ADVANCED NANOSCIENCE AND NANOTECHNOLOGY MASTER, YEAR 24/25

PROPOSALS FOR MASTER THESIS

	OFFERS with funding				
No.	**Institute/Department/Unit (group)**	**Website**	**Research line, topic**	**Supervisor, e-mail**	**Funding**
44	Microelectronics Institute (IMB-CNM-CSIC), SPEED - Self Powered Engineered Devices	Under construction	MICROBATTeries for autonomous detection of events in biological environments	Neus Sabaté (neus.sabate@imb-cnm.csic.es)	Amb possibilitat de finançament de contracte
49	Microelectronics Institute (IMB-CNM-CSIC), Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	Silicon based nanostructured materials for microthermoelectric generators. Design, fabrication and characterization.	Llibertat Abad (llibertat.abad@imb-cnm.csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
50	Microelectronics Institute (IMB-CNM-CSIC), Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	Thermoelectric generator based on ultrathin Si thin films. Design, fabrication and characterization	Marc Salleras (marc.salleras@imb-cnm.csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
52	Microelectronics Institute (IMB-CNM-CSIC), Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	Silicon based nanostructured materials for microthermoelectric generators. Design, fabrication and characterization.	Mar Salleras (mar.salleras@imb-cnm.csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
55	Microelectronics Institute (IMB-CNM-CSIC), Nanomems	http://nanonems.imb-cnm.csic.es/	Design and fabrication of semiconductor quantum devices	Francesc Pérez Murano (Francescc.Perez@csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
58	Microelectronics Institute (IMB-CNM-CSIC), Nanomems	http://nanonems.imb-cnm.csic.es/	Nanomechanical characterization of sensor devices based on novel materials	Marta Fernández (marta.fernandez@imb-cnm.csic.es)	The TFM will be conducted within the framework of the "SENDESIS" project, "Sensor devices by sequential infiltration synthesis of metal oxides on block copolymer templates". Upon finishing, there will be the possibility to undertake a Ph.D. thesis at NanoNEMS group.
60	Microelectronics Institute (IMB-CNM-CSIC), Chemical Transducers Group (GTQ)	https://www.imb-cnm.csic.es/ca/recerca/grups-de-recerca/grup-de-transductors-quimics-gtq	Silk fibroin based technologies for bionsensors manufacturing	Francesc Xavier Muñoz Berbel (xavier.munoz@imb-cnm.csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
	ALL OFFERS				
No.	**Institute/Department/Unit (group)**	**Website**	**Research line, topic**	**Supervisor, e-mail**	**Additional information**
	Catalan Institute of Nanoscience and Nanotechnology (ICN2)				
1	Physics and Engineering of Nanodevices (PEN)	http://nanodevices.icn2.cat/	Spin transport and thermal effects in van der Waals systems	Juan F. Sierra (juan.sierra@icn2.cat)	
2	Physics and Engineering of Nanodevices (PEN)	http://nanodevices.icn2.cat/	Proximity effects in van der Waals heterostructures	Sergio O. Valenzuela (SOV@icrea.cat)	
3	Thermal Properties of Nanoscale Materials	https://icn2.cat/en/thermal-properties-of-nanoscale-materials	Substrate manipulation to tune the structure of organic thin films for optoelectronic applications	Cristian Rodriguez (cristian.rodriguez@uab.cat)	
4	Thermal Propertis of Nanoscale materials	https://icn2.cat/en/thermal-properties-of-nanoscale-materials	Development of smart sensors based on low dimensional materials for monitoring air quality in B	Marianna Sledzinska (marianna.sledzinska@icn2.cat)	
5	Thermal Propertis of Nanoscale materials	https://icn2.cat/en/thermal-properties-of-nanoscale-materials	Pyroelectric and electrocaloric measurements on ultrathin oxide membranes	Javier Rodríguez-Viejo (javier.rodriguez@uab.cat) & Tapas Bar (tapas.bar@icn2.cat)	
6	Thermal Propertis of Nanoscale materials	https://icn2.cat/en/thermal-properties-of-nanoscale-materials	Heat capacity of 2D materials	Javier Rodríguez-Viejo (javier.rodriguez@uab.cat) & Aitor Lopeandia ((aitor.lopeandia@uab.cat))	
7	Thermal Propertis of Nanoscale materials	https://icn2.cat/en/thermal-properties-of-nanoscale-materials	Organic solar cells based on ultra-stable glasses: towards stable and efficient devices	Javier Rodríguez-Viejo (javier.rodriguez@uab.cat) & Cristian Rodriguez (cristian.rodriguez@uab.cat)	
8	Thermal Propertis of Nanoscale materials	https://icn2.cat/en/thermal-properties-of-nanoscale-materials	Nanopatterning of ultrathin organic layers	Javier Rodríguez-Viejo (javier.rodriguez@uab.cat) & Jordi Fraxedas (jordi.fraxedas@icn2.cat)	
9	Thermal Propertis of Nanoscale materials	https://icn2.cat/en/thermal-properties-of-nanoscale-materials	Thermal transport in oxide membranes	Aitor Lopeandia (aitor.lopeandia@uab.cat)	
10	Nanostructured Functional Materials	www.nanosfun.com	Bioinspired materials for tissue regeneration (from artificial skin to neuro repair)	Salvio Suárez (salvio.suarez@icn2.cat)	
11	Nanostructured Functional Materials	www.nanosfun.com	Multifunctional mussel-inspired coatings for environment remediation	Salvio Suárez (salvio.suarez@icn2.cat)	
12	Nanostructured Functional Materials	www.nanosfun.com	Visible-light activated photochromic materials for smart windows applications	Claudio Roscini (claudio.roscini@icn2.cat)	
13	Nanostructured Functional Materials	www.nanosfun.com	Deciphering the relevance of melanin nanostructres on Parkinson disease	Daniel Ruiz-Molina (dani.ruiz@icn2.cat)	
4	Atomic Manipulation and spectroscopy	http://ams.icn2.cat/	Atomically precise graphene nanoarchitectures for optoelectronic and sensing devices	Jose Ramon Durán (joseramon.duran@icn2.cat) & Aitor Mugarza (aitor.mugarza@icn2.cat)	
4	Atomic Manipulation and spectroscopy	http://ams.icn2.cat/	Manipulation and detection of excitons with atomic precision in 2D VdW heterostructures	Marc G. Cuxart (marc.gcuxart@icn2.cat) & Aitor Mugarza (aitor.mugarza@icn2.cat)	
