



European Materials Research Society

2026 Spring Meeting

May 25 - 29
Strasbourg Convention Centre

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SYMPOSIUM U

Nanomaterials for healthcare and biomedical engineering

Oral sessions : **MARIE CURIE B - FIRST FLOOR**

Poster sessions : **ETOILE - FIRST FLOOR**

Symposium Organizers:

Ángel **SERRANO- AROCA**, Universidad Catolica de Valencia, Spain

Małgorzata **KUJAWSKA**, Department of Toxicology, Poznan University of Medical Sciences, Poland

Sanjay **MATHUR**, Department of Chemistry, University of Köln, Germany

Yogendra Kumar **MISHRA (Main organizer)**, Mads Clausen Institute, University of Southern, Denmark

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Monday May 25

U01 Nanoporous Materials for Gas Sensing: Synthesis & Design

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08:00	249	Nanoparticle-based Colorimetric Biosensing Strategies Utilizing Specificity and Molecular Fingerprints RANA Subinoy (Invited)
08:30	422	Passive Daytime Radiative Cooling Nanofibers for Solar-Stable Wearable Colorimetric Wound Sensing CHANG Chingyin
08:45	1298	Stimuli-responsive electrospun nanofibers with core-shell design for bioactive wound healing CIARLEGLIO Gianluca
09:15	1022	Aluminum Based Hydrophobic Metal Organic Framework for Detection of Volatile Organic Compounds PADUNNAPPATTU Ajay
09:30	2492	Synergistic Ti3C2Tx MXene/MoS2 Composite Enabling Sensitive and Flexible Enzyme-Free Cholesterol Sensing KUMAR Sanjeev
09:45	1683	Direct SERS Probing of Aptamer Conformation on Silver Colloids PANDOLFI Sara

Monday May 25

U02 Nanoporous Materials for Gas Sensing: Simulation & Theory

[View session abstracts](#)

10:30	166	Photochemical preparation of NIR-I emissive and photothermal ultrasmall gold nanocluster for biosensing applications PETRALIA Salvatore (Invited)
11:00	2553	Ultrasound-triggered release of anticancer nanoparticles from an electrospun mesh TRONCI Giuseppe
11:15	889	Effect of time-delay approach in analyte classification with metal-organic frameworks RAMIÓ MATAS Laura
11:30	728	Computational Screening of Zeolitic Imidazolate Frameworks for Optical Sensing of VOCs via Refractive Index Modulation GHOSH Aparajita
11:45	2496	Bioresorbable Wireless-Rechargeable Sodium-Ion Batteries Enabled by Nano-Thin Magnesium Current Collectors for Temporary Medical Implants MUNIRAJ VEDI Kuyil Azhagan
12:00	1814	Bioactive Phosphate Glass Nanofibers produced by laser spinning as a Nanostructured Platform for Bone Regeneration FERNÁNDEZ-ARIAS Mónica
12:15	739	3D Porous Metal-Center Polarization Engineering of H/OH Binding for Alkaline Water Splitting Gaddimath Shivalingayya

Monday May 25

U03 Nanoporous Materials for Gas Sensing: Application & Characterization

[View session abstracts](#)

14:30	1748	Light-Controllable Nanozyme-Based Enzyme-Mimicking Microneedle Platform for Combating Skin Subdermal Infections and Inflammation CHEN Haihan (Invited)
15:00	2952	GNPs-Enabled Theranostics: A New Frontier in Cardiac Tissue Engineering SHILO Malka
15:15	812	Tetrapodal Zinc Oxide-Based Chemiresistive Sensors and Custom Sensing Setup Integration CHAKRABORTY Barnika
15:30	714	Diffraction optical sensor array for selective VOCs detection HERNIK Aleksandra
15:45	1666	Layer-by-Layer Fabrication of PVA-Based MCo2O4/rGO Hybrid Composites for Efficient EMI Attenuation SWAMI Shubhangi Basayya

Monday May 25

U04 Nanomaterials in Healthcare & Imaging

[View session abstracts](#)

