions and Molecular Magnetism (NanoMagnetics)
(Department Inorganic and Organic Chemistry, Faculty Chemistry)

Team
Ramón Vicente Castillo (Full Professor)
Albert Escuer Fité (Full Professor)
Mohamed Salah El Fallah (Full Professor)
Júlia Mayans Ayats (Tenure-Track Lecturer)
Annia Tubau Ribot (Predoctoral Researcher)
Evangelos Pilichos (Predoctoral Researcher)
Ernesto Costa Villén (Predoctoral Researcher)

Selected Papers


- **Slow magnetic relaxation for cobalt(ii) complexes in axial bipyramidal environment: an S = 1/2 spin case.** Pilichos E., Font-Bardia M., Cano J., Escuer A., Mayans J. Dalton Transactions, 51, 23, 8986, 2022


Selected Projects

- **Clústeres quirales de cationes d/f: nuevos materiales multipropiedad magnéticos y/o luminiscientes y/o ferroelectricos. Aplicaciones de clusters de Manganeso como antioxidantes.** PGC2018-094031-B-100. IP: Albert Escuer Fite. Ministerio de Ciencia e Innovación. 2019–2022
Department Condensed Matter Physics, Faculty Physics

Team
Pietro Tierno (Full Professor – ERC Consolidator Grant)
Antonio Ortiz-Ambriz (Associate Professor)
Eric Cereceda López (Predoctoral Researcher)

Selected Papers

Selected Projects

2.2.22. Magnetism (NanoMagnetics)
Department Condensed Matter Physics, Faculty Physics

Team
Antoni García Santiago (Associate Professor)
Joan Manel Hernández Ferràs (Associate Professor)
Ferran Macià Bros (Associate Professor)
Marius Vasile Costache (Associate Professor)
Blai Casals Montserrat (Tenure-Track Lecturer)
Marc Rovirola Metcalfe (Predoctoral Researcher)
Javier Tejada Palacios (Emeritus Professor)

Selected Papers

Selected Projects
2.2.23. Materials for Energy, Photonics and Catalysis (NanosMat)
Department Applied Physics, Faculty Physics

Team
Enric Bertran Serra (Full Professor)           Jordi Gomis Bresca (Tenure-Track Lecturer)
Adolf Canillas Biosca (Full Professor)        Regina Galceran Vercher (Tenure-Track Lecturer)
Esther Pascual Miralles (Full Professor)      Stefanos Chaitoglou (Postdoctoral Researcher Beatriu
de Pinos)
José Luis Andújar Bella (Associate Professor) Franc Güell Vilà (Associate Professor)
Roger Amade Rovira (Associate Professor)      Islam Alshaikh (Predoctoral Researcher)
Oriol Arteaga Barriel (Postdoctoral Researcher Ramon
y Cajal)

Selected Projects
• Dr. Enric Bertran and Dr. Roger Amadé (ENPHOCAMAT): “Fabricación avanzada de supercondensadores híbridos”. PDC2021–121868–C22. MCIN/AEI/10.13039/5011 00011033 amd “NextGenerationEU”/PRTR”.

Selected Papers
• Characterization of amorphous carbon films from 5 nm to 200 nm on single–side polished a–plane sapphire substrates by spectroscopic ellipsometry. Li Z., Cui C., Zhou X., Bian S., Arteaga O., Xu X. Frontiers in Physics, 10, 968101, 2022.
2.2.24. Materials: Phase transitions (NanoMet)
Department Condensed Matter Physics, Faculty Physics

Team
Antoni Planes Vila (Full Professor)
Lluís Mañosa Carrera (Full Professor)
Maria Teresa Castán Vidal (Full Professor)
Enric Stern Taulats (Postdoctoral Researcher Juan de la Cierva)
Marcel Porta Tena (Adjunct Lecturer)
Michela Romanini (External Collaborator)

Selected Projects

2.2.25. Mechanisms of Reactions in Inorganic Chemistry (NanosMat)
Department Inorganic and Organic Chemistry, Faculty Chemistry

Team
Manuel Martínez López (Full Professor)
Montserrat Sofia Ferrer García (Associate Professor)

Selected Papers

Selected Projects
2.2.26. Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (NanoPhotoElectro)

Department Electronics and Biomedical Engineering, Faculty Physics

Team

Albert Cornet Calveras (Full Professor)  
Blas Garrido Fernández (Full Professor)  
Albert Cirera Hernández (Full Professor)  
Juan Daniel Prades García (Full Professor)  
Albert Romano Rodríguez (Full Professor)  
Paolo Pellegrino (Associate Professor)  
Daniel Navarro Urrios (Associate Professor)  
Sergio Hernández Márquez (Associate Professor)  
Cristian Fabrega Gallego (Tenure-Track Lecturer)  
Olga Casals Guillén (Adjunct Lecture)  
Giovanni Vescio (Adjunct Lecture)  
Sachin Tatyasaheb Navale (Postdoctoral Researcher)  
Marie Sklodowska-Curie  
Juan Luis Frieiro Castro (Predoctoral Researcher)  
Elena López Aymerich (Predoctoral Researcher)  
Joshua Diago Forero (Predoctoral Researcher)  
Francisco de P. Hernandez Ramirez (Adjunct Lecture)

Selected Projects

• **Towards ALL-optical sEnsinG and signal pRocessing using cavity and molecular Optomechanics.**  

• **Colorimetric Indoor Air Quality Sensors (ColorIndS).**  
  INNOTEC. ACE034/21/000057. IP: Cristian Fabrega Gallego. Convocatoria per a l’any 2021 de la línia de subvencions per a la realització de projectes de recerca industrial i desenvolupament experimental entre empreses catalanes i desenvolupadors de tecnologia acreditatsTECNIO (projectes INNOTEC) (2022–2024)

• **Computación en Memoria en soporte flexible: una tecnología disruptiva para el empoderamiento ciudadano.**  

• **Continuous two-dimensional Stretch monitoring of fresh tissue Biopsies (StretchBio).**  
  H2020 FET-OPEN. IP: Albert Romano Rodríguez (2021–2025)

Selected Papers

• **Automatic electrocardiogram detection and classification using bidirectional long short–term memory network improved by Bayesian optimization.**  
  Li H., Lin Z., An Z., Zuo S., Zhu W., Zhang Z., Mu Y., Cao L., Prades García J.D. Biomedical Signal Processing and Control 73, 103424, 2022

• **2D PEA2Sn14Inkjet-Printed Halide Perovskite LEDs on Rigid and Flexible Substrates.**  

• **High Quality Inkjet Printed–Emissive Nanocrystalline Perovskite CsPbBr3 Layers for Color Conversion Layer and LEDs Applications.**  

• **Visible–Light–Driven Room Temperature NO2 Gas Sensor Based on Localized Surface Plasmon Resonance: The Case of Gold Nanoparticle Decorated Zinc Oxide Nanorods (ZnO NRs).**  
2.2.27. **Microbial Enzymes for Industrial Applications Group (NanoBio)**

Department Genetics, Microbiology and Statistics, Faculty Biology

**Team**

Susana Valenzuela Mayorga (Adjunct Lecturer)
Lourdes Verónica Cabañas (Predoctoral Researcher)

**Research**

The group of Microbial Enzymes for Industrial and Environmental Applications works on the biotransformation of natural polymers, including the development of enzymes that catalyze their modification, hydrolysis, and/or synthesis. In addition, they are exploring the potential of bacterial nanocellulose and other nanocellulosic materials, as sources of new biomaterials, suitable for high added value applications.