14	Nanostructured Functional Materials	www.nanosfun.com	Photoresponsove materials for energy saving and harvesting.	Claudio Roscini (claudio.roscini@icn2.cat)	
15	Nanomedicine	www.nanomedicinelab.com	Design of graphene oxide nanosheets with biologically active molecules	Neus Lozano (neus.lozano@icn2.cat) & Kostas Kostarelos (kostas.kostarelos@icn2.cat)	
16	Nanobioelectronics and Biosensors Group	https://www.nanobiosensors.org/	Paper-based nanobiosensors for diagnostics	Arben Merkoçi (arben.merkoci@icn2.cat)	
17	Nanobioelectronics and Biosensors Group	https://www.nanobiosensors.org/	Electrodes printing and sensors optimization	Arben Merkoçi (arben.merkoci@icn2.cat)	
18	Nanobioelectronics and Biosensors Group	https://www.nanobiosensors.org/	Biosensing applications using DNA	Arben Merkoçi (arben.merkoci@icn2.cat)	
19	Novel Energy-Oriented Materials (ICN2)	http://neoenergy.cat/	Nanomaterials design and engineering for efficient Zn-based energy storage devices	Leandro Bengoa (leandro.bengoa@icn2.cat) & Pedro Gómez-Romero (pedro.gomez@icn2.cat)	
20	Novel Energy-Oriented Materials (ICN2)	http://neoenergy.cat/	Hybrid nanomaterials development for energy storage applications	Rosa Maria González-Gil (rosamaria.gonzalez@icn2.cat) & Pedro Gómez-Romero (pedro.gomez@icn2.cat)	
21	Theory and Simulation	https://icn2.cat/en/theory-and-simulation-group	Molecular modeling applied to metallic/liquid interfaces: evaluation of the quality of different m	Pablo Ordejón (pablo.ordejon@icn2.cat) & Ernane de Freitas Martins (ernane.defreitas@icn2.cat)	
22	Theory and Simulation	https://icn2.cat/en/theory-and-simulation-group	Electronic and structural properties of VdW heterostructures from a density functional theory ap	Pablo Ordejón (pablo.ordejon@icn2.cat) & Roberta Farris (roberta.farris@icn2.cat)	
23	Theory and Simulation	https://icn2.cat/en/theory-and-simulation-group	Quantum atomistic simulations of nickelates thin films under strain	Miguel Pruneda (miguel.pruneda@icn2.cat) & Catalina Coll (catalina.coll@icn2.cat)	
24	Oxide Nanophysics Group & Nanomaterials Growth Unit	https://icn2.cat/en/oxide-nanophysics-group, https://icn2.cat/en/nanomate	Solid-state Electrochemical reduction approach to stabilize infinite-layer superconducting phase	David Pesquera <david.pesquera@icn2.cat> & José Santiso (jose.santiso@icn2.cat)	
25	Collaboration between Nanomaterials Growth Unit at ICN2 & Multifunctional Oxides group at ICMAB	https://icn2.cat/en/nanomaterials-growth-unit, https://www.atlab.es/	Development of novel epitaxial strain platform (with tunable cell parameters) for fluorite ferroics	José Santiso (jose.santiso@icn2.cat) & Gabriele De Luca <gdeluca@icmab.es>	
26	Collaboration between Nanomaterials Growth Unit at ICN2 & Nanoionics and Fuel Cells group at IREC	https://icn2.cat/en/nanomaterials-growth-unit, https://www.atlab.es/	Controlling the oxygen-ion concentration for advanced computation devices: an experimental stu	José Santiso (jose.santiso@icn2.cat) & Francesco Chiabrera <fchiabrera@irec.cat>	
27	Inorganic Nanoparticles	https://icn2.cat/en/inorganic-nanoparticles-group	New nanoparticle-antioxidant adjuvants for inflammatory related diseases	Neus Bastús (neus.bastus@icn2.cat) &Victor Puntes (victor.puntes@icn2.cat)	
28	Inorganic Nanoparticles	https://icn2.cat/en/inorganic-nanoparticles-group	Complex inorganic nanocrystals for artificial photosynthesis, and fuel cells	Neus Bastús (neus.bastus@icn2.cat) & Victor Puntes (victor.puntes@icn2.cat)	
29	Inorganic Nanoparticles	https://icn2.cat/en/inorganic-nanoparticles-group	Nanoremediation: emerging-micropollutants and nanopharmaceuticals	Neus Bastús (neus.bastus@icn2.cat) & Victor Puntes (victor.puntes@icn2.cat)	
30	NanoElectrocatalysis and Sustainable Chemistry	https://icn2.cat/en/nanoelectrocatalysis-and-sustainable-chemistry-group	Nanomaterials as electrocatalysts for renewable energy conversion	Maria Escudero Escribano (maria.escudero@icn2.cat)	
31	NanoElectrocatalysis and Sustainable Chemistry	https://icn2.cat/en/nanoelectrocatalysis-and-sustainable-chemistry-group	Nanocharacterisation of electrocatalysts for renewable energy	Maria Escudero Escribano (maria.escudero@icn2.cat) & Camilo Mesa (camilo.mesa@icn2.cat)	
32	Collaboration between Nanostructured Functional Materials group at ICN2 & Fernando Novio's Lab at Chemis	www.nanosfun.com	Nanostructured coordination polymers for photodynamic therapy applications	Fernando novio (fernando.novio@uab.cat) & Daniel Ruiz-Molina (dani.ruiz@icn2.cat)	
33	Collaboration between Nanostructured Functional Materials group at ICN2 & Fernando Novio's Lab at Chemis	www.nanosfun.com	Platinum prodrug-based coordination polymer nanoparticles for biomedical applications	Fernando novio (fernando.novio@uab.cat) & Daniel Ruiz-Molina (dani.ruiz@icn2.cat)	
34	Advanced Electronic Materials and devices	http://www.aemd.icn2.cat/	Graphene-based neural interfaces	Jose A. Garrido (joseantonio.garrido@icn2.cat) & Eduard Masvidal (eduard.masvidal@icn2.cat)	
35	Advanced Electronic Materials and devices	https://icn2.cat/en/advanced-electronic-materials-and-devices-group	Advanced multilayer ultrathin oxides for long-term hermeticity of flexible electronics	Jose A. Garrido (joseantonio.garrido@icn2.cat) & Eduard Masvidal (eduard.masvidal@icn2.cat)	
36	Advanced Electronic Materials and devices	https://icn2.cat/en/advanced-electronic-materials-and-devices-group	Bioinspired nanoengineering for brain computer interfaces	Jose A. Garrido (joseantonio.garrido@icn2.cat) & Eduard Masvidal (eduard.masvidal@icn2.cat)	
	Microelectronics Institute (IMB-CNM-CSIC)				
37	Radiation Detector Group	https://rdg.imb-cnm.csic.es/	Sensors for medical physics to improve patient treatments	Consuelo Guardiola (consuelo.guardiola@imb-cnm.csic.es)	
38	Radiation Detector Group	https://rdg.imb-cnm.csic.es/	Nanowires for nanodosimetry in radiobiology studies	Consuelo Guardiola (consuelo.guardiola@imb-cnm.csic.es)	