16:30	3141	Automated 3D Tumor Analysis and Targeted Lipid Nanocarriers for Next-Generation Cancer Treatments THORAT Nanasaheb (Invited)
17:00	3300	Chemically Engineered Nanocarriers for Tumor Selective Accumulation ILYAS Shaista
17:15	1633	NIR triggered photodynamic therapy using upconverting nanocomposites MILAN Emil
17:30	564	-amyloid targeted grafted nanoprobe as specific MRI contrast agents for Alzheimer's disease detection Guerrero Porras Gabriel Rafael
17:45	368	Surface modification of upconversion nanoparticles with oligosarcosine for bioimaging MAMMADOVA Sakina
18:00	805	Optical Characterization of Phthalocyanine-Loaded Exosomes as Innovative Platforms for Photodynamic Therapy PORCU Stefania
16:30	1600	Biodegradable Iodinated Polymeric Nanoparticle as CT Contrast Agent for Direct Imaging of Cerebral Thrombus PARK Hyun Jae

Tuesday May 26

U05 Nanomaterials for Sensing and Detection

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- 08:30 416 Surface-Enhanced Raman Scattering-Based Nanoprobes for Disease Diagnosis: Beyond Laboratory
DWIVEDI Prabhat Kumar (Invited)
- 09:00 817 Synthesis of Shape-Engineered Single-Crystal Gold Microplates for Biosensing Applications
HUGHES Robert (Invited)
- 09:30 2482 Conductive biomaterials on silk fibroin for autonomous electronic devices
VALENTINI Luca (Invited)

Tuesday May 26

U06 Smart Implant Materials

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- 10:30 2989 Antibiotic-free antimicrobial biomaterials for regeneration: from biofilm control to host-compatible healing
EL KHASSAWNA Thaqif (Invited)
- 11:00 468 Biocompatible piezoceramics mimicking bone bioelectricity for next-generation implants
RIAZ Abdullah (Invited)
- 11:30 2163 Corrosion Mechanism of Ti6Al4V Alloy Implants Fabricated by Additive Manufacturing under In Vitro Simulated Inflammatory Conditions
YU Haoran
- 11:45 1878 Tridimensional printed biodegradable bone implants functionalized with bioactive molecules
DE ROCHEBRUNE Gabriel Roulhac
- 12:00 557 Bioactive and bioresorbable ligament prosthesis: development, functionalization and mechanism studies
ROUZIES Marion
- 12:00 2202 Time-Dependent Nanoindentation Methods and Their Application to Viscoelastic Coatings and Biological Bone Mechanics
TARJÁNYI Tamás (Invited)

Tuesday May 26

U07 Nanomaterials for Healthcare Device

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- 14:00 2455 Microwave-Assisted Hydrothermal Synthesis of ZnO Nanoparticles: Defect Engineering and Optical Properties for Biomedical Use
ROSOWSKA Julita (Invited)
- 14:45 2493 Wearable Electronics for Healthcare Applications: Recent Advancements and Future
BENIWAL Ajay
- 15:00 2394 Phosphate-triggered liquid-liquid phase separation of silk fibroin and stabilizing into robust films through ethanol treatment in simulated biological fluids
MALASPINA Rocco
- 15:15 1923 Manufacturing of temperature microsensors by ultrafast laser processes for biomedical applications
CHAUSSARD Joseph

- 15:30 2143 Carbon Quantum Dots as Nanodrug Delivery Systems for Nose-to-Brain Drug Delivery
KHALIL Asmaa
- 15:45 1961 Advancing Oral Wound Care: Garden Cress- Alginate Hydrogels as Potential Bioactive Dressings
SALAMA Rania

Tuesday May 26

U08 Plasmonic Nanobiosensing & Photothermal Therapy

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- 16:30 816 Fabrication of Periodic Arrays of Surfactant-Free Atomically Flat Gold Nanoplates for Biosensing
NERETINA Svetlana (Invited)
- 17:00 1776 Engineering the T Cell Priming Microenvironment to Reprogram CAR T Function and Memory Fate
PANDIT Jatin Jawhir (Invited)
- 17:45 1825 Borocarbonitrides with dual PDT/PTT effects for antimicrobial applications
BÜRGISSER Paula
- 18:00 1059 Aspirin-Coated Gold Core-Shell Nanoparticles for Oxygen Storage and Release in Radiotherapy Applications
SANTOS Ettore
- 18:15 1884 Biocompatible Chitosan-Derived Carbon Nanodots with Photothermal Activity and Drug-Loading Capability
MAUGERI Ludovica