**Selected Papers**


2.2.28. **Mineral Resources Research Group (NanoBio)**

(Department Mineralogy, Petrology and Applied Geology, Faculty Earth Sciences)

**Team**

Josep Roqué Rosell (Associate Professor)
Joaquín Antonio Proenza Fernandez (Associate Professor)
Joaquín Antonio Proenza Fernandez (Associate Professor)
M. Abigail Jiménez Franco (Postdoctoral Researcher)

**Selected Papers**


**Selected Projects**

2.2.29. Nanobioengineering and Biomaterials Unit (NanoBio)

Department Electronics and Biomedical Engineering, Faculty Physics

Team
Josep Samitier Martí (Full Professor)
Oscar Castaño Linares (Associate Professor)
Romén Rodríguez Trujillo (Tenure-Track Lecturer)
Mònica Mir Llorente (Adjunct Lecturer)
Adrià Noguera Monteagudo (Predoctoral Researcher)

Selected Papers

Selected Projects
2.2.30. NanoBioPharma (NanoPharmaMed)

Department Pharmacy and Pharmaceutical Technology and Physical–Chemical, Faculty Pharmacy and Food Sciences

Team

Ana Calpena Campmany (Associate Professor)
Mireia Oliva Herrera (Associate Professor)
Lyda Halbaut Bellowa (Associate Professor)
Mireia Mallandrich Miret (Postdoctoral Researcher)
Helen Lissette Alvarado Bonilla (Adjunct Lecturer)
Joaquim Suñer Carbó (Adjunct Lecturer)
Antonio De Padua Boix Montanes (Adjunct Lecturer)
Paulo Cesar Sarango Granda (Predoctoral Researcher)
Roya Mohammadi (Predoctoral Researcher)
Salima El Moussaoui El Masnaoui (Industrial Predoctoral Researcher)
Marcelle Silva de Abreu (External Collaborator)
Guadalupe Del Carmen Abrego Escobar (External Collaborator)
Beatriz Clares Maveros (External Collaborator)
Lupe Carolina Espinoza Tituana (External Collaborator)

Selected Papers

2.2.31. Nanoenergy and Electronic Materials (M2E) Group (NanoEnergy)
Department Electronics and Biomedical Engineering, Faculty Physics

Team
Joan Ramon Morante Lleonart (Full Professor)

Selected Papers

2.2.32. Nanomalaria Group (NanoBio)
Department Biochemistry and Molecular Biology, Faculty Biology

Team
Santiago Imperial Ródenas (Associate Professor)
Xavier Fernández Busquets (External collaborator–IBEC–CRESIB)
Carlota Roca Martinez (Predoctoral Researcher)

Selected Papers

Selected Projects
- Coated liposome nanocomplexes as drug delivery systems for treatment of leishmaniasis. (201811–30).
  Fundació La Marató de TV3 call for Research Projects on Infectious Diseases. 2019–2022
2.33. Nanoscience and Bio–Inorganic Chemistry (nanoBIC) (NanoPharmaMed)

Department Inorganic and Organic Chemistry, Faculty Chemistry

Team
Patrick Gamez Enamorado (ICREA Researcher)
Amparo Caubet Marín (Associate Professor)
Ana Belén Caballero Hernández (Associate Professor)

Selected Projects
- Fotosensibilizadores multifuncionales de rutenio(II) para fotoquimioterapia (PID2020–115537RB–I00).
  (2021-2025)

Selected Papers

2.34. Nanostructure of Biomembranes Group (NanoBio)

Department Pharmacy and Pharmaceutical Technology and Physical–Chemical, Faculty Pharmacy and Food Sciences

Team
Maria Teresa Montero Barrientos (Associate Professor)
Óscar Domènech Cabrera (Associate Professor)
Martha Leticia Vázquez González (Adjunct Lecturer)
Adrià Botet Carreras (Predoctoral Researcher)

Selected Papers
2.2.35. Nanostructured systems for controlled drug delivery (NanoPharmaMed)

Department Pharmacy and Pharmaceutical Technology and Physical-Chemical, Faculty Pharmacy and Food Sciences

Team
Maria Luisa García López (Full Professor)
Espina García Marta (Associate Professor)
Elena Sánchez López (Tenure-Track Lecturer)
Fidencia Gamisans Linares (Adjunct Lecturer)
Gerard Esteruelas Navarro (Predoctoral Researcher)
Lorena Bonilla Vidal (Predoctoral Researcher)
Ana Laura Lopez Machado (Predoctoral Researcher)
Amanda Cano Fernández (External Collaborator)

Selected Projects


Selected Papers

- **Selected Projects**
2.2.36. **Nanosystems Statistical Physics (NanoMet)**

**Department Condensed Matter Physics, Faculty Physics**

**Team**

Miguel Rubí Capaceti (Full Professor)
Andrés Arango Restrepo (Predoctoral Researcher)

**Selected Papers**

- **Radiative heat transfer between two carbon nanotubes.** Nefedov I.S., Davidovich M.V., Glukhova O.E., Slepchenkov M.M., Rubi J.M. Scientific Reports, 12, 1, 17930, 2022
- **Enhancing particle transport in deformable micro–channels.** Torrenegra-Rico J.D., Arango-Restrepo A., Rubi J.M. Journal of Chemical Physics, 156, 5, 54118, 2022

**Selected Projects**


2.2.37. **Organic Materials Unit (NanosMat)**

**Department Inorganic and Organic Chemistry, Faculty Chemistry**

**Team**

Maria Dolors Velasco Castrillo (Full Professor)
Jaume García Amorós (Associate Professor)
Pedro Güixens Gallardo (Postdoctoral Researcher Margarita Salas)
Roger Bujaldón Carbó (Predoctoral Researcher)
Clara Fabregat Pallejà (Predoctoral Researcher)

**Selected Papers**

2.2.38. Peptides and Proteins: Physicochemical Studies (NanoBio)
Department Pharmacy and Pharmaceutical Technology and Physical–Chemical, Faculty Pharmacy and Food Sciences

Team
Yolanda Cajal Visa (Associate Professor)
Josefina Prat Aixelà (Associate Professor)
Montserrat Pujol Cubells (Associate Professor)
Montserrat Muñoz Juncosa (Associate Professor)

Selected Papers

• Characterisation of the enzymes involved in the diol synthase metabolic pathway in Pseudomonas aeruginosa. Shoja-Chaghervand S., Castells M., Rabanal F., Cajal Y., Manresa A., Estupiñán M., Busquets M. Process Biochemistry, 120, 301, 312, 2022

2.2.39. Pharmaceutical Nanotechnology (NanoPharmaMed)
Department Pharmacy and Pharmaceutical Technology and Physical–Chemical, Faculty Pharmacy and Food Sciences

Team
Maria José García Celma (Full Professor)
M. Immaculada Dinariès Milà (Associate Professor)
M. Àngels Salvadó Lladós (Associate Professor)
Marta Monge Azemar (Adjunct Lecturer)
Esteban Figueroa Becerra (Predoctoral Researcher)

Selected Papers


Selected Projects

2. Research at in’ub

2.2.40. Physics in Nanobiophysics (NanoBio)
Department Condensed Matter Physics, Faculty Physics

Team
Aurora Hernandez Machado (Full Professor)
Josep Ferré Torres (Industrial Predoctoral Researcher)
Carla Riera Llobet (Predoctoral Researcher)

Selected Papers
• **Normalization of Blood Viscosity According to the Hematocrit and the Shear Rate.** Trejo-Soto C., Hernández-Machado A. Micromachines, 13, 3, 357, 2022
• **Microfluidics Approach to the Mechanical Properties of Red Blood Cell Membrane and Their Effect on Blood Rheology.** Trejo-Soto C., Lázaro G.R., Pagonabarraga I., Hernández-Machado A. Membranes, 12, 2, 217, 2022
• **Dynamical shapes of droplets of cyclodextrin–surfactant solutions.** Romero-Arias J.R., Luviano A.S., Hernandez-Machado A., Barrio R.A. Scientific Reports, 12, 1, 5252, 2022

Selected Projects

2.2.41. Self–organized complexity and self–assembling materials (NanoBio, NanosMat)
Department Materials Science and Physical Chemistry, Faculty Chemistry

Team
Francesc Sagués Mestre (Full Professor)  Berta Martínez Prat (Predoctoral Researcher)
Jordi Ignés Mullol (Associate Professor)  Ignasi Vélez Cerón (Predoctoral Researcher)
Joan–Anton Farrera Piñol (Associate Professor)  Ruoshi Wang (Predoctoral Researcher)
Mohammad Tahghighi (Predoctoral Researcher)

Selected Papers
• **Active boundary layers in confined active nematics.** Jerôme Hardoüin, Claire Doré, Justine Laurent, Teresa Lopez–Leon, Jordi Ignés–Mullol & Francesc Sagués. Nature Communications volume 13, 6675, 2022

