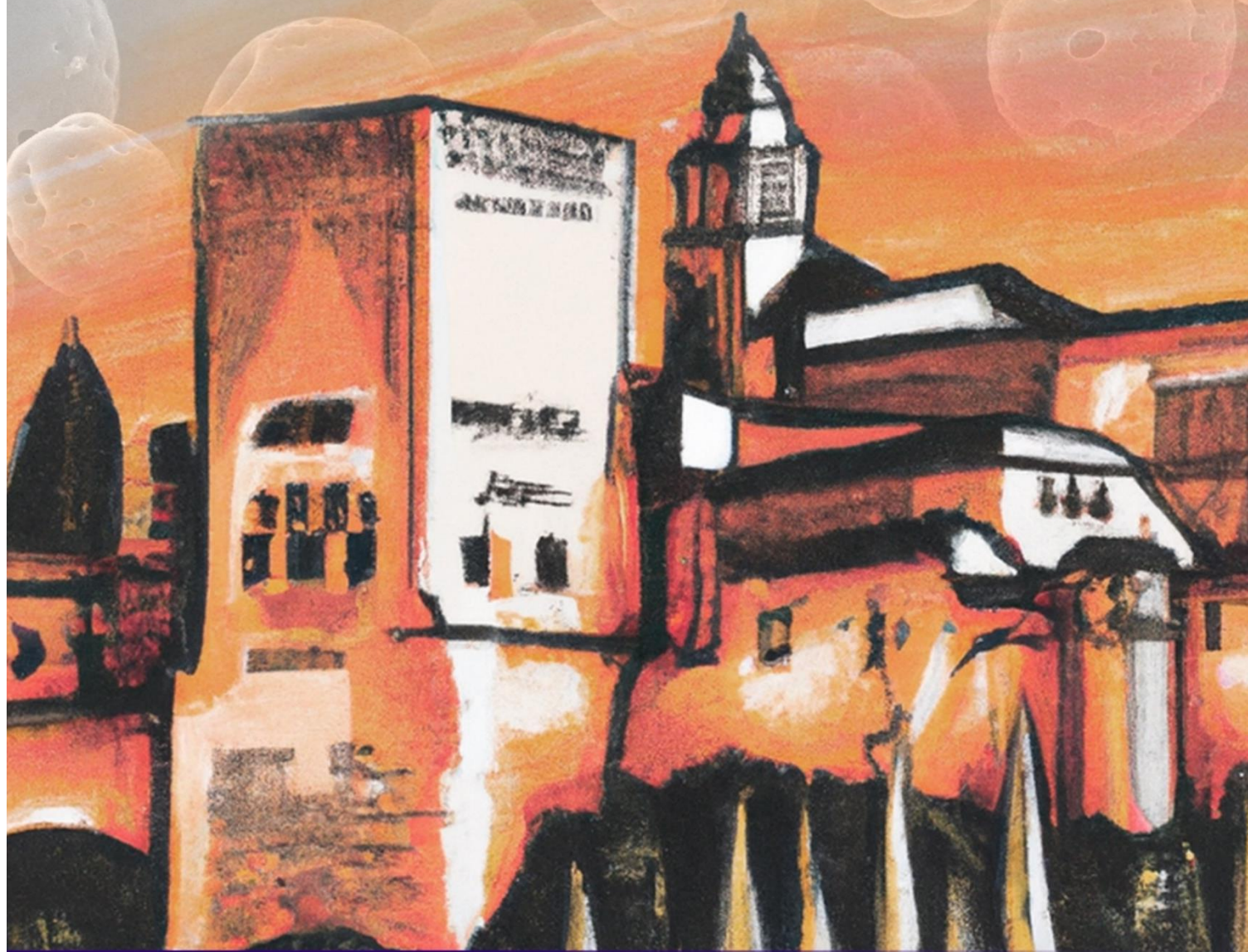


NALS 2024

Nanomaterials Applied to Life Sciences

Granada (Spain), 14-16 February 2024



**UNIVERSIDAD
DE GRANADA**



Facultad de Ciencias

NanoMag

Wednesday 14th February 2024

8:30-9:00	Opening ceremony			
Session: Magnetic materials I. Chair: Q. Pankhurst. AULA MAGNA				
9:00-9:30	R. Ibarra	Plenary (PL1). Thermal and ultrasonic effects due to the interaction of electromagnetic radiation with magnetic nanoparticles		
9:30-9:45	J. Alonso	O1. Tuning the Magnetic Response of Magnetotactic Bacteria via Culture Medium for Enhanced Hyperthermia Efficiency		
9:45-10:00	S. Caspani	O2. Magnetic nanostructures for biomedical applications		
10:00-10:15	C. Moya	O3. Unveiling the crystal and magnetic texture of iron oxide nanoflowers		
10:15-10:30	Z. Shaterabadi	O4. Magnetite nanorods as high-performance magnetic hyperthermia agents		
10:30-10:45	D. Villanueva-Álvarez	O5. Navigation control of magnetotactic bacteria under rotating and linear magnetic fields		
10:45-11:15	Coffee break (Hall Facultad de Ciencias)			
	Session: Nanotechnology and Nanodevices I. Chair: F. Giacomelli. AULA MAGNA		Session: Cancer therapy and diagnosis I. Chair: M.P. Morales. Salón de Grados	
11:15-11:35	M. Fanarraga	Keynote (KN1). Designing Fully Customizable Nanorobot for Biocompatible Navigation and Restoration of Amyloid Proteins	R.M. Sánchez-Martín	Keynote (KN2). Development of Active-Targeting Nanoplatforms for Cancer Diagnosis
11:35-11:50	V. Milkova	O6. Controlled aggregation of amyloid β peptide in the presence of homotaurine-loaded nanoliposomes	J.J Díaz-Mochón	O12. Nanotrackers as reagents for long-term live-cell barcoding
11:50-12:05	L. Rodríguez-Arco	O7. Design and construction of bioinspired microcompartments	N. Daviu	O13. Induction of Oxidative Stress by DMSA-coated IONPs trigger mitochondrial dynamic changes in breast cancer cells affecting proliferation and migration capacity
