



**51st Congress of the Physical Chemistry Division
Società Chimica Italiana**

Bari, 7 – 10 July 2026
Politecnico di Bari, Campus Universitario

09:15–10:00 **Registration**

10:00–10:30 **Coffee break**

10:30–11:00
Aula Magna
"A. Alto"

Opening: Prof. M. Venanzi (*President DCF SCI*), Prof. U. Fratino (*Rector, Polytechnic University of Bari*), Prof. R. Bellotti (*Rector, University of Bari*), Prof. L. Armelao (*Director, DSCTM-CNR*), Prof. G. Palazzo (*Director, Chemistry Department University of Bari*), Dr. O. Maragò (*Director, CNR IPCF*), Dr. R. Comparelli (*Head of Bari Unit, CNR IPCF*), Prof. A. Agostiano (*President, EuChemS*).

11:15–11:45
Aula Magna
"A. Alto"

Plenary lecture
I. Pastoriza-Santos, Colloidal Plasmonic Nanomaterials as Platforms for (Bio)Sensing –
Chair: A. Agostiano

	Room A	Room B	Room E
12:00–13:00	Fundamental Physical Chemistry: Structure, Dynamics, and Spectroscopy Chair: M. Meneghetti A 01 D. Ranieri Enhancing the Optical Response of Gold and Silver Nanoclusters via Rigid Embedding in High-Refractive Index Polyacrylamide Matrix A 02 A. Mercedi Spectral Reshaping of Porphyrin Excitation by Plasmonic Nanostructures A 03 G. Cappelletti Turning Waste into Value: Sustainable Bio-Emulsifiers from Agro-Food By-Products A 04 A. Grandolfo Chemical Affinity-Driven SERS Response of Histidine-Functionalized RGO/Ag Nanowire Nanocomposites on Hydrophobic Paper	Physical Chemistry for Health and Life Sciences Chair: A. Agostiano D 01 R. Oliva Modulating Disease-Related Biocondensates with Small Bioactive Peptides D 02 D. Roversi Membrane Interactions of Antimicrobial Peptides: a Kinetic Perspective D 03 M. Roggio Aerosol-Assisted Atmospheric Pressure Plasma Jet Deposition of Antimicrobial Zinc-Based Nanocomposite Thin Film	Materials and Nanoscience for Sustainable Technologies Chair: R. Grisorio F 01 S. Garroni Low-Temperature Formation of BCZT Piezoceramics: Kinetic Pathways and Structure-Property Relationships F 02 S. Slimani Spin Disorder in Hollow Nanoarchitectures: Beyond Geometric Surface Effects F 03 G. Ragusano Enhanced Physico-Chemical Characterization of Complex Hybrid Nanocomposites: an O ₂ -GCIB TOF-SIMS Depth Profiling Approach F 04 V. Spampinato Physico-Chemical Insights into the Stepwise Assembly of Copper-Based Metal-Organic Frameworks Thin Films on Functionalized Silicon Oxide

13:00–14:40 **Lunch**

14:40–15:25
Room A

Plenary lecture
C. Giannini, Deciphering the Hierarchical Structure of Natural and Engineered Materials – A Multiscale X-ray Scattering-Based Approach – Chair: L. Marchese

15:25–15:35
ROOM A

Sponsor presentation – G. Gariano, ALFATEST

	Room A	Room B	Room E
15:35–16:05	Fundamental Physical Chemistry: Structure, Dynamics, and Spectroscopy Chair: L. Marchese A 05 F. L. Damiani Crystal Structure Refinement of New Organocatalyst: Benchmarking Between Independent Atom Model (IAM) Refinement and Hirshfeld Atom Refinement (HAR) A 06 L. Evangelisti Decoding Molecular Structure with Rotational Spectroscopy	Soft Matter, Interfaces, and Complex Systems Chair: G. D'Errico C 01 V. La Gambina Exact Stoichiometry Far-Off Neutrality Catanionic Nanotubes: Unconventional Self-Assembly of Oppositely Charged Surfactants C 02 G. Li Destri Macro- and Nanoscale Electrostatics Govern the Static and Dynamic Behavior of Charged Aqueous Interfaces	Materials and Nanoscience for Sustainable Technologies Chair: E. Fanizza F 05 D. Peddis From Cultural Heritage to Fundamental Magnetism: Insights from Nanostructured Hematite F 06 M. L. Saladino The NanoLuBC Project: a Join Chairs on Innovative Nanostructured Materials with Luminescent Properties for Cultural Heritage

16:05–16:45

Coffee break

16:45–17:30

Room A	Room B	Room E
Fundamental Physical Chemistry: Structure, Dynamics, and Spectroscopy Chair: A. Panniello A 07 G. Sambucari Integrating Twisted and Push–Pull Structural Motifs for Efficient Dual-Functioning Near-Infrared Bodipy Photosensitizers A 08 P. Sassi Spatially Resolved Biochemical Signatures of Cardioresenal Syndrome Revealed by FTIR Imaging A 09 S. Massardo SpeComp: a User-Friendly Tool for Spectral Comparison to Facilitate Microplastics Detection in Complex Biological Matrices	Soft Matter, Interfaces, and Complex Systems Chair: G. D'Errico C 03 S. Napoletano Soluplus® Micelles Characterization and Application in Drug Delivery C 04 R. E. Camerini Bio-Based Polyglycerol Esters for LLPS-Driven Soft Microencapsulation G 01 P. Lasala Cellulose-Based Nanocomposites Embedding Metal Oxides Nanoparticles for Dye Removal from Wastewater by Synergistic Adsorption and Photocatalytic Processes	Electrochemistry, Catalysis, and Energy Conversion Chair: E. Fanizza E 01 R. Del Sole Combined Atomic Layer Deposition and Sputtering of ZnO/Cu Coatings for CO ₂ Electroreduction E 02 N. Iuliano Spectroelectrochemical Insights into Heterogeneous Catalysts for the CO ₂ Reduction Reaction E 03 F. Panagini Structural Insights on FeZnCuK Catalysts for Mild Photothermal CO ₂ -to-Hydrocarbons