39	Radiation Detector Group	https://rdg.imb-cnm.csic.es/	Development of a FAIR Data Repository and Implementation of FAIR Data Principles	Martín Pérez <martin.perez@imb-cnm.csic.es>	
40	Radiation Detector Group	https://rdg.imb-cnm.csic.es/	Commissioning of a readout electronics for the characterization of silicon carbide radiation detectors	Martín Pérez <martin.perez@imb-cnm.csic.es>	
41	Micro NanoTools (MNTL)	http://mnt.imb-cnm.csic.es/index.php/about	Optomechanical nanostructures for wireless cell stimulation	Borja Sepúlveda (borja.sepulveda@imb-cnm.csic.es)	
42	Micro NanoTools (MNTL)	https://www.imb-cnm.csic.es/es/investigacion/grupos-de-investigacion/grupo-de-micro-y-nano-herramientas-mntl	Opto-mechanical sensors with mechanochromic response for enviromental monitoring	Mar Álvarez (mar.alvarez@imb-cnm.csic.es)	
43	Micro NanoTools (MNTL)	http://mnt.imb-cnm.csic.es/index.php/about	Multimodal nanostructured antibacterial surfaces	Ferran Pujol Vila (ferran.pujol@imb-cnm.csic.es)	
44	SPEED - Self Powered Engineered Devices	Under construction	MICROBATTeries for autonomous detection of events in biological environments	Neus Sabaté (neus.sabate@imb-cnm.csic.es)	Amb possibilitat de finançament de contracte
45	Biomedical Applications Group (GAB)	http://gab.imb-cnm.csic.es/	Graphene-based transistors for biosensing applications	Elisabet Prats (elisabet.prats@csic.es) & Sergi Brosel (sergi.brosel@csic.es)	
46	Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/ca/recerca/grups-de-recerca/grup-de-microfabricacio-i-integracio-de-sensors-i-fonts-denergia-messi	Fabrication, assembly and characterization of micro-thermoelectric generators	Joaquín Santander (joaquin.satander@imb-cnm.csic.es)	
47	Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/ca/recerca/grups-de-recerca/grup-de-microfabricacio-i-integracio-de-sensors-i-fonts-denergia-messi	Heat exchanger packaging strategies for micro-thermoelectric generators: assembly and characterization	Marc Salleras (marc.salleras@imb-cnm.csic.es) & Joaquín Santander (joaquin.satander@imb-cnm.csic.es)	
48	Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	Electrospun membranes for thermal managment	Llibertat Abad (llibertat.abad@imb-cnm.csic.es) i Marc Salleras (marc.salleras@imb-cnm.csic.es)	
49	Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	Silicon based nanostructured materials for microthermoelectric generators. Design, fabrication and characterization.	Llibertat Abad (llibertat.abad@imb-cnm.csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
50	Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	Thermoelectric generator based on ultrathin Si thin films. Design, fabrication and characterization	Marc Salleras (marc.salleras@imb-cnm.csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
51	Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	Memristor Devices for Artificial Intelligence Hardware	Mireia Bargalló González (mireia.bargallo.gonzalez@csic.es)	
52	Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	Silicon based nanostructured materials for microthermoelectric generators. Design, fabrication and characterization.	Marc Salleras (marc.salleras@imb-cnm.csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
53	Grupo de Microfabricación e integración de sensores y fuentes de energía (MESSI)	https://www.imb-cnm.csic.es/en/research/research-groups/microenergy-sources-and-sensor-integration-group-messi	3D printed moisture-enabled electricity generation devices	Carlos Carbonell (carlos.carbonell@imb-cnm.csic.es)	
54	PDS	Dra. Gemma Rius (csic.es)	Superconducting Thin Films and Devices for Quantum Computing and Sensing	Gemma Rius (gemma.rius@csic.es)	
55	Nanomems	http://nanonems.imb-cnm.csic.es/	Design and fabrication of semiconductor quantum devices	Francesc Pérez Murano (Francescc.Perez@csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
56	Nanomems	http://nanonems.imb-cnm.csic.es/	Fabrication and integration of laser-induced graphene with silicon microdevices	Iñigo Martin (inigo.martin@imb-cnm.csic.es)	
57	Nanomems	http://nanonems.imb-cnm.csic.es/	CVD-based growth and integration of graphene materiales	Iñigo Martin (inigo.martin@imb-cnm.csic.es)	
58	Nanomems	http://nanonems.imb-cnm.csic.es/	Nanomechanical characterization of sensor devices based on novel materials	Marta Fernández (marta.fernandez@imb-cnm.csic.es)	The TFM will be conducted within the framework of the "SENDESIS" project, "Sensor devices by sequential infiltration synthesis of metal oxides on block copolymer templates". Upon finishing, there will be the possibility to undertake a Ph.D. thesis at NanoNEMS group.
59	Chemical Transducers Group (GTQ)	https://www.imb-cnm.csic.es/ca/recerca/grups-de-recerca/grup-de-transductors-quimics-gtq	Development of nanolabels for digital detection of molecules	Antoni Baldi (antoni.baldi@imb-cnm.csic.es) & Césasr Fernandez (cesar.fernandez@imb-cnm.csic.es)	
60	Chemical Transducers Group (GTQ)	https://www.imb-cnm.csic.es/ca/recerca/grups-de-recerca/grup-de-transductors-quimics-gtq	Silk fibroin based technologies for bionsensors manufacturing	Francesc Xavier Muñoz Berbel (xavier.munoz@imb-cnm.csic.es)	Funding available JAE-INTRO ICU 2023 €3000 scholarship (€600/month for 5 months)
	Materials Science Institute of Barcelona (ICMAB-CSIC)				
61	Solid State Chemistry / Electrochemistry and Electroactive materials	https://icmab.es/ssc/electrochemistry-and-electroactive-materials	Induced non contact electrochemistry	Nieves Casañ Pastor (nieves@icmab.es)	Influence of induced electrochemistry in energy storage

62	Smart Molecular Inorganic and Hybrid Materials / SusMoSys	https://icmab.es/amabilino-david-brian	Sustainable Energy Conversion and Storage Systems	David Brian Amabilino (amabilino@icmab.es)	The project involves nanostructuring composite chiral organic materials for use in photovoltaic energy conversion. Aspects of synthesis, processing and characterization will be important to the success of the research.
