

ICMM-CSIC INTERNSHIP OFFER (2025-2026)



TYPE OF INTERNSHIP	PROGRAMS	Preferred Education Background	Internship Duration (months)	from	to	SUBJECT	SUMMARY	SUPERVISOR	email	Research Group
Any educational level including high school	· High Schools Internships (with agreements in force) · Prácticas de Formación Profesional (reguladas por convenio del CSIC con la Consejería de Educación de la Comunidad de Madrid) · Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	While not essential, a background in chemical sciences—particularly physical chemistry—would be beneficial		16/09/2025	31/08/2026	Real-Time Chemistry: Spectroscopic Windows into Catalysis	Our research group develops advanced spectroscopic tools to design efficient catalysts for key chemical reactions like water splitting, hydrogen production, and converting methane into methanol. We're especially interested in mimicking nature—such as enzymes that oxidize methane—and creating artificial systems for solar energy conversion. To understand how these catalysts work and improve their performance, we use powerful techniques like time-resolved X-ray spectroscopy. These allow us to capture ultrafast changes in the structure and electronic states of molecules during reactions, helping us uncover what makes a catalyst active and stable. We combine synchrotron-based X-ray methods with lab-based techniques like UV-Vis, Raman, and electron paramagnetic resonance spectroscopy. Our work bridges chemistry, physics, and materials science to push forward clean energy technologies.	Dooshaye Moonshiram	dooshaye.moonshiram@csic.es	Time-resolved Spectroscopy in Biological and Chemical Catalysis
Any educational level including high school · Undergraduate students · Master students	· High Schools Internships (with agreements in force) · Prácticas de Formación Profesional (reguladas por convenio del CSIC con la Consejería de Educación de la Comunidad de Madrid) · Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics		15/09/2025	30/06/2026	High-performance computer simulations of spin models	Are you curious about the physics behind tomorrow's technologies? Join our research group, where we combine fundamental science with the search for innovative solutions in spin-based electronics and next-generation computing architectures. Our team is a dynamic mix of seven graduate students and three senior researchers, working together on cutting-edge problems in computational modeling of magnetic materials. We investigate phenomena ranging from the electronic ground state to ultrafast dynamical responses on femtosecond timescales. Current research topics include: · Stabilizing and controlling complex magnetic couplings · Exploring the unique properties of two-dimensional (2D) magnetic systems · Computational studies of topological properties in spin systems What you'll gain as an intern: · Hands-on experience with high-performance computing tools · Training in C++ and CUDA programming for large-scale simulations · Skills in Python-based data processing and scripting · Techniques for high-quality scientific data visualization · Exposure to a stimulating research environment that values curiosity, collaboration, and creativity This internship is ideal for students interested in physics, materials science, or computational methods who want to experience real-world research at the intersection of fundamental physics and emerging technology.	Unai Atxitia Macizo	u.atxitia@csic.es	Multiscale Materials Modelling