Wednesday May 27

U09 Nanomaterials for environmental sensing

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- 08:30 1842 Engineering Protein-Based Nanotraps via Molecular Imprinting for Specific Target Sequestration
BOSSI Alessandra Maria (Invited)
- 09:00 1532 Atomically Precise Metal Nanoclusters for Biomedical Applications
CHAKRABORTY Indranath (Invited)
- 09:30 2871 Facile and Novel Synthesis of ZnO Hollow Nanostructures via Turnbull Blue Analogues: Characterization and Application in Dye Adsorption and Antimicrobial Activity
HOSSAIN Md. Kamrul
- 09:45 2467 Layer-by-Layer Fabrication of PVA-Based MCo2O4/rGO Hybrid Composites for Efficient EMI Attenuation
SWAMI Shubhangi Basayya
- 11:30 1009 Detection of Foodborne Pathogens via Volatile Organic Compound Sensing Using Metal Oxide Gas Sensors
AWASTHI Kamendra

Wednesday May 27

U10 MOF for Sensing and Monitoring

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- 10:30 809 Diffusion-based selectivity in metal-organic framework chemical sensors
MATAVŽ Aleksander (Invited)

- 11:00 2603 Increasing the accuracy of molecular simulations of adsorption, diffusion and dielectric properties of guest molecules in metal-organic frameworks to understand their potential in sensing and separation applications
VANDUYFHUYS Louis (Invited)
- 11:30 548 Toluene detection and capture using MOF/Polymer composites
EKKA Joy (Invited)

Wednesday May 27
U11 MOF for Sensing and Monitoring

[View session abstracts](#)

- 13:30 794 Multifunctional Nanocomposites for Electromagnetic Interference Shielding, Joule Heating, Magnetic Hyperthermia and Photothermal Applications
YADAV Raghvendra Singh (Invited)
- 14:00 3420 Material Cues Regulating Stem Cell fate for Cell Therapy of Neurodegenerative Diseases
LIU Hong (Invited)
- 14:30 3319 Porous 3D self-organized silk pyroproteins on ZnO tetrapod network
MALTSEV Danila
- 14:45 3029 Nucleic acid immobilization strategies on thiol-ene photopolymer surfaces for microfluidic biosensors
SALEHI SIOUKI Sara
- 15:00 3090 Synthesis of Silicon Doped Hydroxyapatite and PVA Electrospun Nanofibrous Scaffolds for Improved Osteochondral Regeneration and Antibacterial Activity
ANWAR Aneela
- 15:15 118 Impact of particle size distributions on gas diffusivity in metal-organic frameworks for kinetic sensing
SUGIHARA Masaya
- 15:30 104 MXene-Integrated Paper Electrochemical Aptasensor for Highly Sensitive Breast Cancer Biomarker Analysis
RAWAT Reema
- 15:45 2655 Publishing at the Royal Society of Chemistry – Tips from the Editors
KERR Hannah

Thursday May 28
U12 Nanomaterials based Sensing Devices

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- 08:30 2642 Multipurpose 2D Hybrid Nanomaterials Beyond Graphene for Theranostic and Biomedical Applications
SATRIANO Cristina (Invited)
- 09:00 2521 Carbon nano-dots based on L-Proline for non enzymatic electrochemical tyrosine sensing
FANGANO Giorgia
- 09:15 974 Flexible Electrochemical Sensors for Non-Invasive Salivary Glucose Detection Using Conductive Polymer Hydrogels/Carbon Nanotubes
LIU Ching Hao
- 09:30 404 MBA/Ag-rGO SERS Immunosensing Platform for Sensitive and Selective E. coli Detection in Complex Biological Medium
NAQVI Tania

- 09:45 1473 Robust Silicon Nitride Nanopore Architectures for Reliable Single-Molecule Biosensing
NASA Simran