63	Molecular Nanoscience and Organic Materials / Molecular Materials for Electronic Devices (eMolMat)	https://molecularelectronics.icmab.es/	Molecular electronics, biosensors	Marta Mas-Torrent (mmas@icmab.es)	Organic electronic devices for the development of biosensors: Organic electronic devices have high potential in the field of biosensors for the development of label-free point-of-care tests. In this project, organic electrochemical transistors will be manufactured to detect relevant biomarkers for diagnosis of diseases.
64	Molecular Nanoscience and Organic Materials / Molecular Materials for Electronic Devices (eMolMat)	https://molecularelectronics.icmab.es/	Organic electronics, devices	Marta Mas-Torrent (mmas@icmab.es)	Organic electronic devices offer very interesting properties such as flexibility, low weight, tuneability, low-cost manufacturing, and bio-compatibility. Here, we will fabricate Organic Field Effect Transistors (OFETs) using printing techniques. The main goal will be to optimize their device performance and to apply them as photodetectors.
65	Materials Science Institute of Barcelona (ICMAB-CSIC) / Solid State Chemistry / Supercritical fluids and funcional materials (SFFM)	https://icmab.es/ssc	Green preparation of porous Graphene-based nanocomposites for energy production and storage	Concha Domino (conchi@icmab.es)	
66	Materials Science Institute of Barcelona (ICMAB-CSIC) / Solid State Chemistry / Supercritical fluids and funcional materials (SFFM)	https://icmab.es/ssc	Synthesis of MOF-based composites for health & environmental remediation	Ana María López Periago (amlopez@icmab.es)	
67	Materials Science Institute of Barcelona (ICMAB-CSIC) / Theory and Simulation / Laboratory of Electronic Structure of Materials (LEEM)	https://departments.icmab.es/leem/Grupo/member_pages/riccardo/index.html	Thermal transport in semiconducting nanowires	Riccardo Rurali (rrurali@icmab.es)	The goal of this Master project is providing a theoretical framework aimed at understanding and controlling the manipulation of heat flux within semiconducting nanowires. The student will perform numerical simulations in order to devise realistic approaches for the engineering of efficient thermoelectric materials, i.e. materials where a temperature difference creates an electric potential. Nanowires present some
68	Materials Science Institute of Barcelona (ICMAB-CSIC) / Molecular Nanoscience and Organic Materials / Nanomol-Bio	https://molecularelectronics.icmab.es/	Molecular electronics, molecular-modified surfaces, electrocatalysis	Núria Crivillers (ncrivillers@icmab.es)	Modification of surfaces with redox-active molecules that can act as mediators for the electrocatalysis of electrochemical processes of socioeconomic, environmental, and technological importance: the oxygen reduction reaction (ORR) and the oxygen evolution reaction (OER). The electron transport properties of these systems will be also investigated fabricating molecular junctions.
69	Materials Science Institute of Barcelona (ICMAB-CSIC) / Advanced Characterization and Nanostructuration of Materials (CANAM)	https://acnm.icmab.es/	Complex oxide heterostructures for spintronic applications	Alberto Pomar	The possibility of using electronic spin as a control variable paves the way for developing spintronic devices with superior capabilities and lower power consumption compared to traditional semiconductor systems. Spintronics focuses on optimizing and controlling the mechanisms of spin current generation, manipulation and sensing to create spin-based devices. This project integrates several fields, from epitaxial growth of
70	Materials Science Institute of Barcelona (ICMAB)/Nanostructured Materials for Optoelectronics and Energy Harvesting (NANOPTO) / Nanoestructures Materials for Optoelectronics and Energy Harvesting (Nanopto)	https://nanopto.icmab.es/	Contact Engineering for Enhanced Stability in Organic Photovoltaics	Sergi Riera-Galindo (sriera@icmab.es)	This Master's thesis investigates the use of advanced contact engineering techniques to improve the stability of organic photovoltaics (OPVs). By fabricating and characterizing novel devices, we aim to optimize contact layers, enhance charge transport, and protect active materials. This approach addresses stability challenges and aims to develop more durable and efficient OPVs.
71	Materials Science Institute of Barcelona (ICMAB-CSIC) / Smart molecular inorganic and hybrid materials / Nanoparticles and nanocomposites	nn.icmab.es	Bacterial cellulose composites	anna laromaine (alaromaine@icmab.es)	Bacterial nanocellulose (BNC) is produced by bacteria strains like K. xylinus. BNC is obtained as highly pure cellulose and its properties such as high water holding capacity and porosity, tunable morphology, mechanical strength, and biocompatibility make it a unique material. As a result, BNC has attracted interest in the paper and food industry, biotechnology, photonics, and optoelectronics.
72	Materials Science Institute of Barcelona (ICMAB-CSIC) / Nanostructured Materials / Laser processing research	http://icmab.es/laserprocessing	Laser fabrication of hybrid supercapacitor electrodes	Angel Perez (aperez@icmab.es)	Hybrid electrodes composed of carbon and metal oxide nanostructures will be synthesized and fully characterized for the development of high-performance supercapacitors.
73	Materials Science Institute of Barcelona (ICMAB-CSIC) / Nanoestrucutred Materials for Optoelectronics and Energy Harvesting / Laser processing research group	http://icmab.es/laserprocessing	Laser synthesis of photocatalyzers for hydrogen generation through water splitting.	Eniko Gyorgy (egyorgy@icmab.es)	Photocatalytic powder composed of graphene derivatives and transition metal oxide nanostructures will be developed though intense laser radiation. Their structure, composition and functional properties will be characterized.