12:05-12:20	H. Shabbir	O8. Carbon dots, precursor and property relation with focus on toxicity	A. Cruz	O14. Targeting ovarian cancer nanoradiotheranostics with ligand-free ^{99m}Tc -polyurea dendrimer complexes
12:20-12:35	P. Duel	O9. Bio-inspired Surface Modification as a new Ultra-fast method for the Killing of common Nosocomial Bacteria	V. Paganini	O15. Development of a thermosensitive gel containing Curcumin-loaded nanomicelles for skin cancer treatment
12:35-12:50	A. Escribano-Huesca	O10. Immobilization of Artificial Cell-Inspired Microcompartments for Biological Applications	A. Cepero	O16. LGR5 in colorectal cancer therapy, a therapeutic target for antibody-functionalized biomimetic magnetoliposomes
12:50-13:05	A. Asenjo	O11. Characterization of individual chains of magnetosomes by Magnetic Force Microscopy	L. García-Hevia	O17. Inhibition of Melanoma Metastasis through Precision Targeting Carbon Nanotubes to the tumor neovasculature
13:30-15:00	Lunch (Hall Facultad de Ciencias)			
Session: Magnetic materials II. Chair: A.V. Delgado AULA MAGNA				
15:00-15:30	Q.A. Pankhurst	Plenary (PL2). Some recent developments in magnetic field hyperthermia: from standards and metrology to clinical studies		
15:30-15:45	G.F. Goya	O18. Synthetic Magnetosomes for Dual Therapeutic Approach: Chemotherapy and Magnetic Hyperthermia		
15:45-16:00	K. Simeonidis	O19. An automated system for fast and sustainable synthesis of magnetic nanoparticles		
16:00-16:15	V. Salgueiriño	O20. Magnetically induced Thermal Effects on Tobacco Mosaic Virus-based Nanocomposites for a Programmed Disassembly of Protein Cages		
16:15-16:30	F.J. López	O21. Characterization techniques for nanoparticles: size distribution, concentration and interactions		
16:30-17:00	Coffee break (Hall Facultad de Ciencias)			
17:00-17:20	C. Jiménez-López	Keynote (KN3). Learning from nature: Biomimetic magnetic nanoparticles as platforms to combine directed chemotherapy and hyperthermia		
17:20-19:00	Poster pitch			
19:00-20:30	Poster and Beer Session			

