



SBAN

Spanish Conference
on Biomedical Applications
of Nanomaterials

18-19th Sept
2025

Instituto de Ciencia
de Materiales de
Madrid

Institutional collaborators



Sponsors



Thursday, 18th of September

Speaker		Title
8:30 Registration at ICMM, Campus Cantoblanco		
9:00	SBAN Organizers	Presentation
Chairperson: Gorka Salas		
9:15	Mª José Alonso	Nanotechnology, the key to help complex drugs overcoming biological barriers
DRUG DELIVERY & DIAGNOSTICS		
9:45	Laura Sofia Carvalho	mRNA formulation for fibroblast targeting in the context of spinal cord injury
10:00	Silvia Calvo García	Thermal disruption of cell membranes with localized magnetic hyperthermia as a tool for direct intracellular delivery
10:15	Lola Ugalde Triviño	Hydrogel-Based Delivery of TrkB-T1-derived Therapeutic Peptides for Neuroprotection
10:30	Mario Martínez	Multifunctionalized Gold Nanoparticles for Biomedical Applications
10:45	José Antonio Cespedes	Mast Cell Activation Test with Dendrimer-Based Antigens for Functional Diagnosis of IgE-Mediated Beta-Lactam Allergy
11:00 Conference photo		
11:00 COFFEE BREAK		
Chairperson: Helena Gavilán		
NEUROLOGICAL APPLICATIONS & SENSORS		
11:30	Dorleta Jimenez	Nanostructured Biofunctional Materials and Their Role in 4D (Bio)Printing
12:00	Julia Carolina Salazar Romero	Magnetic Nanoparticles for Controlled Microvascular Occlusion: A Next-Generation Microinfarction Model
12:15	Ane Escobar	Modulation of Neuronal Activity via Plasmonic Nanoparticles
12:30	María Teresa González Pérez	Nanowire-coated electrodes for more efficient implanted neural interfaces
12:45	Jose A Plaza Plaza	Intracellular Chips for Probing and Altering Cell Mechanics
13:00	Sophia C. Bittinger	Antibody-Labeled Gold Nanostar SERS tags for Sensitive Detection of <i>Legionella pneumophila</i> in Lateral Flow Assays
13:15	IESMAT	New lab instrumentation possibilities
13:20 LUNCH BREAK		
Chairperson: Ana Espinosa		
OTHER APPLICATIONS		
14:30	Juan Paris	Mesoporous silica nanoparticles as a tool for allergy diagnosis and therapy
15:00	Ana M. Pérez Moreno	<i>In vitro</i> and <i>in vivo</i> comparison of mesoporous silica nanoparticles, liposomes and cubosomes for antigen delivery.
15:15	Jenifer García Fernández	Hybrid Nanoemulsion–Hydrogel System for Enhanced Intra-Articular Retention: <i>In Vivo</i> Evaluation in a Preclinical Osteoarthritis Model
15:30	Iago López Vázquez	Determining the heating capability of magnetic nanoparticles from the peak of the $\Delta T(t)$ curve at the switch on/off field
15:45	Alejandro G. Roca	Fe ₃ O ₄ Nanorods with Tunable Morphology and Magnetic Properties for Theranostic Applications
16:00	Raúl Magro Hernández	Platinum nanoparticles for cancer therapy from hydrothermal synthesis to cellular internalization and advanced X-ray characterization
16:05	María Garrido Segovia	Tailoring Au nanocolumns via glancing angle sputtering: an advanced structural and optical study for biomedical interfaces
16:10	Arántzazu González-Campo	Giant Vesicles for cellular membrane mimics via interaction between liposomes and functionalized SiO ₂ particles
16:15	AntonPaar	New lab instrumentation possibilities
16:25 POSTER SESSION + COFFEE		
18:00 End of the session		