74	Materials Science Institute of Barcelona (ICMAB-CSIC) / Advanced Structural and Functional Crystallography / Crystallography&X-ray Diffraction	https://www.icmab.es/asfc/crystallography	Hydrogen production based on amorphous/crystalline catalysts	Elies Molins (elies.molins@icmab.es)	Project with UPC and Alba. https://www.researchgate.net/profile/Elies-Molins
75	Materials Science Institute of Barcelona (ICMAB-CSIC) / Advanced Structural and Functional Crystallography / Crystallography&X-ray Diffraction	https://www.icmab.es/asfc/crystallography	Synthesis and characterization of pharmaceutical cocrystals: new materials for a better live	Mónica Benito (mbenito@icmab.es)	https://www.researchgate.net/profile/Monica-Benito-4
76	Materials Science Institute of Barcelona (ICMAB-CSIC) / Magnetic Materials and Functional Oxides / Multifunctional Thin ilms and Complex Structures (MULFOX)	https://mulfox.icmab.es/	Spintronic Materials and Devices	Can Onur Avci (cavci@icmab.es)	Our group specializes in all aspects of spintronics, from materials development and physical understanding to device fabrication and testing. We offer a broad range of experimental projects on spintronics tailored to the curiosity and ambition of the student in charge. The student can expect to be trained on state-of-the-art magnetron sputtering techniques to grow ultrathin oxide and metal films, characterization tools such as XRD, AFM, SQUID, and, ultimately, micrometer-scale device design, fabrication in cleanroom by lithography, and electrical/optical characterization.
77	Materials Science Institute of Barcelona (ICMAB-CSIC) / Functional Surfaces and Interfaces / Functional Nanomaterials and Surfaces (FunNanoSurf)	https://funnanosurf.icmab.es/	Design of new semiconductors based on molecules called Curcuminoids and deposition studies toward the evaluation of their electronic capabilities	Núria Aliaga-Alcalde (naliaga@icmab.es), Daniel Herrera-Miranda (dherrera@icmab.es) & Rossella Zaffino (rzaffino@icmab.es)	Multidisciplinary project where the student will be able to perform chemistry, creating new molecular-based materials through well-established synthetic methods and learn about the deposition of such material substrates, including on field effect transistors (FETs) learning the fundamentals of device engineering towards the evaluation of the final molecular-FET assembly.
78	Materials Science Institute of Barcelona (ICMAB-CSIC) / Magnetic Materials and Functional Oxides / Multiunctional Oxides and Complex Structures (MULFOX)	https://mulfox.icmab.es/	Synthesis and characterization of two-dimensional topological materials	Gyanendra Singh (gsingh@icmab.es) & Gervasi Herranz (gherranz@icmab.cat)	
79	Materials Science Institute of Barcelona (ICMAB-CSIC) / Theory and simulation of materials / SoftMatter group	https://www.youtube.com/channel/UCkrTDh1VQw06o0dzPcF2NgA	Machine Learning-based force fields to simulate soft materials for oncological applications	Jordi Faraudo (jfaraudo@icmab.es)	The project seeks to explore the use of specific machine learning libraries implemented in Python that can be trained from high quality quantum data to predict forces and energies in between atoms in molecular systems. The idea is to use them to predict forces and energies in biopolymers and use these forces and energies for the simulation of these polymers using the Molecular Dynamics technique. The idea is to focus on biopolymers used in immunotherapy for cancer.
80	Materials Science Institute of Barcelona (ICMAB-CSIC) / Magnetic Materials and Functional Oxides / Multiunctional Oxides and Complex Structures (MULFOX)	http://www.icmab.es/mulfox/	Orbital currents in early transition metals	Josep Fontcuberta (fontcuberta@icmab.cat)	
81	Materials Science Institute of Barcelona (ICMAB-CSIC) / Smart Molecular Inorganic and Hybrid Materials / Nanoparticles & Nanocomposites	https://nn.icmab.es/	Magnetic nanoparticles for beyond 5G devices	Marti Gich (mgich@icmab.es)	
82	Materials Science Institute of Barcelona (ICMAB-CSIC) / Smart Molecular Inorganic and Hybrid Materials / Nanoparticles & Nanocomposites	https://nn.icmab.es/	Magnetic thin films for assisted switching in magnetic memory devices (MAMR)	Nico Dix (ndix@icmab.es)	
83	Materials Science Institute of Barcelona (ICMAB-CSIC) / Smart Molecular Inorganics and Hybrids Materials / Inorganic Material and Catalysis	https://icmab.es/giner-planas-jose-permanent-researchers	Synthesis of Highly Water Stable Carborane-MOFs for Energy and Environmental Applications	José Giner Planas (jginerplanas@icmab.es)	The Master work will seek to correlate structural features with physical properties and to design synthetic methods to prepare porous and functional Metal-Organic Frameworks (MOF) and to tune their structures and properties. Unprecedented carborane-based building blocks will be synthesized and combined with suitable transition metals to provide MOFs and then use a wide variety of techniques to study their structure and properties with emphasis in energy and environmental applications.
84	Materials Science Institute of Barcelona (ICMAB-CSIC) / Functional Surfaces and Interfaces / Physical Chemistry of Surfaces and Interfaces	https://surfaces.icmab.es/	A nanoscale mapping of functional properties in organic semiconductors films by scanning probe microscopy	Daniel Martin Jimenez (dmartin@icmab.es)	The technological progress achieved in the last years in the fabrication of devices based on organic semiconductors (OSCs) such as organic solar cells, light emitting diodes or field effect transistors has been possible thanks to advances in the structure–property relationships. The goal of this experimental work is to evaluate how local variations in the structure of the OSC influences the electrical transport as well as other propoerties at the level of single molecular layers.
85	Materials Science Institute of Barcelona (ICMAB)/Nanostructured Materials for Optoelectronics and Energy Harvesting (NANOPTO) / Nanoestructures Materials for Optoelectronics and Energy Harvesting (Nanopto)	https://nanopto.icmab.es/	Investigation of in-plane heat transport in graphene, vdW materials, and polymer systems using a novel laser based method using a 1D uniform heat source.	Sebastián Reparaz (jsreparaz@icmab.es) / Bernhard Dörling (bdorling@icmab.es)	We will study in-plane thermal transpot in 2D materials such as graphene, PdSe2, ReS2, and several polymer systems. Our main objective is to determoine th in-plane thermal conductiviy of such nanoscale systems. For this purpose, we will suspend the materials onto SINx membranes and will study them using a laser-based contactless method we have recently developed and patented.
86	Materials Science Institute of Barcelona (ICMAB)/Nanostructured Materials for Optoelectronics and Energy Harvesting (NANOPTO) / Nanoestructures Materials for Optoelectronics and Energy Harvesting (Nanopto)	https://nanopto.icmab.es/	Thermal Transport at the Nanoscale - "Thermal conductivity and mean free path determination in alpha-Ga2O3"	Sebastián Reparaz (jsreparaz@icmab.es) / Kai Xu (kaixu@icmab.es)	In this work, we will develop a novel concept to do spectroscopy of phonons at the nanoscale in semiconductors such as Gallium Oxide, Diamond, Ge, and several Cr and Cu oxides. We will use a novel approach to limit the phonon mean free path in such a way that it will allows us to distinguish different contributions to the thermal conductivity selected by phonon mean free path. We will also conduct ab initio calculations to reproduce the experiments.