Thursday 15th February 2024

Session: Cancer therapy and diagnosis II. Chair: M.R. Ibarra. AULA MAGNA			
9:00-9:30	C. Dufès	Plenary (PL3). Designing tumour-targeted nanomedicines for cancer therapy	
9:30-9:50	S. Soenen	Keynote (KN4). On the use of bio-engineering for enhanced material properties in cancer therapy	
9:50-10:05	M.C. Ortega-Liébana	O22. Stimuli-Responsive Tumor-Targeting Nanocarrier for Multimodal Cancer Therapy	
10:05-10:20	J. Ruiz-Torres	O23. Optical studies on anisotropic Bi2S3 and hybrid Bi2S3@Au nanocomposite	
10:20-10:35	F.C. Giacomelli	O24. Permeability and Responsiveness Drive Performance: Linking Structural Features with Antitumor Effectiveness of Doxorubicin-Loaded Stimuli-Triggered Polymersomes	
10:35-10:50	M.C. Morán	O25. Active Targeting and Therapeutical Applications of Gelatin-based Nanoparticles	
10:50-11:15	Coffee break (Hall Facultad de Ciencias)		
	Session: Sensors I. Chair: F. Terán AULA MAGNA		Session: Magnetic materials III. Chair: M.T. López-López. Salón de Grados
11:15-11:35	F. Wiekhorst	Keynote (KN5). Detecting magnetic micro- and nanoparticles by widefield magnetometry with NV centers	M.T. López - López Keynote (KN6). Magnetic hydrogels: from synthesis to biocompatibility characterization
11:35-11:50	M. Alqudwatouh	O26. Designing Granzyme-B Activity Nanoprobes for Immunotherapy Response Evaluation	A. Gallo-Cordova O32. Exploring the Microwave-assisted Synthesis of Iron Oxide Nanoparticles
11:50-12:05	M.C. Blanco López	O27. Nanomaterials for sensitive pathogenic bacteria determination with electrochemical biosensors	A. Jaufenthaler O33. Human-sized quantitative imaging of magnetic nanoparticles with magnetorelaxometry and optically pumped magnetometers
12:05-12:20	L. Ming	O28. Neural networks push the limits of luminescence lifetime nanosensing	M. Jiménez-Carretero O34. Combination of biomimetic magnetic nanoparticles and qPCR to magnetically concentrate and detect bacteria in liquids
12:20-12:35	P. Marín	O29. Magnetoelastic contactless gas sensor for real-time monitoring of breath biomarkers. A proof of concept	P. Palacios Alonso O35. Exploiting the potential of AC magnetometry to display thermal conformational changes of proteins
12:35-12:50	F. Zhang	O30. A reliable ratiometric fluorescent nanothermometer for live cells	V. Pilati O36. Superparamagnetic Mn Ferrite Nanoparticles for Highly Sensitive Lateral Flow Assays
12:50-13:05	C. Guati	O31. Development of an innovative Non-Enzymatic Microelectrode with Bimetallic Combination for Glucose Detection in Neutral Media	S. Calogero-Gaglio O37. Effect of TAT-PLGA - DOX transported by biomimetic magnetic nanoparticles under magnetic hyperthermia and photothermia irradiation
13:30-15:00	Lunch (Hall Facultad de Ciencias)		

Thursday 15th February 2024

	Session: Drug Delivery I Chair: C. Dufés. AULA MAGNA		Session: Nanotechnology and Nanodevices II Chair: M.C. Blanco López. Salón de Grados	
15:00-15:15	J.A. Lirio-Piñar	O38. Kinetics of methotrexate release from magnetic activated carbon under external stimuli	A. González-Paredes	O44. Bimetallic nanoparticles for the treatment of bacterial infections associated with biofilms
15:15-15:30	A.I. Barbosa	O39. A sea of nano-possibilities: marine hybrid hydrogels combined with nanoparticles to treat Atopic Dermatitis	L.L. Hernández-Cubas	O45. Laser-Induced Graphene: Innovative Fabrication and Advanced Characterization for Biomedical Applications
15:30-15:45	K. López	O40. Design and optimization of an innovative lipid nanosystem for the encapsulation of a novel FXa inhibitory molecule using Green Chemistry strategies	M. Bramini	O46. Graphene-based materials interaction with the Central Nervous System
15:45-16:00	A. Ramos-Valle	O41. DNA@SiO ₂ spheres for versatile and efficient delivery of different DNA forms in mammalian cells	A. Rubio-Andrés	O47. Polyoxometalate ionic specificity effects for tuning microgel swelling and 2D interfacial self-assembly
16:00-16:15	A. Lafuente	O42. Multifunctional Drug-Loaded Metallic Nanodomes as a Platform for Obtaining Synergistic Therapeutic Biological Activities	F.J. Vázquez-Pérez	O48. Soft magnetic actuators with fast and complex motion obtained by mold casting process
16:15-16:30	F.A. Soares	O43. On the CD44 Express: A Journey into Precision Delivery through Engineered Milk Extracellular Vesicles	I. Adroher-Benítez	O49. Diffusion and interaction effects on molecular release kinetics from collapsed microgels
16:30-17:00	Coffee break (Hall Facultad de Ciencias)			
	Session: Environmental. Chair: G.F. Goya. AULA MAGNA			
17:00-17:20	M. Ferrari	Keynote (KN7). Superhydrophobic materials in environmental and underwater applications		
17:20-17:35	M. Fadel	O50. Harnessing Ultrathin Carbon-Coated Nickel Nanoparticles for Efficient Purification of Chromium and Methylene Blue from Aqueous Solutions		
17:35-17:50	E. Herrera	O51. Fe ₃ O ₄ -TiO ₂ nanostructures as reusable photocatalysts for water purification treatments		
17:50-18:05	T. Asimakidou	O52. Implementing Fe ₃ O ₄ -biochar based adsorbents for Cr(VI) uptake		
18:05-18:20	S. Suárez-García	O53. A mussel-inspired nanocoating for cost-effective and environmentally friendly CO ₂ capture		
18:30-20:30	City Tour			
20:30-	CONFERENCE DINNER (Santa Paula Palace)			