Selected Projects
2.2.42. Solar and Photovoltaic Energy Group (NanoEnergy)
Department Applied Physics, Faculty Physics

Team
Joan Bertomeu Balagueró (Full Professor)  Ana Luz Muñoz Rosas (Visiting Postdoctoral Researcher)
José Miguel Asensi López (Associate Professor)  Thomas Tom (Predoctoral Researcher)
Julià López Vidrier (Tenure-Track Lecturer)

Selected Papers

Selected Projects

2.2.43. Solar Energy Materials and Systems (SEMS) Group (NanoEnergy)
Department Electronics and Biomedical Engineering, Faculty Physics

Team
Alejandro Pérez Rodríguez (Full Professor)
Lorenzo Calvo Barrio (Adjunct Lecturer)
Víctor Izquierdo Roca (External Collaborator)
Marcel Placidi (External Collaborator)

Selected Papers
2.2.44. **Statistical Physics of Bio–Nano Systems and Complex Matter (NanoMet)**

Department Condensed Matter Physics, Faculty Physics

**Team**

- Giancarlo Franzese (Associate Professor)
- Carlos Calero Borrallo (Tenure-Track Lecture)
- Oriol Vilanova Gabarrón (Predoctoral Researcher)
- Luis Enrique Coronas Serna (Predoctoral Researcher)

**Selected Projects**

- **Protein unfolding and aggregation near a hydrophobic interface.** March D., Bianco V., Franzese G. March D., Bianco V., Franzese G. Polymers. 2021, 13, 1, 153
- **Física estadística para materia blanda Bio–Nano.** PID2021–124297NB–C31. IP1: Giancarlo Franzese

2.2.45. **Supra and Nanostructured Systems Group (NanosMat)**

Department Inorganic and Organic Chemistry, Faculty Chemistry

**Team**

- Laura Rodríguez Raurell (Full Professor)
- Inmaculada Angurell Purroy (Associate Professor)
- Araceli De Aquino Samper (Predoctoral Researcher)
- Ariadna Lázaro Palacios (Predoctoral Researcher)
- Guillermo Romo Islas (Predoctoral Researcher)
- Araceli De Aquino Samper (Predoctoral Researcher)

**Selected Papers**

- **How to achieve near unity fluorescence quantum yields on gold(I) benzothiadiazole–based derivatives.** Pinto A., Echeverri M., Gómez–Lor B., Rodríguez L. Dyes and Pigments, 202, 110308, 2022
- **Highly emissive supramolecular gold(I)–BTD materials.** Pinto A., Echeverri M., Gómez–Lor B., Rodriguez L. Dalton Transactions, 51, 21, 2022

**Selected Projects**

- **Herramientas supramoleculares para aumentar la emisión de fosforescencia (PID2019–104121GB–I00).** PI: Laura Rodríguez Raurell. Ministerio de Ciencia e Innovación (2020–2023)
2.2.46. Supramolecular Systems in Nanobiomedicine (NanoPharmaMed)

Department Pharmacology, Toxicology and Therapeutic Chemistry, Faculty Pharmacy and Food Sciences

Team
M. Lluïsa Pérez Garcia (Full Professor)
David Limon Magaña (Adjunct Lecture)
Thais Fedatto Abelha (Tenure-Track Lecturer)
Bagherpour Saman (Predoctoral Researcher)

Selected Papers

- Using Car–Parrinello simulations and microscopic order descriptors to reveal two locally favored structures with distinct molecular dipole moments and dynamics in ambient liquid water. Skarmoutsos I., Franzese G., Guardia E. Journal of Molecular Liquids, 364, 119936, 2022

Selected Projects


2.2.47. Surface Engineering. Thin–layer Lab (NanosMat)

Department Applied Physics, Faculty Physics

Team
Arturo Lousa Rodríguez (Associate Professor)
Joan Esteve Pujol (Emeritus Lecturer)
2.2.48. Sustainable Electrochemical Processes (NanoEnergy)
Department of Materials Science and Physical Chemistry, Faculty of Chemistry

Teams
Maria Sarret Pons (Associate Professor)
Teresa Andreu Arbella (Tenure-track Lecturer)
Mohamed Amazian El Moussaoui (Industrial Predoctoral Researcher)
Marti Molera Janer (Technician)

Selected Projects

2.2.49. Theoretical Physics of Nanoscopic Systems (NanoMet)
Department Quantum Physics, Faculty Physics

Team
Martí Pi Pericay (Full Professor)  Manuel Barranco Gómez (Full Professor)

Selected Papers
- **Using Car–Parrinello simulations and microscopic order descriptors to reveal two locally favored structures with distinct molecular dipole moments and dynamics in ambient liquid water.** Skarmoutsos I., Franzese G., Guardia E. Journal of Molecular Liquids, 364, 119936, 2022
- **Effect of Thermal Treatment on Nickel–Cobalt Electrocatalysts for Glycerol Oxidation.** Andreu T., Mallafré M., Molera M., Sarret M., Oriol R., Sirés I. ChemElectroChem, 9, 9, 2022
- **Design of a Multi–Tubular Catalytic Reactor Assisted by CFD Based on Free–Convection Heat–Management for Decentralised Synthetic Methane Production.** Alarcón A., Busqué R., Andreu T., Guilera J. Catalysts, 12, 9, 1053, 2022

Selected Papers
- **Using Car–Parrinello simulations and microscopic order descriptors to reveal two locally favored structures with distinct molecular dipole moments and dynamics in ambient liquid water.** Skarmoutsos I., Franzese G., Guardia E. Journal of Molecular Liquids, 364, 119936, 2022
- **Merging of superfluid helium nanodroplets with vortices.** Escartín J.M., Ancilotto F., Barranco M., Pi M. Physical Review B, 105, 2, 24511, 2022
- **Clustering, collision, and relaxation dynamics in pure and doped helium nanoclusters: Density– vs particle–based approaches.** García-Alfonso E., Barranco M., Bonhommeau D.A., Halberstadt N., Pi M., Calvo F. Journal of Chemical Physics, 157, 1, 14106, 2022
2.2.50. Thin Layer Structures for Spintronics (NanoMagnetics)

Team
Manuel Varela Fernández (Full Professor)
César Ferrater Martorell (Associate Professor)
M Carmen Polo Trasancos (Associate Professor)

2.2.51. Thin-ﬁlm and Nanostructure electrodeposition group (NanosMat)

Department Materials Science and Physical Chemistry, Faculty Chemistry

Team
Elvira Gómez Valentín (Full Professor)
Albert Serrà Ramos (Tenure-Track Lecturer)
Judit Lloreda Rodes (Predoctoral Researcher)
Laura Hidrobo Rodríguez (Predoctoral Researcher)
Fatemeh Mohandes (Postdoctoral Researcher M. Zambrano)
Arnau Fons Cervera (External Collaborator)

Selected Papers

- Electrodeposition of nanostructured Bi2MoO6@Bi2MoO6–x homojunction films for the enhanced visible–light–driven photocatalytic degradation of antibiotics. Gómez E., Cestaro R., Philippe L., Serrà A. Applied Catalysis B: Environmental, 317, 121703, 2022
- Recent progress in the electrochemical deposition of ZnO nanowires: synthesis approaches and applications. Manzano C.V., Philippe L., Serrà A. Critical Reviews in Solid State and Materials Sciences, 47, 5, 772, 2022

Selected Projects

3. Researchers grouped by areas

3.1. NANOMET

- **Arango Restrepo, Andres**
  Predoctoral Researcher
  Nanosystems Statistical Physics

- **Barranco Gomez, Manuel**
  Full Professor,
  Theoretical physics of Nanoscopic Systems

- **Blanco Portals, Javier**
  Predoctoral Researcher
  LENS–Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Calero Borrallo, Carlos**
  Tenure–Track Lecture

- **Castan Vidal, Maria Teresa**
  Full Professor
  Materials: Phase transitions

- **Coll Benejam, Catalina**
  Predoctoral Researcher
  LENS–Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Coronas Serna, Luis Enrique**
  Predoctoral Researcher

- **del Pozo Bueno, Daniel**
  Predoctoral Researcher
  LENS–Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Estrade Albiol, Sonia**
  Associate Professor
  LENS–Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Franzese, Giancarlo**
  Associate Professor