87	Materials Science Institute of Barcelona (ICMAB-CSIC) / Solid State Chemistry / Nanointerfaces	https://icmab.es/ssc/nanointerfaces	Microbatteries for operando microscopy	Dino Tonti (dino@icmab.es)	Preparation of electrochemical experiments on battery materials on MEMS chip cells for operando experiments by transmission microscopy

88	Materials Science Institute of Barcelona (ICMAB-CSIC) / Superconducting Materials and Large Scale Nanostructures	https://icmab.es/palau-masoliver-anna-permanent-researchers	Nano-Engineered high-temperature superconductors for Quantum Devices	Anna Palau (palau@icmab.es)	Superconducting technologies are prime candidates to develop quantum effects into devices. Dissipationless transport of current, generation of high magnetic fields, ultra-sensitive sensors or quantum information systems may be achieved by controlling superconducting parameters at the nanoscale. In particular, superconducting nanostructures are highly promising systems for future green electronics, fluxtronic devices, single-photon detectors, as well as for developments in topological quantum-state engineering. The project aims to explore different nanostructures based on high temperature superconductors combined with other functional oxides which may be used to design novel systems for quantum sensing and computing.
89	Materials Science Institute of Barcelona (ICMAB-CSIC) / Functional Surfaces and Interfaces / Physical Chemistry of Surfaces / Supercritical Fluids and Functional Materials	https://funnanosurf.icmab.es/	Curcuminoids-based materials for bacterial thernanostics	Arántzazu González-Campo (agonzalez@icmab.es) & sara battista (sbattista@icmab.es)	Curcuminoids (CCMoids) are molecular platforms, which have emerged as promising theranostic agents. They can be designed in order to incorporate in their structure both therapeutic and imaging capabilities. Some CCMoids has been shown to possess antibacterial, anti-inflammatory, and antioxidant properties, being the former one of great interest. An important field of research is the development of bacterial sensors and antibacterial agents because nowadays antibiotic resistance is becoming a major concern in the world. In this project, the core objective is to create biocompatible systems (films and a liposomal system) with specially functionalized CCMoids . These systems aim to serve as a proof of concept for the identification of specific bacterial strains through changes in the CCMoids fluorescence at the same time that the bacteria is combated by releasing metals or metalloids.
90	Materials Science Institute of Barcelona (ICMAB-CSIC) / Molecular Nanoscience and Organic Materials / Nanomol-Bio	https://nanomol.icmab.es/	Luminescent Organic Radical Nanoparticles for Sensing and Bioimaging	Imma Ratera (iratera@icmab.es)	Preparation of Organic Nanoparticles (ONPs) doped with organic radicals looking for an enhancement of the Luminescence Quantum Yield and emission in the biological window (Red/NIR region) opening the way to new strategies in the fabrication of sensors (i.e. for nanothermometry) and also OLEDs with high Internal Quantum Efficiency. Structural and optoelectronic characterization of the ONPs will be addressed by appropriate spectroscopic (absorption, emission, DLS) and microscopic (SEM, TEM, confocal) techniques. Finally, we will develop a proof of concept applying the ONPs for in-vitro nanoscale thermometry studies of cells for future theranostic applications.
91	Materials Science Institute of Barcelona (ICMAB-CSIC) / Nanomol-Bio	https://icmab.es/mnom/nanomol-bio	Magnetically induced local heating in cell membrane models	Mariana Köber (mkober@icmab.es) & Nora Ventosa (ventosa@icmab.es)	In collaboration with Dr. Raluca M. Fratila from INMA-CSIC
92	Materials Science Institute of Barcelona (ICMAB-CSIC) / Materials Simulation and Theory	https://icmab.es/ts	Enhanced Magnetoelectric Effects Induced by Dynamic Electromagnons	Miquel Royo (mroyo@icmab.es)	Realization of first-principles calculations of the linear magnetic response of oxides to externally applied finite-frequency electric fields using a recent formalism and a computational implementation developed in our group . The goal is to find an amplified magnetoelectric response by electrically inducing the contributions from spin-wave (magnons) excitations in crystals with strong spin-orbit coupling.
93	Materials Science Institute of Barcelona (ICMAB-CSIC) / Superconducting Materials and Large Scale Nanostructures	https://suman.icmab.es/	In-situ characterization of ultrafast growth of superconducting thin films	Teresa Puig Molina (teresa.puig@icmab.es) & Elzbieta Pach (epach@icmab.es)	Ultrafast growth of REBCO superconducting thin films by Transient Liquid Assisted Growth method (TLAG) with in-situ characterization capabilities (Mass Spectrometry, Resistance, in-situ XRD, in-situ XAS) at ICMAB and ALBA synchrotron. Investigation of the influence of the kinetic and thermodynamic parameters on the TLAG growth.
94	Materials Science Institute of Barcelona (ICMAB-CSIC) / Functional Surfaces and Interfaces / Physical	https://surfaces.icmab.es/study-of-ice-nucleation-on-surfaces-focusing-on-t	Design and build of functionalized surfaces (surface chemistry, surface nanostructure, su	Albert Verdaguer (averdaguer@icmab.es)	The project involves model surfaces for a fundamental knowledge on heterogeneous nucleation of ice and application to develop new materials to control ice nucleation. Those applications range from snowmaking to water waste management through cryo- concentration.
95	Materials Science Institute of Barcelona (ICMAB-CSIC) / Smart Molecular Inorganic and Hybrid Materials / Nanoparticles & Nanocomposites	https://nn.icmab.es/	High Eentropy Alloys Nanostrucutres for Fuel Production	Pablo Guardia (pguardia@icmab.es)	
96	Materials Science Institute of Barcelona (ICMAB-CSIC) / Smart Molecular Inorganic and Hybrid Materials / Nanoparticles & Nanocomposites	https://nn.icmab.es/	Lithium-based nanocomposites for neturon detection	Pablo Guardia (pguardia@icmab.es)	In collaboration with Dr. Martin Perez (CNM-CSIC)
97	Materials Science Institute of Barcelona (ICMAB-CSIC) / Solid State Chemistry / NanoCIM	https://icmab.es/ssc/nanocim	Nanoparticles for cancer diagnosis and therapy	Gerard Tobias-Rossell (gerard.tobias@icmab.es)	The project focuses on the design of nanoparticles for imaging (diagnosis) and localized therapy of cancer. Depending on the research interest and background of the student, he/she will either work on the synthesis and characterization of inorganic nanoparticles or functionalize their surface with targeting ligands to allow a more selective treatment. The work will be performed in close collaboration with Hospital Universitari Vall d'Hebrón.