Friday 16th February 2024

Session: Nanotechnology and Nanodevices III. Chair: M.L. Fernández-Gubieda. AULA MAGNA			
9:00-9:30	E. Souto	Plenary (PL4). Key features of lipid nanoparticles for safe use in acute and chronic diseases	
9:30-9:45	P. Maziarz	O54. Nanomaterials Editorial Presentation	
9:45-10:00	B. Pepió-Tárrega	O55. New mussel-inspired nanomaterials with antimicrobial properties	
10:00-10:15	P. Graván	O56. Exploring the Impact of Nanoparticle Stealth Coatings in Cancer Models: From PEGylation to Cell Membrane Coating Nanotechnology	
10:15-10:30	E. Berganza	O57. Biofunctionalization of 3D microstructures via dip-pen nanolithography	
10:30-10:45	D. Maestro	O58. CTPR390, an Hsp90-inhibiting nanoparticle, reverses fibrotic phenotype in a human model of cardiac fibrosis	
10:45-11:15	Coffee break (Hall Facultad de Ciencias)		
	Session: Drug Delivery II. Chair: M. Perduca. AULA MAGNA		Session: Sensors II. Chair: S.J. Soenen SALÓN DE GRADOS
11:15-11:35	B. B. Manshian	Keynote (KN8). Optimized 3D human and/or animal explants for ex vivo precision cut tissue slices	S. Thompson Keynote (KN9). Intracellular and Extracellular Temperature
11:35-11:50	D. Lesta-Alfeirán	O59. Bioadhesive and antibacterial catechol-based membranes and their applications in wound-healing and tissue regeneration	J. Rodríguez-Álvarez O63. Anti-ferroelectric dark modes in plasmonic lattices
11:50-12:05	C. Tavares de Sousa	O60. The key parameters in phototherapy with gold nanorods combined with targeted solid lipid nanoparticles for controlled drug delivery	A. Piper O64. The Cleanroom free, Cheap and Rapid Fabrication of Nanoelectrodes for Single Molecule Detection
12:05-12:20	F. Oltolina	O61. Innovative drug delivery system based on hyaluronic acid-functionalized biomimetic-magnetoliposomes	I. Zabala Gutiérrez O65. PEGylated Ag2S nanoparticles as multifunctional biological probes
12:20-12:35	I. Clemente	O62. Lipid-based nanoparticles as carriers for treatment of infectious and degenerative eye pathologies	R.A. Rica O66. Quantifying the temperature increase in optically trapped absorbing particles
12:35-12:50			M.A. Fernández-Rodríguez O67. Microgel-laden thermoresponsive surfaces for biomedical applications
13:00-13:30	Closing and awards ceremony: AULA MAGNA		
13:30	Farewell beer		