- **Iglesias Clotas, Oscar**
  Associate Professor
  Group of Magnetic Nanomaterials

- **Lopez Conesa, Luis**
  Collaborator
  LENS–Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Mañosa Carrera, Lluis**
  Full Professor
  Materials: Phase transitions

- **Marchetti, Gionni**,
  Technician

- **Martin Malpartida, Gemma**
  Collaborator
  LENS–Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Nandi, Pranjal**
  Predoctoral Researcher
  LENS–Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)
3. Researchers grouped by areas

### 3.2. NANOBIO

- **Almendros Lopez, Isaac**
  - Associate Professor
  - Biophysics and Bioengineering Unit

- **Arro Plans, Montserrat**
  - Associate Professor
  - Genomics, Proteomics and Plant Metabolomics

- **Bastida Armengol, Jaume**
  - Full Professor
  - Genomics, Proteomics and Plant Metabolomics

- **Botet Carreras, Adrià**
  - Predoctoral Researcher
  - Nanostructure of Biomembranes Group

- **Cajal Visa, Yolanda Carlota**
  - Associate Professor
  - Peptides and Proteins: Physicochemical Studies

- **Calo, Annalisa**
  - Tenure-Track Lecture
  - Bioelectrical Characterization at Nanoscale

- **Castano Linares, Oscar**
  - Associate Professor
  - Nanobioengineering and Biomaterials Unit

- **Cereceda Lopez, Eric**
  - Predoctoral Researcher
  - Magnetic Soft Matter Group

- **Ciudad Gomez, Carlos Julian**
  - Full Professor
  - Cancer therapy group

- **Domenech Cabrera, Òscar**
  - Associate Professor
  - Nanostructure of Biomembranes Group

- **Farre Ventura, Ramon**
  - Full Professor
  - Biophysics and Bioengineering Unit
### Researchers grouped by areas

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<th>Position/Role</th>
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<tr>
<td>Fernandez Busquets, Xavier</td>
<td>Predoctoral Researcher - BiOPT: Optical Trapping Lab - Grup de Biofotònica</td>
</tr>
<tr>
<td>Lazaro Miguel, Rodríguez</td>
<td>External Collaborator - Nanomalaria Group</td>
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<tr>
<td>Ferré Torres, Josep</td>
<td>Predoctoral Researcher - Physics in Nanobiophysics</td>
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<td>Gavara Casas, Nuria</td>
<td>Tenure-Track Lecture - Biophysics and Bioengineering Unit</td>
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<tr>
<td>Gomila Lluch, Gabriel</td>
<td>Full Professor - Bioelectrical Characterization at Nanoscale</td>
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<td>González Martha Leticia, Vázquez</td>
<td>Adjunct Lecture - Nanostructure of Biomembranes Group</td>
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<tr>
<td>Hernandez Machado, Aurora</td>
<td>Full Professor - Physics in Nanobiophysics</td>
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<tr>
<td>Imperial Rodenas, Santiago</td>
<td>Associate Professor - Nanomalaria Group</td>
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<tr>
<td>Jimenez Franco, M. Abigail</td>
<td>Predoctoral Researcher - Mineral Resources Research Group</td>
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<td>Mañosas Castejon, María</td>
<td>Researcher Ramon y Cajal - Biomolecule and small-system physics: Small Biosystems Lab</td>
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<td>Martínez Prat, Berta</td>
<td>Predoctoral Researcher - Self-organized complexity and self-assembling materials (SOC&amp;SAM)</td>
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<td>Marzoa Domínguez, Antonio</td>
<td>Predoctoral Researcher - Nanobiotechnology and Biomaterials Unit</td>
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<tr>
<td>Pajares Rojas, Arturo</td>
<td>Collaborator - Catalysis and Advanced Inorganic Materials (MATCAT)</td>
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<tr>
<td>Melgarejo Draper, Joan Carles</td>
<td>Adjunct Professor - Mineral Resources Research Group</td>
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<tr>
<td>Mir Llorente, Mònica</td>
<td>Adjunct Lecture - Nanobiotechnology and Biomaterials Unit</td>
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<td>Montero Barrientos, María Teresa</td>
<td>Associate Professor - Nanostructure of Biomembranes Group</td>
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<td>Montes Usategui, Mario</td>
<td>Associate Professor - BiOPT: Optical Trapping Lab - Grup de Biofotònica</td>
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<td>Muñoz Juncosa, Maria Montserrat</td>
<td>Associate Professor - Peptides and Proteins: Physicochemical Studies</td>
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<td>Navajas Navarro, Daniel</td>
<td>Emeritus Professor - Biophysics and Bioengineering Unit</td>
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<tr>
<td>Noe Mata, Veronica</td>
<td>Full Professor - Cancer therapy group</td>
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<td>Noguera Monteagudo, Adrià</td>
<td>Predoctoral Researcher - Nanobiotechnology and Biomaterials Unit</td>
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<td>Ortiz Ambriz, Antonio</td>
<td>Adjunct Lecture - Magnetic Soft Matter Group</td>
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<td>Otero Diaz, Jorge</td>
<td>Tenure-Track Lecture - Biophysics and Bioengineering Unit</td>
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### Researchers grouped by areas

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<tr>
<td>Prat Aixela, Josefina</td>
<td>Associate Professor</td>
<td>Peptides and Proteins: Physicochemical Studies</td>
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<td>Proenza Fernandez, Joaquin Antonio</td>
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<td>Mineral Resources Research Group</td>
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<td>Pujol Cubells, Montserrat</td>
<td>Associate Professor</td>
<td>Peptides and Proteins: Physicochemical Studies</td>
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<td>Riera Llobet, Carla</td>
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<td>Ritort Farran, Felix</td>
<td>Full Professor</td>
<td>Biomolecule and small-system physics: Small Biosystems Lab</td>
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<td>Roca Martinez, Carlota</td>
<td>Predoctoral Researcher</td>
<td>Nanomalaria Group</td>
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<td>Roca--cusachs Soulere, Pere</td>
<td>Associate Professor</td>
<td>Biophysics and Bioengineering Unit</td>
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<td>Rodriguez Lazaro, Miguel</td>
<td>Technician</td>
<td>Biophysics and Bioengineering Unit</td>
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<td>Nanobioengineering and Biomaterials Unit</td>
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<td>Roque Rosell, Josep</td>
<td>Associate Professor</td>
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<td>Sagues Mestre, Francesc</td>
<td>Full Professor</td>
<td>Self-organized complexity and self-assembling materials (SOC&amp;SAM)</td>
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<td>Samitier Marti, Josep</td>
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<td>Nanobioengineering and Biomaterials Unit</td>
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<td>Sunyer Borrell, Raimon</td>
<td>Tenure-Track Lecture</td>
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<td>Tierno, Pietro</td>
<td>Full Professor</td>
<td>Magnetic Soft Matter Group</td>
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<td>Torras Claveria, Laura</td>
<td>Associate Professor</td>
<td>Genomics, Proteomics and Plant Metabolomics</td>
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<td>Valenzuela Mayorga, Susana Valeria</td>
<td>Adjunct Lecture</td>
<td>Microbian Enzymes for Industrial Applications Group</td>
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<td>Vázquez González, Martha Leticia</td>
<td>Adjunct Lecture</td>
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<td>Vélez Cerón, Ignasi</td>
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<td>Veronica Cabañas, Lourdes</td>
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<td>Microbian Enzymes for Industrial Applications Group</td>
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<td>Viladomat Meya, Francisco</td>
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<td>Genomics, Proteomics and Plant Metabolomics</td>
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### 3.3. NANOPHARMAMED