Thursday May 28
U13 Liquid Metals for Healthcare

[View session abstracts](#)

- 10:30 1046 Liquid metal based biomaterials for biomedical engineering
ZHANG Chengchen (Invited)
- 11:00 1598 Novel Liquid Embolic Compositions with Inherent Radiopacity for Endovascular Embolization with Iodinated Cyanoacrylate Structure
PARK Subin (Invited)

Thursday May 28
U14 Functional Composites

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- 14:15 850 Tuning the Material-Cell Interaction for Advanced Stem Cell Therapy of Brain Injuries
QIU Jichuan
- 14:30 563 Selenium Nanoparticles a Novel Approach in Treating Polycystic Kidney Disease
BAEZ Rolando
- 14:45 1863 Attenuated Total Reflectance Fourier Transform Infrared (ATR-FTIR) spectroscopy as a key tool for designing nanocrystalline cellulose hydrogels for local glioblastoma therapy
ZANGARI Martina
- 15:15 3017 Host Cell-Mimetic Multivalent Nanodecoys with Geometry Matching for Antiviral Inhibition of Influenza Virus
JEONG Eunji
- 15:30 2020 Design of Exosome-Inspired Vesicles for Enhanced Tissue Penetration
BANG Seunghwan
- 16:45 2348 High-Performance Zn²⁺ sensing based on Turn-off Photoluminescence of Lithium-codoped Eu³⁺ - activated Yttrium Orthovanadate nanophosphors
SINGH Anuradha

Thursday May 28
UP04 Poster session U

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- 16:30 01_1006 Integrating CRISPR Diagnostics with Digital Signal Processing Facilitates On-Site Viral Nucleic Acid Testing
LEE Chang Yeol
- 16:30 02_1032 Functional Marine-Based Collagen And Gelatin For Wound Healing Applications
ONG Melissa Yu Lin
- 16:30 03_1083 PLUS: A Universal Biointerface Coating for Robust Biomarker Capture in Clinically Relevant Environments
SON Nayoung