POSTER PRESENTATIONS

No.	Author	Title
P1	B. Colaço-Alves	Surface-enhanced Raman scattering (SERS) for dissolved carbon dioxide detection using porphyrin-coated gold nanostars
P2	J.L.Arias	Biocompatible magnetopolymeric nanoparticles for antitumor hyperthermia and photothermia therapies
P3	J.L.Arias	Reproducible formulation of poly(butylcyanoacrylate)-coated iron oxide nanostructures for biomedical applications
P4	M. Barczak	Synthesis and characterization of supramolecular peptide-based magnetic hydrogels for biomedical applications
P5	A.I. Becerro-Nieto	Effect of nanoparticles architecture on their performance as multimodal contrast agents for T1-T2 dual mode MRI and luminescent bioimaging
P6	A.B.Bonhome	Designing the internal microarchitecture for self-heating droplets via gold and magnetite nanoparticle compartmentalization
P7	A.J. Bruno	Fabrication and Sensing Applications of Laser-Engraved rGO Electrodes Decorated with Metal Nanoparticles
P8	L. Gago	The application of magnetic nanoparticle-mediated hyperthermia as a therapeutic approach to gastrointestinal cancers
P9	S. Calogero-Gaglio	Avoiding undesired effects in the interaction of nanostructures with immune cells: the Role of Oxyresveratrol
P10	M.V. Cano-Cortés	Mass Cytometry Nanodiagnostic Assay for Cancer Biomarker Recognition
P11	M.Carrasco	Conditioning of black mass of disused LIB's for the separation of its components by flotation process
P12	A.Casillas-Rubio	Upconversion luminescence lifetime modulation by excitation control
P13	A.Danana	Synthesis and functionalization of gold nanoparticles with superior x-ray attenuation properties compared to clinically used iodinated small molecular contrast agent
P14	L. De Castro Alves	Magnetic hybrid biomaterials for cyanotoxins removal from water
P15	M. del Puerto Morales	Magnetic hydrogels and primary neural cells under high-frequency magnetic stimulation
P16	M. Dhanjani	Controlled synthesis of magnetoplasmonic aggregate nanoparticles for biomedicine
P17	S. Domingo-Peegrí	Covalent Organic Frameworks (COF) nanoparticles with optical properties as contrast agents for photoacoustic imaging
P18	S. Domingo-Peegrí	Light-activated nanomedicines for selective intracellular delivery of camptothecin
P19	D. Egea-Benavente	Magnetic Hyperthermia Therapy mediated by Nanoparticles: search for candidates, selection of operating conditions and in vitro experiments
P20	L. Encabo	Development of a targeted PLGA-PEG nanoplatform for β -CFN volatile cannabinoid
P21	A. Fernández-Borbolla	Coating Techniques for the Obtention of Cell Membrane-Coated Nanoparticles for Tissue-Specific Therapeutics
P22	C. Lecumberri	Combined systems of magnetic photo and biocatalysts for the tertiary treatment of emerging contaminants in wastewater
P23	M.L. Fernández-Gubieda	Solar-driven antibacterial activity of Zn-Co ferrites
P24	L. Fernández-Huarte	Development of a platform for novel gene therapy vectors with renal tropism
P25	S.C. Freitas	Multifunctional Fe-Au nanostructures for biomedical applications
P26	G. García-García	Functionalized magnetopolymeric nanocomposites for antitumour magnetic hyperthermia therapy
P27	G. García-García	Magnetic core/shell nanoparticles as antitumoral agents for magnetic and photothermal therapy
P28	J. García-Fernández	Versatile and scalable nanotechnology platform for addressing personalized medicine
P29	M. Mar Gil-Díaz	Nanoscale zero valent iron increases iron availability in agricultural soils
P30	D. Jiménez-Boland	Biomimetic Cell Membrane-Coated Nanoparticles for the Targeting and Potential Treatment of Glioblastoma
P31	M.Montalbán-López	Broadening the antimicrobial spectrum of the enterocin AS-48 in combination with magnetic nanoparticles and hyperthermia