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<tr>
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<tr>
<td>Abrego Escobar, Guadalupe Del Carmen</td>
<td>External Collaborator</td>
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<tr>
<td>Name</td>
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<td>Alvarado Bonilla, Helen Lissette</td>
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<td>Bagherpour, Saman</td>
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<td>Supramolecular Systems in Nanobiomedicine</td>
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<td>Boix Montanes, Antonio De Padua</td>
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<td>NanoBioMed</td>
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<td>Bonilla Vidal, Lorena</td>
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<td>Nanostructured systems for controlled drug delivery</td>
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<td>Busquets Viñas, Maria Antònia</td>
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<td>Conformational Diseases Group</td>
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<td>Nanoscience and Bio–Inorganic Chemistry (nanoBIC)</td>
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<td>Dinarès Milà, M. Immaculada</td>
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<td>Pharmaceutical Nanotechnology</td>
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<td>El Moussaoui El Masnaoui, Salima</td>
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<td>Escribano Ferrer, Elvira</td>
<td>Associate Professor</td>
<td>Drug Design and Response–evaluation within Pharmaceutical Nanostructured and self–ordered Systems Group</td>
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<tr>
<td>Espargaro Colome, Alba</td>
<td>Tenure–Track Lecture</td>
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<td>Espina García, Marta</td>
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<td>Nanostructured systems for controlled drug delivery</td>
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<td>Espinoza Tituana, Lupe Carolina</td>
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<td>NanoBioPharma</td>
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<td>Ferrari, Michele</td>
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<td>Cellular responses to xenobiotics</td>
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<td>Figueroa Becerra, Esteban</td>
<td>Predoctoral Researcher</td>
<td>Pharmaceutical Nanotechnology</td>
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<td>Gámez Enamorado, Patricio</td>
<td>ICREA Researcher</td>
<td>Nanoscience and Bio–Inorganic Chemistry (nanoBIC)</td>
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</table>
3. Researchers grouped by areas

- **Garcia Sala, Francesc Xavier**
  
  **Adjunct Lecture**
  
  Drug Design and Response—evaluation within Pharmaceutical Nanostructured and self-ordered Systems Group

- **Garcia Lopez, Maria Luisa**
  
  **Full Professor**
  
  Nanostructured systems for controlled drug delivery

- **Garcia Celma, Maria Jose**
  
  **Full Professor**
  
  Pharmaceutical Nanotechnology

- **Halbaut Bellowa, Lyda**
  
  **Associate Professor**
  
  NanoBioPharma

- **Kurniawan, Wawan**
  
  **Predoctoral Researcher**
  
  Cellular responses to xenobiotics

- **Limon Magaña, David**
  
  **Adjunct Lecture**
  
  Supramolecular Systems in Nanobiomedicine

- **Lopez Machado, Ana Laura**
  
  **Predoctoral Researcher**
  
  Nanostructured systems for controlled drug delivery

- **Mallandrich Miret, Mireia**
  
  **Postdoctoral Researcher**
  
  NanoBioPharma

- **Mey Abadi, Roya Mohammadi**
  
  **Predoctoral Researcher**
  
  NanoBioPharma

- **Mitjans Arnal, Montserrat**
  
  **Associate Professor**
  
  Cellular responses to xenobiotics

- **Monge Azemar, Marta**
  
  **Adjunct Lecture**
  
  Pharmaceutical Nanotechnology

- **Moran Badenas, Maria Del Carmen**
  
  **Associate Professor**
  
  Cellular responses to xenobiotics

- **Oliva Herrera, Mireia**
  
  **Associate Professor**
  
  NanoBioPharma

- **Perez Garcia, M. Luisa**
  
  **Full Professor**
  
  Supramolecular Systems in Nanobiomedicine

- **Sabate Lagunas, Raimon**
  
  **Associate Professor**
  
  Conformational Diseases Group

- **Sanchez Lopez, Elena**
  
  **Tenure-Track Lecture**
  
  Nanostructured systems for controlled drug delivery

- **Sarango Granda, Paulo Cesar**
  
  **Predoctoral Researcher**
  
  NanoBioPharma

- **Silva De Abreu, Marcella**
  
  **External Collaborator**
  
  NanoBioPharma

- **Suñer Carbó, Joaquim**
  
  **Adjunct Lecture**
  
  NanoBioPharma

- **Torroella Mariona, Escoda**
  
  **Predoctoral Researcher**
  
  Group of Magnetic Nanomaterials

- **Valiuska, Simonas**
  
  **Predoctoral Researcher**
  
  Cancer therapy group

- **Gamisans Linares, Fidencia**
  
  **Adjunct Lecture**
  
  Nanostructured systems for controlled drug delivery

- **Vinardell Martinez Hidalgo, María Pilar**
  
  **Full Professor**
  
  Cellular responses to xenobiotics
3.4. NANOMAGNETICS

- **Aguilà Aviles, David**
  Postdoctoral Researcher
  Group Magnetism and Functional Molecules (GMMF)

- **Aromi Bedmar, Guillem**
  Full Professor
  Group Magnetism and Functional Molecules (GMMF)

- **Barrios Moreno, Leoni A.**
  Postdoctoral Researcher
  Group Magnetism and Functional Molecules (GMMF)

- **Batlle Gelabert, Xavier**
  Full Professor
  Group of Magnetic Nanomaterials

- **Casals Montserrat, Blai**
  Tenure-Track Lecture
  Magnetism

- **Conde Rubio, Ana**
  External Collaborator
  Group of Magnetic Nanomaterials

- **Costa Villén, Ernesto**
  Predoctoral Researcher
  Magnetic Interactions and Molecular Magnetism

- **Costache, Marius Vasile**
  Associate Professor
  Magnetism

- **Diego Creixenti, Rosa**
  Predoctoral Researcher
  Group Magnetism and Functional Molecules (GMMF)

- **El Fallah El Boufrahi, Mohamed Salah**
  Full Professor
  Magnetic Interactions and Molecular Magnetism

- **Escuer Fite, Alberto**
  Full Professor
  Magnetic Interactions and Molecular Magnetism

- **Estrader Bofarull, Marta**
  Researcher Ramon y Cajal
  Laboratory of Nanostructured and Nanocomposite Materials

- **Ferrater Martorell, Cesar**
  Associate Professor
  Thin Layer Structures for Spintronics

- **Figuerola Garcia, Adriana Isabel**
  Postdoctoral Researcher
  Group of Magnetic Nanomaterials

- **Gabarró Riera, Guillem**
  Predoctoral Researcher
  Group Magnetism and Functional Molecules (GMMF)

- **García Santiago, Antoni**
  Associate Professor
  Magnetism

- **Hernandez Ferras, Joan Manel**
  Associate Professor
  Magnetism

- **Labarta Rodriguez, Amilcar Ramon**
  Full Professor
  Group of Magnetic Nanomaterials

- **Langenberg Perez, Eric**
  Tenure-Track Lecture
  Group of Magnetic Nanomaterials

- **Macia Bros, Ferran**
  Associate Professor
  Magnetism

- **Maniaki, Diamantuula**
  Predoctoral Researcher
  Group Magnetism and Functional Molecules (GMMF)
3. Researchers grouped by areas

Mayans Ayts, Julìa
Tenure-Track Lecture
Magnetic Interactions and Molecular Magnetism

Moya Alvarez, Carlos
Postdoctoral Researcher María Zambrano
Group of Magnetic Nanomaterials

Pilichos, Evangelos
Predoctoral Researcher
Magnetic Interactions and Molecular Magnetism

Polo Trasancos, María Del Carmen
Associate Professor
Thin Layer Structures for Spintronics

Rovirola Metcalfe, Marc
Predoctoral Researcher
Magnetism

Sañudo Zotes, Eva Carolina
Associate Professor
Group of Magnetism and Functional Molecules

Tejada Palacios, Javier
Emeritus Professor
Magnetism

Tubau Ribot, Annia
Predoctoral Researcher
Magnetic Interactions and Molecular Magnetism

Varela Fernandez, Manuel
Full Professor
Thin Layer Structures for Spintronics

Velasco Amigo, Veronica
Adjunct Lecture
Group Magnetism and Functional Molecules (GMMF)

Vicente Castillo, Ramon
Full Professor
Magnetic Interactions and Molecular Magnetism

Diaz Marcos, Jordi
Adjunct Lecture
Materials for Energy Photonics and Catalysis (ENPHOCAMAT)

3.5. NANOPHOTOELECTRO

Casals Guillen, Olga
Adjunct Lecture
Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

Cirera Hernandez, Albert
Full Professor
Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

Cornet Calveras, Albert
Professor Full
Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

Diago Forero, Joshua
Predoctoral Researcher
Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

Dieguez Barrientos, Angel
Full Professor
Instrumentation Systems and Communications (SIC)

Duocastella Sola, Marti
Full Professor
LASER-Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

Fabrega Gallego, Cristian
Tenure-Track Lecturer
Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