Speaker		Title
Chairperson: Ana González Paredes		
9:00	Thomas van Zanten	A motor-protein-powered patchwork of nanoscale domains drives plasma membrane function
CANCER		
9:30	Alicia Arroyo Nogales	Nano-Sized Liposomes for Click-Chemistry-Based Selective Guiding of Immune Cells to Neuroblastoma
9:45	Eva Romaní Cubells	Biodegradable porous vascular grafts with anti-inflammatory and anticancer properties: a combination of curcumin-based Mesoporous Organosilica Drugs and solution electrowriting technique
10:00	David Egea Benavente	Improving cancer magnetic hyperthermia therapy by modulating the interaction between magnetic nanoparticles and cells via specific 92R antibody binding to CCR9
10:15	Amira Páez Rodríguez	Intracellular Assembly of Magnetic Nanoparticle-Loaded Vesicles Under AC Magnetic Stimulation.
10:30	Sebastian Thompson	SP-PDT: Inducing Tumor Photo-Death from Within
10:45	Alba García-Fernández	Restoring Tumor-Immune Cell Communication via Topo-Specifically Functionalized Nanoparticles: A Novel Approach for Cancer Immunotherapy
11:00	Concepción Serrano	Meet the Editor of Bioactive Materials
BRUNCH + POSTER SESSION		
Chairperson: Lucía Gutiérrez		
12:00	Diego Nuñez	Template-directed molecular engineering: from molecular evolution to peptide therapeutics
12:30	Carlos Rodríguez-Nogales	Intratumor delivery of self-amplifying RNAs using nanotechnology-based non-viral vectors
12:45	Andrea Rodríguez San Pedro	Iron Oxide Nanotracers for Renal Clearance: From synthesis to <i>in vivo</i> evaluation
13:00	Rosalía López Méndez	Photoactivated therapies of Au-based nanoparticles: from local temperature measurement to tumor cell death.
13:15	Neus Daviu	Triggering Ferroptosis cell death with Dimercaptosuccinic acid-coated iron oxide nanoparticles in breast cancer cell line
13:20	Methohm	New lab instrumentation possibilities
13:30	Puerto Morales	Closing remarks
14:00	Methohm	Practical demonstration session: "The IJM NanoScaler – a benchtop system for lipid nanoparticle formulation: The revolutionary NanoScaler system is available to see in action"