16:30	04_1095	Fabrication of porous starch microspheres by electrohydrodynamic atomization for rapid hemostasis SASMAL Pradyumna Kumar	16:30	23_2366	Multifunctional PS-PMMA/Ag-RGD Bone Cement: Enhanced Mechanical Performance, Antimicrobial Potential, and Preclinical Evaluation ALSHARAEH Edreese Housni
16:30	06_1217	Alginate-based nanoparticles: Evolution from surfactant-mediated to redox-responsive drug delivery systems SABLE Anand	16:30	24_2380	Electrospun Photodynamic Poly(vinyl alcohol) Meshes for Antimicrobial Fibrous Dressings BROOKER Charles
16:30	07_1226	Polymer-Metal Oxide Nanoparticles-based Biocompatible Dual-Enzyme Platform TANG Yingwei	16:30	25_2506	Optimization of Laser-Induced Graphene Electrodes for Aptamer-Based Electrochemical Sensing SOTELO GUZMAN Carolina
16:30	08_1264	Ultra-sensitive magnetoresistive sensors for biomagnetism and medical imaging HAASIB Rishan	16:30	26_2533	Composition of Protein Corona over Covalent Organic Frameworks BOTELLA ASUNCION Pablo
16:30	09_1310	Recent advances in pulsed laser ablation in liquid medium for biomedical and tissue engineering applications AL-KATTAN Ahmed	16:30	28_2709	Accelerated UV-Induced E. coli Degradation by CuO Nanoparticles Machuca Campis Joaneliz
16:30	10_1340	DNA Nuclease and ATPase Like Amyloid Fibrils: A Pathway Towards Amylin Pathology Chatterjee Arunavo	16:30	29_2730	Photoluminescence Tracking of UV-Driven E.coli Inactivation with ZnO Nanoparticles OTERO MENÉNDEZ Laura V.
16:30	11_1461	Linking Biomaterial Performance with Environmental Sustainability by LCA Metrics for Eco-efficient Atomic Layer Deposition of TiO ₂ Thin Films EL HABRA Naida	16:30	30_2732	3D-printed microneedle-based wearable sensor using fibroin nanofibrils and gold nanoparticles CORREA Daniel
16:30	12_1568	Design of Polyphosphate Functionalized CuS Nanoparticles for NIR Responsive Chemo-Photothermal Therapy GUPTA Sonali	16:30	31_280	Multifunctional Nanomaterials for Synergistic Therapy, Biosensing, and Environmental Applications KHAN Imran Mahmood
16:30	13_163	Unravelling Electronic Structure and Molecular Vibrations of Proteins in Virus using Novel Correlated Plasmon-Enhanced Raman Spectroscopy with Machine Learning KAMBOJ Vashu	16:30	32_2872	High-throughput impedance-based analysis tool with fibrous nanopatterns for in vitro chemotherapy assessment KIM Hyungjin
16:30	14_164	Unravelling Electronic Structure and Molecular Vibrations of Proteins in Virus using Novel Correlated Plasmon-Enhanced Raman Spectroscopy with Machine Learning KAMBOJ Vashu	16:30	33_2903	Embedding Diselenide Cross-Linked Polymer Nanoparticles In Situ Using Ring-Opening Metathesis Polymerization (ROMP) of NORBORNENE Derived Block Copolymers for ROS-Responsive Doxorubicin (DOX) Drug Delivery MATHEW Jacob
16:30	15_1730	Bioengineered pH-responsive MOF Nanocarriers with Protein-Capped Gold Clusters for Controlled Drug Release and Multimodal Imaging SINHA Arunima	16:30	34_2904	A polycaprolactone-based nanocarrier containing thioketal linkers and charge conversion capabilities for doxorubicin delivery MATHEW Jacob
16:30	16_1818	Fabrication and Antibacterial Evaluation of 5,10,15-Triphenylcorrole Complexes and Corrole/Silver Nanoparticle Hybrid Materials VU Mai Phuong Uyen	16:30	35_2911	Silica-Coated Nanoparticles for Biomedical Applications GARCIA Sheena Anne Henson
16:30	17_1856	Silica nanoparticles for delivery of fertility-inducing drugs in Rheophilic Fishes ARIOLI Guilherme Augusto	16:30	36_2932	Functional Marine-Based Collagen And Gelatin For Wound Healing Applications ONG Melissa Yu Lin
16:30	18_1892	Photochemical Synthesis of Hybrid Carbon-Gold Nanostructures with Tunable Optical and Photothermal Properties Maugeri Ludovica	16:30	37_3013	Advanced Rapid and Visible Influenza A Virus Detection Platform Based on Enzyme-Mimicking Layered Gold Nanoparticles JEONG Eunji
16:30	19_2193	Residue-Specific Adsorption of RGD and KRSR Peptide on Amorphous TiO ₂ under Physiological Ionic Conditions ROSZTOCZY Csaba	16:30	38_3055	Hierarchical Synthesis and Functionalization of Magneto-Plasmonic Nanocapsules for Plasmon-Enhanced Raman Platforms SOMVANSHI Sandeep B.
16:30	20_2237	Ferrocene modification of protein imprinted MIP films for medical applications WÓJCIK Magdalena	16:30	39_3091	Cyclic voltammetric analysis of Dopamine and Uric acid at a CaO-MWCNT modified carbon paste electrode JOSHI Richa
16:30	21_2244	E-SPR analysis for MIP sensors WÓJCIK Magdalena	16:30	40_3102	A Modular Surface-Modified mRNA Lipid Nanoparticle Platform for Enhanced B Cell Uptake SHIN Jeehae
			16:30	41_311	Design and Processing of Antimicrobial Nanocomposites via Additive Manufacturing for Medical Applications BOZZO Stella Bruno