	Biochemistry and Molecular Biology, UAB				
98	Grupo de Ingeniería de Proteínas y Nanomedicina	ibb.uab.cat/wp-content/themes/viral/modules/ibb_membres/view_grup.ph	Design and validation of nanocarriers and nanomaterials for biomedical applications related to brain disease treatment and diagnosis.	Julia Lorenzo (julia.lorenzo@uab.cat)	
99	Grupo de Ingeniería de Proteínas y Nanomedicina		Nanotechnological development of new drug delivery systems based on engineered enzymes for their use in enzyme replacement therapies.	Julia Lorenzo (julia.lorenzo@uab.cat)	
100	Systems Biology of Infection Lab	https://sites.google.com/site/marctorrentburgas/	Use of liposome-encapsulated peptides as a new strategy to treat bacterial infections	Marc Torrent (marc.torrent@uab.cat)	
101	Lipid-based nanosized drug delivery systems	https://www.uab.cat/web/unitats-departamentals/grup-ramon-barnadas-1	Entrapment of metal-based CO releasing molecules into liposomes for biomedical applications	Ramon Barnadas (ramon.barnadas@uab.cat)	
102	Human Rnases involved in Host Defense	https://grupsderecerca.uab.cat/hrnases/en	Design of antimicrobial protein nanoconjugates to inhibit bacterial resistance in biofilms	Ester Boix (ester.boix@uab.cat)	
103	Protein Folding and Conformational Diseases	https://ibb.uab.cat/wp-content/themes/viral/modules/ibb_membres/view	Bioengineering Nanomaterials to Trap and Neutralize SARS-CoV-2	Salvador Ventura (salvador.ventura@uab.cat)	
104	Protein Folding and Conformational Diseases	https://ibb.uab.cat/wp-content/themes/viral/modules/ibb_membres/view	Bioengineering Nanomaterials to Develop Novel Immunotherapies	Salvador Ventura (salvador.ventura@uab.cat)	
105	Self-Organization In Biological Systems Lab	https://sites.google.com/view/degrootlab/	Bacteria biofilms as a living and therapeutic material	Natalia Sánchez de Groot (Natalia.sanchez@uab.cat)	In collaboration with ICN2
	Chemical, biological and environmental engineering, UAB				
106	Chemical engineering department UAB - GICOM	www.gicom.cat	Nanomaterials synthesis for CO2 catalysis to methanol	Javier Moral (antoniojavier.moral@uab.cat)	
107	Chemical engineering department UAB - GICOM	www.gicom.cat	Interaction between nanomaterials and biosurfactants	Javier Moral (antoniojavier.moral@uab.cat) & Anna Carrasco (anna.carrasco@uab.cat)	
	Physics, UAB				
108	Group of Smart Nanoengineered Materials, Nanomechanics and Nanomagnetism (Gnm3), Physics Departmen	https://jsort-icrea.uab.cat/	Magnetic invisibility switching in thin films via magneto-ionics for data security	Nicolau López (nicolau.lopez@uab.cat), Jordi Sort (sort.jordi@gmail.com) & Enric Menéndez (enric.menendez@uab.cat)	There will be the possibility to perform a PhD Thesis on this topic under the ERC Advanced Grant project REMINDS (Voltage-Reconfigurable Magnetic Invisibility: A New Concept for Data Security Technologies)
109	Group of Smart Nanoengineered Materials, Nanomechanics and Nanomagnetism (Gnm3), Physics Departmen	https://jsort-icrea.uab.cat/	Metallic Fe-Mn nanofoams infiltrated with biodegradable polymer for temporary implant applica	Aleksandra Bartkowska (aleksandra.bartkowska@uab.cat) & Eva Pellicer (eva.pellicer@uab.cat)	
110	Group of thermal properties of nanoscale materials, GTNaM	https://grupsderecerca.uab.cat/gnam/es	Organic thin film glasses for solar cell applications	Cristian Rodríguez (cristian.rodriguez@uab.cat) & Marta González (marta.gonzalez@uab.cat)	
111	Group of thermal properties of nanoscale materials, GTNaM		Thermal transport and thermoelectricity in low dimensional materials	Aitor Lopeandia (aitor.lopeandia@uab.cat) & Javier Rodríguez (javier.rodriguez@uab.cat)	
112	Unitat Electromagnetisme (Sky-Bit project)	https://grupsderecerca.uab.cat/superconductivity/	Magnetoresistance with spatially varied polarization	Carles Navau (carles.navau@uab.cat)	
113	Unitat Electromagnetisme (Sky-Bit project)	https://grupsderecerca.uab.cat/superconductivity/	Antiferromagnetic skyrmions	Carles Navau (carles.navau@uab.cat)	
114	Group of Magnetic Nanomaterials, Department of Condensed Matter Physics & Institute of Nanoscience and	https://magneticnanomaterialsub.wordpress.com/eric-langenberg-perez/	Development of phononic memories capable of allowing or	Eric Langenberg (eric.langenberg@ub.edu)	The TFM will be carried out at the Department of Condensed Matter Physics of University of Barcelona. Upon
	Cellular Biology, Physiology and Immunology, UAB				
115	Cell Biology and Cell-Material Interactions (CBCMI)	Departament de Biologia Cel·lular, de Fisiologia i d'Immunologia - UAB Barce	The in vitro biocompatibility of new materials and nanodevices for vascular and orthopaedic app	Andreu Blanquer (andreu.blanquer@uab.cat) & Carme Nogués (carme.nogues@uab.cat)	
116	Cell Biology and Cell-Material Interactions (CBCMI)	Departament de Biologia Cel·lular, de Fisiologia i d'Immunologia - UAB Barce	The effect of piezoelectric and electroactive nanomaterials on skin cells behaviour	Andreu Blanquer (andreu.blanquer@uab.cat) & Carme Nogués (carme.nogues@uab.cat)	
	Chemistry, UAB				
117	Computational BioNanoCat		Modeling water electrolysis with multicomponent nanomaterials	Xavier Solans Monfort (xavier.solans@uab.cat)	
118	Computational BioNanoCat		Computational catalyst design for N2 and NO3- electrocatalytic reduction	Xavier Solans Monfort (xavier.solans@uab.cat)	
119	SelOxCat	https://seloxcat.com/	Surface-functionalized nanoparticles for light driven reactions	Xavier Sala (xavier.sala@uab.cat) & Laia Francàs Forcada (laia.francas@uab.cat)	
120	SelOxCat	https://seloxcat.com/	Nanomaterials for the production of liquid renewable fuels from CO2	Roger Bofill (roger.bofill@uab.cat) & Xavier Sala (xavier.sala@uab.cat)	