Any educational level including high school · Undergraduate students · Master students	· High Schools Internships (with agreements in force) · Prácticas de Formación Profesional (reguladas por convenio del CSIC con la Consejería de Educación de la Comunidad de Madrid) · Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Chemistry, engnnering, environment, biology	7	12/01/2026	25/06/2026	Materials and cvhemical substances for a cleaner future	Using waste, which often poses an environmental problem, renewable energy, substances and materials, can be produce, reducing dependence on fossil fuels and advocating for a Circular Economy, an interesting philosophy from both economic and environmental perspectives. First, a summary will be studied to describe the influence of scientific and technological developments on the current global situation. Some substances and processes have contributed to an unprecedented quality of life, but have also had, in some cases, irreparable consequences for the environment and health. This relates to the exponential increase in population and the resulting needs.\n\nThe aim is to promote the Circular Economy (CE) and Sustainable Development (SD), with a view to an economic, social, and environmental model that will help combat Climate Change (CC). Currently, one of the most important actions carried out in this regard is waste reduction to protect the environment and human health, while replacing non-renewable natural resources with waste. Some examples to be studied are water purification to combat desertification and tissue engineering to alleviate the need for these, given the increasing average age of the population.\n	M. A. Martin-Luengo	mluengo@icmm.csic.es	Design of new materials and substances for circular economy and sustainability
Any educational level including high school · Undergraduate students · Master students	· High Schools Internships (with agreements in force) · Prácticas de Formación Profesional (reguladas por convenio del CSIC con la Consejería de Educación de la Comunidad de Madrid) · Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Some experience is chemical sciences is beneficial although not essential.		16/09/2025	01/09/2026	Real-Time Chemistry: Spectroscopic Windows into Catalysis	Our research group develops advanced spectroscopic tools to design efficient catalysts for key chemical reactions like water splitting, hydrogen production, and converting methane into methanol. We're especially interested in mimicking nature—such as enzymes that oxidize methane—and creating artificial systems for solar energy conversion. To understand how these catalysts work and improve their performance, we use powerful techniques like time-resolved X-ray spectroscopy. These allow us to capture ultrafast changes in the structure and electronic states of molecules during reactions, helping us uncover what makes a catalyst active and stable. We combine synchrotron-based X-ray methods with lab-based techniques like UV-Vis, Raman, and electron paramagnetic resonance spectroscopy. Our work bridges chemistry, physics, and materials science to push forward clean energy technologies	Dooshaye Moonshiram	dooshaye.moonshiram@csic.es	Time-resolved Spectroscopy in Biological and Chemical Catalysis
Any educational level including high school · Undergraduate students · Master students	- High Schools Internships (with agreements in force) · Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics		01/09/2025	30/06/2026	Emergence of mental states in cognitive networks	In recent years it has been recognized the contribution of tools in physics to model the mind.\n\nIn particular, the concept of emergence of perceptual states from a configuration of cognitive networks. This internship project is recommended to students curious in an interdisciplinary domain from physics to cognition.	Belén Valenzuela	belenv@icmm.csic.es	Quantum Materials for Quantum Technologies

Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC)	Chemistry	6	12/01/2026	30/06/2026	Development of new biocompatible hybrid glasses	Synthesis and development of new hybrid glasses based on metal-organic frameworks. During this multidisciplinary project the student will acquire skills in different techniques including single crystal X-ray diffraction, powder diffraction, and thermal characterisation. The project will evaluate the biocompatibility of the material as well.	Celia Castillo Blas	castillo@icmm.csic.es	SUPREMA
Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · ERASMUS+ programme	Chemistry		03/11/2025	28/08/2026	Sol-Gel Synthesis of Optical Materials for Smart Sensor Applications	One of the major advantages of sol-gel processing is its ability to precisely control the structural properties of materials, particularly when they're used as coatings. This method allows for the adjustment of the size, shape, and density of micro/nanopores, which is crucial for advanced applications. In our case, controlling these specific characteristics—pore dimensions, number, and distribution—is essential because they determine the effective surface area where fluorescent molecules will be confined. Once incorporated, these molecules can respond optically to external stimuli like light or an electric field, acting as sensors. Throughout the lab sessions, experiments will be conducted focused on the synthesis and optimization of these coatings, with the goal of maximizing their optical response. Students will also learn and apply experimental techniques for material characterization, including profilometry, optical and electron microscopy (SEM), optical spectroscopy, and structural analysis. This experimental work will serve as the foundation for a later phase of the project, which will involve developing small-scale optical nanosensors with potential for technological applications in the field of smart sensors.	David Levy	David.Levy@icmm.csic.es	Sol-Gel Group (SGG)
Master students	· Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics or Engineering	6	29/09/2025	30/06/2026	Thermal management of batteries for optimum performance	In this project, the student will develop an experimental system (instrumentation) to analyze, using programmable power supplies, data acquisition systems, and surface thermocouples, the heat generated by a planar battery during different charge and discharge cycles. Furthermore, carbon-based materials will be used to effectively dissipate heat from the battery, thus improving its performance and lifespan. This experimental work will be combined with finite element simulations for system optimization. The work carried out will be part of a European project (ERC CoG) and will involve collaboration with various industrial partners, like Philips, ASML and Thales.	Miguel Muñoz Rojo	m.m.rojo@csic.es	2D Foundry