P32	M. Lázaro	Crucial role of cellular uptake in photothermal treatments using BMNPs
P33	M. Lázaro	Magnetic Activated Carbon for drug delivery
P34	A. León-Cecilla	Magnetic Semi-interpenetrating Hydrogels Based on Natural Biopolymers for Sensing and Actuating
P35	A. Márquez-López	Design of chemotherapeutic nanoparticles to target Tumor Endothelial Marker 8 receptor in solid tumors
P36	A. Medina-Moreno	Formulation of (maghemite/poli(ϵ -caprolactone))/polyethylenimine (core/shell)/shell nanoparticles with potential application in hyperthermia against cancer
P37	A. Medina-Moreno	Design of stable polyethylenimine-decorated magnetopolymeric nanoparticles for antitumor drug delivery
P38	C.M. Montero	Synthesis of Magnetic Nanoparticles by the Recycling of Industrial Steel Waste and its application on CPWO
P39	D. Morán-Tuya	Synthesis of starch-silver hybrid nanoparticles and their use as antimicrobial agents
P40	A. Morjane	Theoretical Investigation of the Role of Dipole-Dipole Interaction on the Efficiency of Magnetic Hyperthermia
P41	S. Orozco	Soft carbon electrodes in Capacitive Energy Extraction: exploring geometry and operational parameters in Capacitive Mixing systems
P42	K. Pansegrau	Temperature Influence on the Relaxation Behavior of Immobilized Magnetic Nanoparticles
P43	M. Pedrosa	Real cell membranes in Langmuir monolayers for anticancer drug studies and model validation
P44	M. Perduca	Superparamagnetic Nanoparticles coupled with silver and copper: growth inhibition of bacterial pathogens
P45	V. Silva	SERS detection of saxitoxin using covalent organic polymer/gold nanoparticles composite
P46	T. Pozo Gualda	Trapping heavy metals by bone bioresidues
P47	T. Pozo Gualda	Bones as bacterial bioadsorbant
P48	F. J. Gómez-Ramos	Proposed mechanisms of reaction for coating maghemite nanoparticles with alkylcyanoacrylates
P49	F. J. Gómez-Ramos	Optimized formulation of maghemite/poly (n) Butylcyanoacrylate "core/shell" nanospheres with promising characteristics for antitumor magnetic hyperthermia
P50	A. Robles-Fernández	Tunable Lipid Nanoparticles as Effective Carriers for Enhanced Brain Penetration
P51	J. Rodríguez-Álvarez	Coupled optical modes in twisted triskelia nanostructures for enantiomer detection
P52	A. Rodríguez	Superparamagnetic nanoprobos for magneto-inductive sensing
P53	P.A. Rodríguez-Jiménez	Physical switches to enhance the antitumoral action of magnetic nanoparticles
P54	P.A. Rodríguez-Jiménez	Magnetic-induced bacterial death mediated by magnetic nanoparticles
P55	A. Rubio-Andrés	Synthesis of Multiresponsive Plasmonic Microgels
P56	C. Saweres-Argüelles	Tailored starch-based nanocolloids for bioapplications
P57	Z. Shaterabadi	Uniformed-sized Fe ₃ O ₄ NRs for application in thermal treatment
P58	A. Sola-Leyva	Enhanced Cancer Treatment through Triple Modality Therapy: Chemotherapy, Magnetic Hyperthermia, and Photothermia Using BMNPs Conjugated with ChoKa1 Inhibitor
P59	H. Soto	Engineering small extracellular vesicles as targeted nanocarriers for antifibrotic therapies
P60	J. Tavacoli	Wagging Magnetic Microswimmers
P61	M. Vassallo	Dual-responsive magnetic nanodroplets for controlled oxygen release via ultrasound and magnetic stimulation
P62	M. Vassallo	From synthesis to in vitro hyperthermia application of magnetite nanoparticles with different surface coating
P63	C. Wenck	Design, development and characterization of magnetic nanoparticle systems for advanced theranostics
P64	G. Zanella	Effects of Magnetic Nanoparticles on the Functional Activity of Human Monocytes and Dendritic Cells
P65	A. Moreno-Revuelta	Maslinic acid solid lipid nanoparticles as hydrophobic anticancer drug carriers: Formulation, in vitro activity and in vivo biodistribution
P66	Yating Ye	Color tunable luminescence of EU-doped LaF ₃ particles sensitized by d-f energy transfer from a two-photon absorbing Yr(3Y) complex

P67	P. Sánchez-Moreno	Fabrication and characterization of monocyte membrane-coated lipid nanocapsules for anticancer therapeutics
P68	F.A. Membrive-Jiménez	Extracellular vesicles as detoxification system in microglia
P69	M. José Muñoz-Domene	Double Tailing Trap-Click Chemistry: Functionalization of nanoparticles for the preparation of miRNA-seq libraries
P70	J.A. Lirio-Piñar	Non-linear Phenomena in Microchannels: PDADMAC-Coated Carbon for Enhanced Preconcentration
P71	Lobo-Bedmar M. Carmen	Impact of ZVI nanoparticles on lettuce biomass and its rhizosphere microbial communities in two different soil types
P72	D. Corredera-Martín	Biomimetic Magnetic Nanoparticles as carriers for antimicrobial targeted therapy
P73	M. Jiménez-Carretero	Combination of immobilized AS-48 with magnetic hyperthermia against Mycobacterium tuberculosis