16:30	42_3111	Light induced faster absorption and desorption of hydrogen in PdAg alloy thin film revealed by lattice contraction and expansion studied by in-situ Synchrotron XRD SURYA Madhuri
16:30	43_3215	Functional Nanomaterials for Electrogenerated Chemiluminescence Bioanalysis: Biosensing and Precision Diagnostics WANG Hongye
16:30	44_328	Mesoporous Silica-Based Hybrid Systems for Controlled Encapsulation and Release of Hydrophobic and Hydrophilic Drugs IQBAL Sumiya
16:30	45_3327	Sclerostin-derived Short Peptide-Loaded Hyaluronic Acid Hydrogels: Engineering an Injectable Depot for Localized Osteoarthritis Therapy Babu Rosebin
16:30	46_3385	Industrial upscaling of ZnO Tetrapods for Food and Healthcare Technologies ABDULLAH Hira
16:30	47_3419	Cu-Doped ZnO Nanoparticles for Tunable Electronic Properties, Antimicrobial Activity, and Drug Delivery Almadhhi Sultan S.
16:30	48_457	Vibration, temperature and form factors influence the performance of wearables based on flexible lithium-ion pouch cells RUMIPAMBA José
16:30	49_496	Surface-engineered Janus nanoparticles for antimicrobial activities CHEN Yuan
16:30	50_510	Bio-Functionalizing optically active HfO ₂ nanoparticles with bisphosphonates LIARI Evelina
16:30	51_534	Silica-Coated Nanoparticles for Biomedical Applications GARCIA Sheena Anne Henson
16:30	52_547	Ligand-Free Surface-Engineered Mesoporous Silica Nanoparticles as Dual-Function Nanomedicine CHEN Peilin
16:30	53_569	Architecture-Dependent Loading and Release Properties of Thermosensitive PNVCCL Nanocarriers GABRIEL Arthur
16:30	54_57	Flexible PDMS/ZnS:Cu Composite for Self-Powered Triboelectric and Mechanoluminescent Applications HAJRA Sugato
16:30	55_736	Unveiling Lithium Doping - Driven Morphological and Optical Modulation in Water-Dispersible NaYF ₄ :Ho,Yb Upconversion Nanoparticles for Super Bright Imaging AGRAWAL Ruchi
16:30	56_842	Recent applications of bottlebrush polymers in biomedicine BANQUY Xavier
16:30	57_903	Aptamer single-molecule dispersion on single-atom anchoring sites for high-selectivity in vivo detection HUANG Jing
16:30	58_94	Ionic liquid based nanocarrier for oral co-delivery of JAK2 inhibitors for Inflammatory bowel disease treatment KUMAR Raj

Friday May 29

U16 Functional Coatings and BioImplants

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08:00	2413	Multifunctional Cu-Doped Brushite Coatings for Biomedical Implants with Biosurfactant Assistance DAS Karabi
08:30	575	Enhanced In-Vitro Antibacterial Activity and Phytochemical Analysis of Curcuma longa and Azadirachta indica Mediated Zinc Oxide Nanoparticles KARUNANIDHI Govardhan
08:45	2480	Study of texture, mechanical behavior, and biological response of Hot-Forged ZX10 Magnesium Alloy during warm rolling SHUKLA Aman Jyoti
09:00	2004	Vapor-based Synthesis of Nanocoatings for Delivery Control of Immunosuppressive Therapeutics from Neural Probes Mao Yu
09:30	1932	Graphene-Based Nanoplatfoms in Synucleinopathies: Bridging Protein Aggregation Control and Advanced Biosensing KUJAWSKA Malgorzata
09:45	179	A Bio-Functionalized Triboelectric Nanogenerator Integrated Patch for Accelerated Wound Healing and Activity Tracking PANDA Swati

Friday May 29

U17 Nanofibers and Nanocarriers for Health

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10:30	2665	Stabilization of Gold Nanocrystals in Tryptic Soy Broth Medium for Studies of Bacterial Growth Inhibition BOŽEKOVÁ Ivana
10:45	1964	In vitro cytotoxicity and -synuclein anti-amyloid activity of benzothiazole functionalized with graphene oxide KUJAWSKA Malgorzata
11:00	2167	Synthesis of Prussian Blue Nanoparticle / Antimicrobial Peptide Hybrid Conjugates for Antibacterial Applications ROMAIN Mélanie
11:15	560	Biological response and surface behaviour of two bioactive polymers grafted on PDMS surfaces FALENTIN-DAUDRE Céline