Fernandez Pradas, Juan Marcos
Associate Professor
LASER-Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

Fraile Rodriguez, Maria Aranzazu
3. Researchers grouped by areas

- **Frieiro Castro, Juan Luis**
  Predoctoral Researcher
  Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **García Del Muro Solans, Montserrat**
  Associate Professor
  Group of Magnetic Nanomaterials

- **Garrido Fernandez, Blas**
  Full Professor
  Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Hernandez Ramirez, Francisco De P.**
  Adjunct Lecture
  Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Hernández Márquez, Sergi**
  Associate Professor
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- **Lopez Aymerich, Elena**
  Predoctoral Researcher
  Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Martí Jerez, Ernest**
  Predoctoral Researcher
  LASER-Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Moreno Sereno, Mauricio**
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  Instrumentation Systems and Communications (SIC)

- **Navale, Sachin Tatysaheb**
  Postdoctoral Researcher Marie Sklodowska-Curie
  Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices

- **Navarro Urrios, Daniel**
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- **Pellegrino, Paolo**
  Associate Professor
  Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Prades Garcia, Juan Daniel**
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  Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Rodríguez Álvarez, Javier**
  Predoctoral Researcher
  Group of Magnetic Nanomaterials

- **Romano Rodriguez, Albert**
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  Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Serra Coromina, Pedro**
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  LASER-Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

- **Vila Arbones, Ana Maria**
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  Instrumentation Systems and Communications (SIC)

- **Vilar Solé, Narcís**
  Industrial Predoctoral Researcher
  LASER-Micro and Nanotechnology and nanoscopies for Electronic and Electrophotonic Devices (MIND)

3.6. NANOSMAT

- **Alshaikh, Islam**
  Predoctoral Researcher
  Materials for Energy, Photonics and Catalysis (ENPHOCAMAT)
3. Researchers grouped by areas

- **Amade Rovira, Roger**
  Tenure–Track Lecturer
  Materials for Energy, Photonics and Catalysis (ENPHOCAMAT)

- **Andújar Bella, José Luis**
  Associate Professor
  Materials for Energy, Photonics and Catalysis (ENPHOCAMAT)

- **Angurell Purroy, Inmaculada**
  Associate Professor
  Supra and Nanostructured Systems Group

- **Arteaga Barriel, Oriol**
  Researcher Ramon y Cajal
  Materials for Energy, Photonics and Catalysis (ENPHOCAMAT)

- **Bertran Serra, Enric**
  Full Professor
  Materials for Energy, Photonics and Catalysis (ENPHOCAMAT)

- **Bujaldón Carbó, Roger**
  Predoctoral Researcher
  Organic Materials Unit

- **Canillas Biosca, Adolfo**
  Full Professor
  Materials for Energy Photonics and Catalysis (ENPHOCAMAT)

- **Chaitoglou, Stefanos**
  Postdoctoral Researcher Beatriu de Pinós
  Materials for Energy Photonics and Catalysis (ENPHOCAMAT)

- **de Aquino Samper, Araceli**
  Predoctoral Researcher
  Supra and Nanostructured Systems Group

- **Esteve Pujol, Joan**
  Emeritus Professor
  Surface Engineering. Thin-layer Lab

- **Eusamio Rodríguez, Javier**
  Predoctoral Researcher
  Homogeneous Catalysis

- **Fabregat Pallejà, Clara**
  Predoctoral Researcher
  Organic Materials Unit

- **Farrera Piñol, Joan Antoni**
  Associate Professor
  Self–organized complexity and self–assembling materials (SOC&SAM)

- **Ferrer García, Montserrat Sofia**
  Associate Professor
  Mechanisms of Reactions in Inorganic Chemistry

- **Figuerola Silvestre, Albert**
  Associate Professor
  Laboratory of Nanostructured and Nanocomposite Materials

- **Galeran Vercher, Regina**
  Tenure–Track Lecturer
  Materials for Energy Photonics and Catalysis (ENPHOCAMAT)

- **García Amorós, Jaume**
  Associate Professor
  Organic Materials Unit

- **Gómez Valentín, Elvira**
  Full Professor
  Thin–film and Nanostructure electrodeposition group

- **Gomis Bresco, Jordi**
  Tenure–Track Lecturer
  Materials for Energy Photonics and Catalysis (ENPHOCAMAT)

- **Grabulosa Rodríguez, Arnald**
  Associate Professor
  Homogeneous Catalysis

- **Güell Vilà, Frank**
  Associate Professor
  Materials for Energy, Photonics and Catalysis (ENPHOCAMAT)
Guixens Gallardo, Pedro
Postdoctoral Researcher Margarita Salas
Organic Materials Unit

Gutierrez Gonzalez, Jose Maria
Associate Professor
Engineering of colloidal systems

Ignes Mullol, Jordi
Associate Professor
Self–organized complexity and self–assembling materials (SOC&SAM)

Josa Hidalgo, Dana
Predoctoral Researcher
Homogeneous Catalysis

Judit Lloreda, Rodes
Predoctoral Researcher
Thin–film and Nanostructure electrodeposition group

Laura Huidorbo, Rodríguez
Predoctoral Researcher
Thin–film and Nanostructure electrodeposition group

Lázar Palacios, Ariadna
Predoctoral Researcher
Supra and Nanostructured Systems Group

Lin, Mengxi
Predoctoral Researcher
Laboratory of Nanostructured and Nanocomposite Materials

Lousa Rodriguez, Arturo
Associate Professor
Surface Engineering, Thin–layer Lab

Maestro Garriga, Alicia
Associate Professor
Engineering of colloidal systems

Martínez Lopez, Manuel
Full Professor
Mechanisms of Reactions in Inorganic Chemistry

Martínez Bacuñana, Alba
Predoctoral Researcher
Homogeneous Catalysis

Mohandes, Fatemeh
Postdoctoral Researcher María Zambrano
Thin–film and Nanostructure electrodeposition group

Núñez Rico, José Luis
Postdoctoral Researcher
Homogeneous Catalysis

Pascual Miralles, Esther
Full Professor
Materials for Energy, Photonics and Catalysis (ENPHOCAMAT)

Rodriguez Raurell, Laura
Full Professor
Supra and Nanostructured Systems Group

Sainz Garcia, Daniel
Associate Professor
Homogeneous Catalysis

Serra Ramos, Albert
Tenure–Track Lecture
Thin–film and Nanostructure electrodeposition group

Fons Cervera, Arnau
Collaborador student
Thin–film and Nanostructure electrodeposition group

Tahghighi Haji Alizadeh, Mohammad
Predoctoral Researcher
Self–organized complexity and self–assembling materials (SOC&SAM)

Velasco Castrillo, Maria Dolors
Full Professor
Organic Materials Unit
3.7. NANOENERGY

- **Vidal Ferran, Anton**
  ICREA Researcher
  Homogeneous Catalysis

- **Wang, Ruoshi**
  Predoctoral Researcher
  Self-organized complexity and self-assembling materials (SOC&SAM)

- **Andreu Arbella, Teresa**
  Tenure-Track Lecturer
  Sustainable Electrochemical Processes

- **Asensi Lopez, Jose Miguel**
  Associate Professor
  Solar and Photovoltaic Energy Group

- **Bertomeu Balagueró, Joan**
  Full Professor
  Solar and Photovoltaic Energy Group

- **Calvo Barrio, Lorenzo**
  Adjunct Lecture
  Solar Energy Materials and Systems (SEMS) Group

- **El Moussaoui, Mohamed Amazian**
  Industrial Predoctoral Researcher
  Sustainable Electrochemical Processes

- **Formosa Mitjans, Joan**
  Associate Professor
  Design and improvement of Processes and Materials (DIOPMA)

- **Homs Martí, Narciso**
  Full Professor
  Catalysis and Advanced Inorganic Materials (MATCAT)

- **Izquierdo Roca, Victor**
  External Collaborator
  Solar Energy Materials and Systems (SEMS) Group

- **Mestres Vila, Maria Lourdes**
  Full Professor
  Catalysis and Advanced Inorganic Materials (MATCAT)

- **Molera Janer, Martí**
  Technician
  Sustainable Electrochemical Processes

- **Morante Lleonart, Joan Ramon**
  Full Professor
  NanoEnergy and Electronic Materials (M2E) Group