	Presenting Author	Title
P1	Yanne Amassoka	Modulating the neuroinflammatory response of murine microglia by surface-functionalized enzymatic nanoreactors
P2	Jorge Alejandro López Solaiman	Magnetomechanical Stimulation through Nanostructured Surfaces for the Treatment of Damaged Neuroglial Tissue
P3	Solange Selzer	Senolytic nanoplatform to target and eliminate skin cancer senescent cells
P4	Pelayo García-Acevedo	Development of Lipid-Based Theranostic Nanoplatfroms Incorporating Iron Oxide Nanoparticles for Combined MRI and Magnetic Hyperthermia
P5	Mónica Dhanjani	Multifunctional iron oxide and gold-iron oxide nanoparticles for biomedical use. Evaluation in MCF-7 and PANC-1 cells
P6	Lucia Pardinas	Shape-Controlled Magnetoplasmonic Nanoparticles for Enhanced Cancer Therapy
P7	Marina Llenas Martínez	Tuning the physiological properties of mesoporous silica nanoparticles
P8	Sian Gleadhall	he Role of Cluster Geometry in Magnetic Hyperthermia
P9	Elena Fernández-Cortés Navia	Next-Gen Optical Tissue Clearing: "White and Clearing" (WaC)
P10	Leyre Bei Fraile Aguirre	Design of a biosensor for the detection of cancer extracellular vesicles
P11	Celia Tavares de Sousa	Laser-Ablated Magnetoplasmonic Nanoparticles for Photothermal Applications and OCT Imaging
P12	Miguel Gisbert Garzarán	Protein corona: deciphering the Vroman effect of polyethylene glycol-coated mesoporous silica nanoparticles
P13	Nicole Martínez Mayordomo	Attacking Glioblastoma from Within: A Nanoparticle Approach Against Tumor Microenvironment
P14	Miriam Isasi-Campillo	Electrical Stimulation through Nanocolumnar Electrodes Reduces Apoptosis in Neurons Following Excitotoxic Injury
P15	Rodrigo Binkele	Combined Brillouin and Raman micro-spectroscopies to detect fat-diet cardiac tissues
P16	Rafael Herrera Aquino	Evaluation of free radical production of iron oxide nanoflowers prepared by microwave-assisted polyol synthesis for environmental catalysis applications
P17	Luna Pérez Troncoso	Electrical stimulation induces proliferation and generates pro-proliferative extracellular vesicles in mesenchymal stem cells
P18	Jorge Parra Nieto	Improving the infiltration capacity and therapeutic efficacy of modified immune cells.
P19	Rafael Morales Márquez	Synthesis and applications of Ag ₂ S and Au nanoparticles for nanoscale temperature sensing and light-mediated hyperthermia
P20	Belén Cortés-Llanos	Enhancing Proton Therapy Efficacy Through Iron Oxide Nanoparticles
P21	Adriana Bastos Cruz	Targeting Triple Negative Breast Cancer: Core-Shell Polycationic PURE Dendrimers with Inherent Anticancer Activity
P22	Pablo Torres Fernández	Nanoarchitectures to Enhance Sensitivity in the Diagnosis of Allergic Reactions to Clavulanic Acid: An overview of the Activation Mechanisms of Basophils and theis structural requirements.
P23	María Isabel Torices Gómez	Bypassing insolubility: choline-binding modules as soluble molecular switches for the functionalization of hydrophobic supports with recombinant proteins
P24	Patricia Valdés Portas	Impact of magnetic stimulation on primary neural cultures with iron oxide nanoparticles
P25	Kazuya Okada	Hybrid-type simulation techniques for spherical magnetic nanoparticles with uniaxial anisotropy
P26	Yurena Luengo Morato	Development and characterization of Carbon Dots for biomedical use
P27	Maura Lisett Rábade Chediak	Ni-NTA Functionalized Nanoparticles: Thermal Response, Magnetic Characterization, and AMF-Induced Microstructural Changes in Collagen Hydrogels
P28	Ruben Garcia Fontarosa	High-Z nanoparticles for enhanced radiation therapy
P29	Esperanza Medina Gutiérrez	Predclinical evaluation of theragnostic silica nanoparticles as versatile tools in oncology
P30	Denise Maria Cuscela	Hybrid aptamer-magnetic nanoparticle tools for cancer therapy and diagnosis
P31	Eva Romaní Cubells	Dendritic gallium-zeolites: uncovering their potential as Drug Delivery Systems
P32	Alejandro Cortés Bazo	Protein nanoparticles for cancer therapy
P33	Vu Phong Dinh	Multifunctionalized Gold Nanoparticles for Duchenne Muscular Dystrophy treatment
P34	Juan Víctor Caz	Nanocarriers for reducing fibroglial scar formation in spinal cord injury

P35	Raquel Calvo Núñez	Development of Nanostructured Flexible Electrodes for Minimally Invasive Neural Interfaces
P36	Sara Huerta Cebollada	Giant plasma membrane vesicles as models to assess the effect of localized magnetic hyperthermia on cell membranes
P37	Fernando Martín Garrido	Development of magnetic multi elemental nanoparticles through colloidal synthesis routes
P38	David Serantes	Beyond the uniaxial anisotropy approximation: magnetic hyperthermia under biologically constrained field conditions
P39	Necda ÇAM	Study of size-dependent dynamic hysteresis characteristics and dynamic phase transition in Fe and Fe ₃ O ₄ nanodisks via micromagnetic simulations
P40	Dania Droubi	Development of biomaterials for neural repair using 3D printing techniques
P41	Francisco J. Terán	Transducing thermal denaturation in proteins via dynamical magnetization of magnetic nanoparticles
P42	Victoria Cano	Efficient Copper Nanoparticles as Nano-Catalysts for Biological Applications
P43	Rosario M. Sanchez	NanoCARE 2.0. Nanomedicine network to advance in the diagnosis and treatment of diseases with large social impact
P44	Teresa Valero	Integrated affinity capture nanodiagnostic and -omic platforms: a clinical approach