Master students	· Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics or Engineering	6	29/09/2025	30/06/2026	Thermal management of batteries for optimum performance	In this project, the student will develop an experimental system (instrumentation) to analyze, using programmable power supplies, data acquisition systems, and surface thermocouples, the heat generated by a planar battery during different charge and discharge cycles. Furthermore, carbon-based materials will be used to effectively dissipate heat from the battery, thus improving its performance and lifespan. This experimental work will be combined with finite element simulations for system optimization. The work carried out will be part of a European project (ERC CoG) and will involve collaboration with various industrial partners, like Philips, ASML and Thales.	Miguel Muñoz Rojo	m.m.rojo@csic.es	2D Foundry
Undergraduate students	Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC)	Chemical Engineering	4	07/01/2026	29/05/2026	Development of hybrid porous materials for water remediation	Synthesis of new based-metal-organic framework materials for the decontamination of water. Particularly the project will treat the capture and the degradation of microplastics	Celia Castillo Blas	castillo@icmm.csic.es	SUPREMA
Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics, Chemistry, Material Science, related	6	01/10/2025	30/06/2026	Nanoscale Control of 3D Printed Materials Properties	This research project is a chance to dive into the world of 3D laser writing. Instead of just printing, you will be using lasers to change material properties at the nanoscale. By precisely controlling the laser's dose we seek to customize electrical properties, surface wettability, and adhesion of our 3D printed polymers. You will use an Atomic Force Microscope (AFM) in various modes to measure these changes, proving you can engineer new materials from the ground up.	Eider Berganza	eider.berganza@csic.es	Nanomagnetism
Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics, Chemistry, Material Science, Engineering.		01/10/2025	30/06/2026	3D laser writing at the microscale	Are you interested in cutting-edge nanotechnology, 3D printing, and exploring the limits of material science? Join our lab for a hands-on research internship focused on two-photon lithography (2PL) — a state-of-the-art 3D nanoprinting technique capable of fabricating structures with sub-micron precision. What You'll Do: · Use Two-Photon Lithography to 3D-print custom nanoscale structures. · Investigate how nanoscale geometry and printing parameters influences mechanical, electrical, and magnetic properties. · Employ atomic force microscopy (AFM) to characterize surface topology, stiffness, and functional behavior at the nanoscale.	Eider Berganza	eider.berganza@csic.es	Nanomagnetism
Undergraduate students · Master students	· ERASMUS+ programme	Chemistry	3	01/06/2026	31/08/2026	Development of new hybrid glasses to block UV radiation	Hybrid glasses field is a new and promising branch in the field of the coordination chemistry based on the recent discovery that coordination polymers and MOFs are able to melt. In this internship the student will synthesise hybrid materials, will prepare the glasses using a tube furnace and will characterise them by TGA, DSC, UV-VIS and PXRD. The student will also gain experience in the use of scientific software and will be in touch with international experts in the field.	Celia Castillo Blas	castillo@icmm.csic.es	SUPREMA