- **Muñoz Rosas, Ana Luz**
  Visiting Postdoctoral Researcher
  Solar and Photovoltaic Energy Group

- **Padilla Sanchez, Jose Antonio**
  Tenure-Track Lecturer
  Design and Improvement of Processes and Materials

- **Perez Rodriguez, Alejandro**
  Full Professor
  Solar Energy Materials and Systems (SEMS) Group

- **Placidi, Marcel**
  External Collaborator
  Solar Energy Materials and Systems (SEMS) Group

- **Ramirez De La Piscina Millan, Maria Del Pilar**
  Full Professor
  Catalysis and Advanced Inorganic Materials (MATCAT)

- **Salgado Pizarro, Rebeca**
  Predoctoral Researcher
  Design and Improvement of Processes and Materials (DIOPMA)

- **Sánchez Ruiz, Adrià**
  Predoctoral Researcher
  Catalysis and Advanced Inorganic Materials (MATCAT)

- **Sarret Pons, Maria**
  Associate Professor
  Sustainable Electrochemical Processes
- Segarra Rubi, Merce
  Full Professor
  Design and improvement of Processes and Materials (DIOPMA)

- Gutierrez Currius, Albert
  Technician
  Homogeneous Catalysis

- Serre, Christophe Georges Camille
  Associate Professor
  Instrumentation Systems and Communications (SIC)

- Tom, Thomas
  Predoctoral Researcher
  Solar and Photovoltaic Energy Group

- Vendrell Villafruela, Xavier
  Tenure-Track Lecturer
  Catalysis and Advanced Inorganic Materials (MATCAT)

- Vidrier López, Julià
  Tenure-Track Lecturer
  Solar and Photovoltaic Energy Group

- Wang, Yan
  Predoctoral Researcher
  Catalysis and Advanced Inorganic Materials (MATCAT)

- Xuriguera Martin, M. Elena
  Associate Professor
  Design and improvement of Processes and Materials (DIOPMA)
4. Internal calls

4.1. Grants for Multidisciplinary Research (Ajuts a la Recerca Transversal—ART)

Internal call of collaborative research projects (Ajuts a la Recerca Transversal — ART). The aim of these calls is to promote transversal and innovative research among the research areas of the Institute between PhD researchers at the beginning of their career developing a project as Principal Investigator (IP) for the first time. On 2022, 3 ART grants have been awarded to the following proposals:

- Hierarchically nanostructured transition metal carbides and MXenes on carbon felt for CO2 reduction and green H2 production. A collaboration between NanosMat and NanoEnergy Research Areas.

4.2. Master Fellowships

In order to stimulate scientific careers in master’s students, in the frame of Beques de Col·laboració UB (UB Collaborating Fellowships), the Institute offers Master Fellowships to collaborate with IN²UB research groups and supports the students in the process of carrying out research and working on their master theses. During 2022, 5 students have been awarded.

4.3. IN²UB Calls for Congresses

The institute give support to researchers organizing congresses or scientific events as well as contribute to inviting scientist in the fields of the IN²UB. On 2022, IN²UB has sponsored:

- 2nd Bioforphys conference, Biological Evolution and Nonequilibrium Physics: Close Encounters, July 2022 (Barcelona). Conference Chair and Chair of EPS Division of Physics for Life Sciences: Felix Ritort
- XL Reunió del GEQO–RSEQ XL GEQO Meeting — Organometallic Chemistry Group, September 2022 (Barcelona). Scientific Committee: Laura Rodríguez
- 4th ELECML International Workshop, October 2022 (Barcelona), chaired Prof. Francesca Peiró

4.4. Funding Scientific Associations

The IN²UB gives support to specific scientific associations of general interest for the Institute:

Since July 2009, the IN²UB is part of the scientific cluster SECPhO (Southern European Cluster of Photonics and Optics). The IN²UB collaborates with the costs and activities of the cluster through an annual fee and, when needed, funds attendance to specialized conferences by the cluster members belonging to the IN²UB. For further details about the SECPhO Cluster, please check [www.secpho.org](http://www.secpho.org)
5. Events

5.1. ANNUAL MEETING
This year, we have been able to meet once again, by virtual means at our annual meeting. An event to share the knowhow and research between IN²UB members. The meeting has counted with 10 oral presentations from IN²UB researchers, a plenary session from an external expert scientist and up to 51 posters from our members (read more).

5.2. INTERNATIONAL RESEARCH SEMINAR (IRS)
In frame of the cycle of International Research Seminars (IRS), once a month an international researcher is invited to impart a high-level research seminar, covering one of the subject areas from the Institute, the seminars are in collaboration and with the support of PhD Program in Nanoscience:

- **Molecular engineering of redox–active nanomagnets: how to promote large magnetic interactions and spin delocalization.** By Dr. Pierre Dechambenoit, University of Bordeaux, CNRS, Centre de Recherche Paul Pascal, France. 20/01/22 at 12 h (webinar)
- **Thermal scanning probe lithography: from fundamentals to Applications.** By Dr. Edoardo Albisetti, Department of Physics of Politecnico di Milano, Italy. 28/04/22 at 12h (webinar)
- **Magnetic Nanoreactors for Environmental Applications** By Dr. María del Puerto Morales Herrero, Instituto de Ciencia de Materiales de Madrid, ICMM/CSIC. 31/05/22 at 12h (webinar)
- **Halide Perovskite Materials for Optoelectronic and Photochemical Applications.** By Prof. Iván Mora Seró, Institute of Advanced Materials (INAM), Universitat Jaume I, 12071 Castelló, Spain. 30/06/22 at 12h (webinar)

5.3. SPECIAL MINI–SYMPOSIUM IN²UB

**10h–11h** Molecular Spin Qubits for Quantum Computer and Highly Density Memory Device Based on Molecular Magnets. Prof. Masahiro Yamashita, Department of Chemistry, Graduate School of Science, Tohoku University. Chaired by Prof. Guillem Aromí — IN²UB Director.

**11h–11.30h** Coffee break

**11.30–12.30h** Spin–orbit technologies: from magnetic memory to terahertz generation. Prof. Hyunsoo Yang, Department of Electrical and Computer Engineering, National University of Singapore. Chaired by Prof. Xavier Batlle — IN²UB Steering Committee

5.4. FIRA D’EMPRESES
This year, for the first time, the Institute has participated on the Virtual Employment Fair – May 4th, 2022 Sciences and Engineering, where we had the opportunity to present the IN2UB and the research areas to students interested in nanoscience and nanotechnology.
5.5. WORKSHOPS

- Working Safely at the Nanoscale, with the support of PhD Program in Nanoscience 17/06/2021 at 10h
  - Telematic session
  10h–10:05h – Rebuda i Presentació, modera Laura Rodríguez, investigadora IN2UB i delegada rector en seguretat a Química, 2020
  10:05h–10:30h – Estado del arte sobre Nanoseguridad: Aspectos Reguladores, José A. Pérez, Health & Safety Area, Institut Català de Nanociència i Nanotecnologia (ICN2)
  10:30h–10:55h – Riscos laborals al treballar a la Nanoescala, Miriam Belloc, Institut Català de Seguretat i Salut Laboral (ICSSL)
  10:55h–11:20h – Nanomaterials i Nanotecnologia, cas pràctic, Xavier Borrisé, IMB–CNM–CSIC & ICN2
  11:20h–11:45h – Laboratoris segurs i nanopartícules, Marc Pujol i Ekaitz Olaguenaga, Burdinola Safer Labs
  10:45h–12h – Discussió final, modera Laura Rodríguez

5.6. II JORNADA INSTITUTS DE LA UB: "CANVI CLIMÀTIC I RISCOS NATURALS: TRANSFORMACIÓ I RESILIÈNCIA"

The aim of the Meeting, on 4th October 2022, was to tackle the topic of space from a cross-sectional perspective using the research carried out at the different research institutes of the UB.

With Dr. Teresa Andre (IN2UB, Faculty of Chemistry). CO2 UPCYCLING: Solucions sostenibles des de la química per prescindir dels combustibles fòssils.
6. Outreach

IN’UB is committed to transfer knowledge to society. In the year 2019, a Permanent Commission of Outreach was created and put to work in order to reinforce this facet of the Institute. The outreach activities have, since then stepped up in amount relevance and diffusion.