121	SelOxCat	https://seloxcat.com/	Emerging 2D inorganic nanomaterials for Green Energy conversion	Jordi García-Antón (jordi.garciaanton@uab.es) & José Muñoz (josemaria.munoz88@gmail.com)	
122	SelOxCat	https://seloxcat.com/	Preparation and testing of nanocatalysts for the production of solar fuels	Laia Francàs (laia.francas@uab.cat) & Eliana Sousa (souseliana@gmail.com)	
123	SelOxCat	https://seloxcat.com/	Development of smart 3D-printed electronic with binary logic capability	Jose Muñoz (josemaria.munoz@uab.cat) & Ángel Campos (angel.campos@uab.cat)	In this TFM, conductive filaments rich in smart 2D materials will be fabricated for the development of 3D-printed electronic devices *via* fused filament fabrication (FFF) technology. The resulting smart 3D printed electronics will be characterized using different techniques (e.g., SEM, XPS, TGA), and finally tested to perform binary logic operations, using electrochemical tools to monitor electrical output signals. **Keywords:** 3D Printing, Electronics, 2D Materials
124	SelOxCat	https://seloxcat.com/	Design of smart 2D materials for biosensing applications	Jose Muñoz (josemaria.munoz@uab.cat) & Ángel Campos (angel.campos@uab.cat)	The aim of this TFM relies on the biofunctionalization of an emerging monoelemental 2D material (akin to graphene) with a biorecognition agent for the development of a highly-sensitive biosensing system. Firstly, the biofunctionalized 2D material will be characterized using several techniques (e.g., TEM, XPS, FTIR, TGA, XRD, UV-vis). Finally, it will be utilized for the determination of an important biomarker (at different concentrations) in artificial physiological fluids. To read out the biosensing signals, either optical or electrochemical tools will be considered. **Keywords:** 2D Materials, Biosensing, Characterization techniques
125	Integrated Analytical Microsystems. Microfluidics for (Bio)Chemical Sensing. Group of Sensors and Biosensors	https://gsbanalyticalmicrosystems.wordpress.com/	Microreactors assisted synthesis of Carbon Dots as luminiscent reagents for analytical chemistry. Tasks: development of microreactors and micro Total Analysis Systems (μTAS) by CAD design and microstructuring using polymer and ceramics technology; synthesis and physical/chemical characterization of nanoparticles; environmental analytical application to heavy metals detection of poluted waters (using a sprectrofluorimeter and μTAS).	Mar Puyol Bosch (mariadelmar.puyol@uab.cat)	

126	CatSyNanoMat	CatSyNanoMat Group (uab.cat)	Nanostructured organic semiconductors for light driven chemical transformations	Carolina Gimbert (carolina.gimbert@uab.cat)	The master thesis will focus on the preparation of organic materials with semiconducting properties and the testing of their catalytic activity in photochemical reactions such as the transormation of water into hydrogen fuel
127	Superconducting Materials and Functional Nanoengineered Structures (ICMAB-CSIC)	http://departments.icmab.es/suman/	Synthesis of perovskite nanoparticles for dopping YBCO superconductors	Ramón Yáñez (ramon.yanez@uab.cat)	In collaboration with ICMAB
128	Inorganic Chemistry	https://portalrecerca.uab.cat/en/persons/josefina-pons-picart-9	Nanoparticles with catalytic activity like-enzyme for colorimetric paper-based assays	Adaris López (AdarisMaria.Lopez@uab.cat) & Josefina Pns (josefina.pons@uab.cat)	This master's project proposes to develop a very simple and low-cost colorimetric paper assay using metal nanoparticles and smartphone as detection tools.
129	Computational SupraMolecular-Homogeneous Catalysis Group	webs.uab.cat/compushcat	Molecular Recognition and Encapsulation	Gregori Ujaque (gregori.ujaque@uab.cat)	Designing chemical structure for the selective recognition of molecules is at heart of chemistry. Metal-Organic cages have highly tunable structures. By varying the metal nodes and organic linkers, chemists can design cages with specific shapes, sizes, and functionalities to suit a wide range of applications, as drug delivery, sensors, etc. We will apply computational techniques to optimize the best cages.
130	Computational SupraMolecular-Homogeneous Catalysis Group	webs.uab.cat/compushcat	Supramolecular Catalysis	Gregori Ujaque (gregori.ujaque@uab.cat)	Metal-Organic Cages provide well-defined environments that can mimic enzyme active sites. The origin of this behaviour is not well understood yet. By applying theoretical method we pretend to obtain deeper inside and be able to design efficient catalysts for a given process.
	Electronic Engineering, UAB				
131	Electronic Circuits and Systems Group (ECAS)	https://portalrecerca.uab.cat/en/organisations/electronic-circuits-and-systems-group-ecas-grup-de-circuits-i-sis	Micro and Nanoelectromechanical Systems (M/NEMS). Topics: Resonators, Non-linearities, Synchronization, Sensors Ultrasound transducers based on piezoelectric materials (PMUTs). Topics: fingerprint, ultrasound image (medical image), airborne sensing	Núria Barniol (nuria.barniol@uab.cat), Arantxa Uranga (arantxa.uranga@uab.cat) & Francesc Torres (francesc.torres@uab.cat)	
132	REDEC: Reliability of Electron Device and Circuits	https://grupsderecerca.uab.cat/redec/es/biblio/author/180	Nanoscale characterization with AFM of materials for nanoelectronic applications. Characterization of CMOS nanoelectronic devices for security applications. Characterization of emerging nanoelectronic devices: graphene based devices, organic devices, devices for neuromorphic applications. Modeling.	Montserrat Nafría (montse.nafria@uab.cat)	
133	NANOCOMP		Simulation and modelling of nanoelectronic devices at THz frequencies	Xavier Cartoixà (xavier.cartoixa@uab.cat) & Xavier Oriols (xavier.oriols@uab.cat)	
	Geology, UAB				
	Biotechnology and Biomedicine Institute (IBB), UAB				