Undergraduate students · Master students	· Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC)	Chemistry	6	01/10/2025	30/06/2026	Development of new hybrid glasses for UV protection	Synthesis and development of new hybrid glasses based on metal-organic frameworks. During this multidisciplinary project the student will acquire skills in different techniques including single crystal X-ray diffraction, powder diffraction, and thermal characterisation. The project will evaluate the optical characterisation of the material as well.	Celia Castillo Blas	castillo@icmm.csic.es	SUPREMA
Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics, Theoretical Chemistry, Physics Engineering, Materials Science		01/10/2025	31/07/2026	Advanced simulation of nanostructured magnetic materials	Our group is specialized in the multiscale simulation of nanostructured materials, from the electronic ground state to the dynamical response in the micromagnetic regime under the action of temperature and external fields. We investigate fundamental physics problems related to the development of sustainable magnets, as well as to the search for technological solutions in the field of spin-based electronics and computing architectures. Current projects include exploring the conditions to stabilize complex magnetic couplings, exploiting the singular features of two-dimensional (2D) magnetic platforms, and manipulating the chemical and structural properties of sustainable materials in order to optimize their magnetic response. We are also interested in testing the ability of acceleration techniques (high throughput, machine learning) to capture the rich physics of complex systems including disorder effects, long-range interactions and large scale features difficult to access with accurate ab initio approaches. Any of these topics could be addressed in the present internship. We are also open to related topics suggested by the student that can be addressed with the theoretical tools available in the group.	Silvia Gallego Queipo	sgallego@icmm.csic.es	Multiscale Materials Modelling
Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics and engineering (telecom, computer science)	6	16/09/2025	30/07/2026	Silicon Neurons: Building Brain-Inspired Computers with Light and Vibrations	What if we could build systems that process information like brains using light instead of electricity? In this project, you'll explore how the natural thermal vibrations in tiny silicon structures interact with trapped laser light, creating an "optomechanical" coupling that can mimic neural processing. These nanostructures are constantly vibrating due to thermal energy, and when you confine light in the same tiny space, the optical and mechanical modes influence each other in fascinating ways giving rise to strongly nonlinear and complex dynamics. By measuring and controlling these dynamics, it's possible to develop a new type of neural network that can process information at light speed with minimal power consumption. In this internship, you will get access to the models we use to describe the dynamical regimes of the silicon nanostructures and hands on experiments where we process information in the time domain exploiting the complexity of these tiny systems.	Pedro David García Fernández	pd.garcia@csic.es	Cristales Fotónicos

Undergraduate students · Master students	Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics and Engineering (Telecom engineering, computer science)	6	01/09/2025	31/07/2026	Silicon Neurons: Building Brain-Inspired Computers with Light and Vibrations	What if we could build systems that process information like brains using light instead of electricity? In this project, you'll explore how the natural thermal vibrations in tiny silicon structures interact with trapped laser light, creating an "optomechanical" coupling that can mimic neural processing. These nanostructures are constantly vibrating due to thermal energy, and when you confine light in the same tiny space, the optical and mechanical modes influence each other in fascinating ways giving rise to strongly nonlinear and complex dynamics. By measuring and controlling these dynamics, its possible to develop a new type of neural network that can process information at light speed with minimal power consumption.	Pedro David García Fernández	pd.garcia@csic.es	Cristales Fotónicos
Undergraduate students · Master students	· Prácticas de Formación Profesional (reguladas por convenio del CSIC con la Consejería de Educación de la Comunidad de Madrid) · Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Chemistry	3	01/11/2025	30/06/2026	Green Science in Action: Developing Polymeric Porous Materials for Environmental Applications	The general goal is to develop new polymer-based materials using sustainable methods (mechanochemistry, green solvents, etc.) so that it can be used in applications of environmental interest such as CO2 conversion, biomass transformation, toxic metal removal, etc.	Eva M. Maya	eva.maya@csic.es	SUPREMA: Supramolecular, polymeric and reticular materials
Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC)	Physics or Chemistry	3	05/01/2026	01/06/2026	Raman and structural characterization of 2D transitional metal carbides (MXenes)	In this assignment, the student will learn about a relatively new class of 2D materials known as MXenes. The objective of the work will be focused on the structural and physico-chemical characterization, specially with Raman spectroscopy, of our lab-made MXenes.	Miguel Muñoz Rojo	m.m.rojo@csic.es	2D Foundry
Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC)	Physics		01/10/2025	30/06/2026	Transferencia de información cuántica a través de puntos cuánticos semiconductores	The student will work on modeling protocols for quantum information transfer across different platforms, particularly in semiconductor quantum dot arrays, and will learn the properties of these systems for creating spin quantum bits and their applications in quantum computing.	Gloria Platero	gplatero@icmm.csic.es	Novel Platforms

Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics and Chemistry	3	01/09/2025	31/07/2026	On-surface Synthesis of Carbon-based Nanostructures	This internship is framed within on-surface synthesis (OSS), an emerging and multidisciplinary field at the intersection of Surface Science, Organic Chemistry, and Vacuum Technology. During the stay, the student will take part in the on-surface synthesis of atomically precise, carbon-based nanostructures that display novel quantum properties, such as π-magnetism. These systems will be experimentally characterized using a multi-technique approach, including state-of-the-art scanning probe microscopy (SPM) at cryogenic temperatures (5 K) and photoemission spectroscopies such as X-ray photoemission spectroscopy (XPS). This internship will give the student the opportunity to gain hands-on experience in a rapidly growing field with strong scientific and technological potential. It will provide a broad perspective of the discipline together with multidisciplinary training that bridges Physics and Chemistry. The work will be carried out within the ESISNA group, an internationally recognized leader in the field of surface reactions, with strong collaborations with leading research groups worldwide.	Carlos Sánchez Sánchez	cssanchez@icmm.csic.es	ESISNA
Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC) · Internships students from foreign institutions (with bilateral agreements with CSIC) · ERASMUS+ programme	Physics		01/09/2025	31/08/2026		In my group, we research on quantum science and technologies, with special emphasis on implementations. Topics include new qubit designs and devices for efficient electronics and precise sensing.	Rubén Seoane	ruben.seoane@csic.es	Quantum Materials for Quantum Technologies (Q4Q)

Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC)	Physics, Chemistry	12	01/09/2025	30/07/2026	Wave-Particle Duality in Heat Transport	Does your phone heat up when you watch videos or use GPS? That heat is wasted energy, and avoiding it is one of the great challenges of the digital future. In this project, you'll join cutting-edge research led by our group that has, for the first time, demonstrated that heat can travel as a wave at room temperature, breaking with classical paradigms of thermal transport. This property opens the door to a revolution: devices that block or redirect heat (like thermal diodes), or materials that cool themselves depending on their structure. You'll work with theoretical models and numerical simulations to understand—atom by atom—how molecular vibrations can control heat flow. Objective: design a thermal rectifier, something that allows almost no heat to pass in one direction. What We Offer: · Real group research experience, collaborating and learning alongside researchers at different levels (more at www.nanotrib.com) · Possibility to link the work to your Bachelor's (TFG) or Master's (TFM) thesis · Option to continue toward a PhD thesis · In some cases, financial support may be available to help cover the internship	Guilherme Vilhena	guilherme.vilhena@csic.es	www.nanotrib.com
Undergraduate students · Master students	· Prácticas Curriculares de Grado/Trabajos Fin de Grado (Universidades Españolas con convenios vigentes con CSIC) · Prácticas Curriculares de Máster/Trabajos Fin de Máster (Universidades Españolas con convenios vigentes con CSIC)	Physics, Chemistry	12	01/09/2025	30/07/2026	Nonequilibrium Physics: The Challenge of Energy Dissipation	Did you know that 23% of the energy we consume is lost to friction processes? And that, to this day, we're not able to predict friction a priori? What you've learned so far about these processes are empirical laws proposed by Leonardo da Vinci over 500 years ago, for example, that friction is proportional to the normal load. But these laws don't explain what actually happens at the contact interface, they don't guide physical reasoning, and they don't always hold. In fact, when they're violated, new and counterintuitive phenomena can emerge. This project invites you to explore that interface by bringing in knowledge from solid-state physics, statistical physics, and quantum mechanics, using atomistic simulations and analytical models. Objective: relate energy dissipation to intrinsic material properties and establish the foundations of a fundamental theory of friction (energy dissipation). What We Offer: · Real group research experience, collaborating and learning alongside researchers at different levels (more at www.nanotrib.com) · Possibility to link the work to your Bachelor's (TFG) or Master's (TFM) thesis · Option to continue toward a PhD thesis · In some cases, financial support may be available to help cover the internship	Guilherme Vilhena	guilherme.vilhena@csic.es	www.nanotrib.com

CORREO ELECTRÓNICO:

info@cnmm.csic.es



CSIC