Follow us at @In2Ub | In-IN2UB / IN2UB-Youtube

6.1. OUTREACH EVENTS

• In frame of 11F International Day of Women and Girls in Science, researchers from the Institute participated at the Coffee with women scientist. An online event to share with the audience own experiences and talk to talk about the passion for research and the associated professional stages, while exemplifying the role of the female scientist: International day of women and girls in science coffee with women scientist

• Presentation of the Libro blanco de las Nanotecnologías II. Estado del arte de la I+D+I. on 15th February 2022 at Aula Magna Enric Casassas of the Faculty of Chemistry. The new volume is a continuation of the Libro Blanco sobre Nanotecnologías (White Paper on Nanotechnologies), also with the coordination of Dr. Jordi Díaz-Marcos, IN’UB Outreach Coordinator. The book represents the State of the Art of Nanotechnology in diverse field such as: Health, Energy, TIC, Food, Cosmetics, Products on the Market, Water and the Environment and Characterization

• Developed the Application Saved by the Paradox, based on the Maxwell’s demon paradox. A game to approach to the general public, inculing children, the Maxwell’s demon paradox. The development of this apps was supervised by professors Carles Calero (IN’UB), Muntsa Guilleumas (ICCUB) and Bruno Julia Diaz (ICCUB).

• Researchers from the Institute participates on Nanoinvetum, A project aiming at incorporating nanoscience at Primary Schools.

• Festival 10alamenos9 (10–9 Festival). The Festival aims to bring the nanometric scale, its effects and how this knowledge is going to change our lives through countless applications and products, to all audiences.
7. PhD thesis defended

Most IN$^2$UB researchers are involved in the doctorate training. This is the list of doctoral theses defended in 2022, supervised by IN$^2$UB researchers:

**MONOCAPES AUTOASSEMBLAEDES ELECTROACTIVES: INTERACCIONS PI-DONADOR/PI-ACCEPTOR PER A INDUIR TRANSPORT EN SUPERFÍCIE**
Author: Sandra Giraldo Clemente
Directors: Ma Luisa Pérez García; Arántzazu Gonzalez-Campo

**ADVANCED COMPUTATIONAL TOOLS FOR EELS DATA REDUCTION AND CLUSTERING, QUANTITATIVE ANALYSIS AND 3D RECONSTRUCTIONS**
Author: Javier Blanco Portals
Director: Francesca Peiró; Sònia Estradé

**GIANT CALORIC AND MULTICALORIC EFFECTS IN MAGNETIC ALLOYS**
Author: Adrià Gràcia Condal
Director: Lluis Mañosa Carrera

**MAKING THE MOST OF IMAGING AND SPECTROSCOPY IN TEM: COMPUTER SIMULATIONS FOR MATERIALS SCIENCE PROBLEMS**
Author: Catalina Coll
Director: Francesca Peiró; Sònia Estradé

**ATOMIC FORCE MICROSCOPY TO ELUCIDATE LIPID MEMBRANES ENHANCED BY ENGINEERED LIPOSOMES**
Author: Adrià Botet Carreras
Director: Jordi Borrell Hernández; Òscar Domènech Cabrera

**OBTENCIÓN DE APTÁMEROS ESPECÍFICOS PARA ENZIMAS DE LA VÍA DEL METILERITRITOL FOSFATO DE MICROORGANISMOS**
Author: Roca Martinez, Carlota
Director: Santiago Imperial Ródenas; Xavier Fernández Busquets

**TUNING THE PERFORMANCACE OF MAGNETIC, SEMICONDUCTOR, AND MULTIFUNCTIONAL HYBRID NANOSTRUCTURES**
Author: Mariona Escoda i Torroella
Director: Xavier Batlle; Amílcar Labarta

**DESIGN AND CHARACTERIZATION OF TOPICAL KETOROLAC TROMETHAMINE FORMULATIONS**
Author: Salima El Moussaoui El Masnaoui
Director: Ana C Calpena Campmany; Mireia Mallandrich Miret

**DESIGN, SYNTHESIS AND STUDY OF COORDINATION COMPLEXES WITH SPIN CROSSOVER OR SINGLE-MOLECULE MAGNET PROPERTIES**
Author: Rosa Diego
Director: G. Aromí

**AUTOMATED COLOR CORRECTION FOR COLORIMETRY APPLICATIONS USING BARCODES**
Author: Ismael Benito–Altamirano
Director: Juan Daniel Prades

**DEVELOPMENT OF A NANO-ILLUMINATION MICROSCOPE**
Author: Franch, Nil
Director: Angel Dieguez Barrientos

**FABRICATING ULTRASENSITIVE METAL NANO-STRUCTURES WITH LANGMUIR-BLODGETT TECHNIQUE TO IMPROVE PLASMONIC RESPONSE OF SERS**
Author: Mohammad Tahghighi Haji Alizadeh
Director: Jordi Ignés Mullol

**NEW ORGANIC SEMICONDUCTORS BASED ON THE CARBAZOLE CORE: SYNTHESIS AND APPLICATION IN OPTOELECTRONIC DEVICES**
Author: Roger Bujaldon
Director: D. Velasco
SYNTHESIS AND CHARACTERIZATION OF CARBON NANOTUBES AND HYBRID CARBON NANOSTRUCTURES GROWN ON FLEXIBLE ELECTRODES FOR SUPERCAPACITOR APPLICATIONS
Author: Islam Alshaikh
Director: E. Bertran

DBD PLASMA REACTOR FOR CO2 METHANATION
Author: Martí Biset Peiró
Director: Teresa Andreu Arbella

TI-CONTAINING HYBRID ORGANOSILICAS, MO(X)C/G-C(3)N(4) NANOCompositeS AND ENGINEERED MO(X)C/TIO(2) NANOMATERIALS AS NOBLE-METAL-FREE PHOTOCATALYSTS FOR H(2) PRODUCTION
Author: Yang Wang
Director: N. Homs

RESPONSIVE NANOMATERIALS FOR CANCER THERANOSTICS
Author: Jordan Potts
Director: M Luisa Pérez García; Frankie Rawson; David Amabilino

NEW π-FUNCTIONAL MOLECULES FOR ENERGY AT THE INTERFACE BETWEEN BIOLOGY AND MATERIALS
Author: Ferdinando Malagreca
Director: M Luisa Pérez García; David Amabilino; Frankie Rawson

DEVELOPMENT OF TUNABLE BIOINKS TO FABRICATE 3D-PRINTED IN VITRO MODELS: A SPECIAL FOCUS ON SKELETAL MUSCLE MODELS WITH POTENTIAL APPLICATIONS IN METABOLIC ALTERATION STUDIES
Author: García Lizarribar, Andrea
Director: Josep Samitier Martí

NOVEL ANTIMICROBIAL PEPTIDES FOR THERAPEUTIC APPLICATIONS: DESIGN, SYNTHESIS, CHARACTERIZATION, AND EVALUATION OF THEIR BIOLOGICAL AND BIOPHYSICAL ACTIVITY
Author: Roser Segovia
Director: Francesc Rabanal; Yolanda Cajal

DESIGN, SYNTHESIS, AND EVALUATION OF THE BIOLOGICAL AND BIOPHYSICAL ACTIVITY OF COLISTIN ANALOGUES
Author: Judith Solé
Director: Francesc Rabanal; Yolanda Cajal

CELL-ADHESIVE NANOPATTERNS FOR MUSCULOSKELETAL TISSUE ENGINEERING
Author: Ignasi Casanellas Mercado
Director: Josep Samitier Martí; Anna Lagunas Targarona

PLASMON-ENHANCED CATALYTIC REACTIONS FOR RENEWABLE FUELS
Author: Viktoria Golovanova
Director: J.R. Morante; T. Andreu

CHARACTERIZATION OF THROMBECTOMY CATHETERS TO OPTIMIZE STRATEGIES FOR ENDOVASCULAR TREATMENT OF ACUTE ISCHEMIC STROKE
Author: Jiahui Li
Director: Oscar Castaño Linares; Marc Ribo Jacobi
For further information on the achievement of the institute and its researchers, please have a look at our website www.ub.edu/in2ub