17:30–18:00

Room A

Invited lecture

P. P. Abis (Acquedotto Pugliese S.p.A.), *Ensuring Drinking Water Quality in Acquedotto Pugliese through the Digitalization of the Water Safety Plan* – Chair: L. Curri

18:00–18:15

Room A

L. Marchese, RisPA CENTER: *The Research and Development Center for Environmental Remediation and Protection*

18:30–20:30

Welcome event at Caffè Vergnano Via Amendola

09:15–10:00
Room A

Plenary lecture

G. M. Pavan, *The Information Contained in Self-Assembling Systems* – Chair: M. Pavone

10:00–11:15

Room A	Room B	Room E
Theory, Modelling, and Data-Driven Physical Chemistry Chair: M. Pavone B 01 F. Avanzini Coarse Graining Photo-Isomerization Reactions: Thermodynamic Consistency and Implications for Molecular Ratchets B 02 G. Bocchinfuso Multiscale Molecular Dynamics for Probing Second-Timescale Protein Conformational Changes: the SHP2 Activation Case B 03 N. Tuccitto When Molecules Communicate: Entropy Production as the Thermodynamic Cost of Molecular Information Transfer B 04 S. Pezzola The Perfect Couple: a Critical Analysis of CAM-B3LYP/SMD for Alcohol pKa Prediction B 05 D. Tatini Machine Learning and Data Fusion Strategies for the Investigation of Hofmeister Effects in Polysaccharide Systems Combining IR Spectroscopy and Thermal Analysis	Physical Chemistry for Health and Life Sciences Chair: C. Giancola D 04 P. Maltoni Magnetic Response of Giant Unilamellar Vesicles Embedding Functionalized Magnetite Nanoparticles D 05 G. Quaglia Photothermal Effect of Gold Nanostructures on Amyloid Aggregates: Role of Shape and Size in the Optical Response D 06 F. Cardoni Plasmonic Au NP-Derived Thin Films for Monitoring Cardiac Cells and Their Biomarkers D 07 G. Mandriota Functionalized Petal-Like ZnO as a Promising Nanoplatfrom for Gene Delivery D 08 V. De Leo Liposomal Co-Encapsulation of Curcumin and Quercetin Enhances the Protective Effect on Endothelial Cells from TNF- α -Induced Inflammation, Oxidative Stress, and Apoptotic Damage	Electrochemistry, Catalysis, and Energy Conversion Chair: M. Trotta E 04 M. Grattieri Tuning Bacteria-Electrode Interfaces for Biohybrid Electrochemical Systems E 05 M. Viviani Stability and Electrochemical Properties in Multi- Doped Sr Ferrates E 06 A. Astengo The Gilded Cage: Towards High Thermoelectric Efficiency in Single-Filled Skutterudites E 07 V. Ferrara Interference and Plasmonic Effects in Dielectric/Metal/Dielectric Multilayers for Semi-Transparent Perovskite Solar Cells E 08 C. Zonno Controlling Energy Flow in <i>Rhodobacter Sphaeroides</i> Chromatophores via Selective Electron Transfer Inhibition

11:15–12:00

Coffee break

12:00–12:30
Room A

Keynote lecture

P. L. Gentili, *The Contribution of Photochromic Materials in the Development of Chemical AI* – Chair: F. Mavelli

12:30–13:30

Room A	Room B	Room E
Fundamental Physical Chemistry: Structure, Dynamics, and Spectroscopy Chair: F. Mavelli B 06 I. Rivalta Generating Molecules with Artificial Intelligence without Databases A 010 A. Scarperi Multinuclear Solid-State NMR Investigation of Adsorption-Induced Structural Changes and CO ₂ Dynamics in CALF-20 A 011 A. Ghelardi Molecular Motions of Active Pharmaceutical Ingredients Investigated by Solid-State NMR Spectroscopy A 012 S. Melandri The Halogen Advantage: the Role of Halogen Atoms in Architecting Novel Non-Covalent Interactions	Soft Matter, Interfaces, and Complex Systems Chair: F. Ridi C 05 G. Graziano Magnitude of Macromolecular Crowding Caused by Dextran and Ficoll C 06 G. Palazzo The Empirical HLD-NAC Model of Microemulsion Can Be Rationalized on the Basis of Random Field Description of Oil/Water Domains C 07 A. Del Giudice Complex Coacervation Between Sodium Decanoate and Cationic Inulin: Structural and Deposition Studies of Bio-Based Polymer and Surfactant Mixtures C 08 M. Tancredi Microfluidic Production of Rhamnolipid Coacervates: Linking Droplet Formation to Internal Organization	Environmental Physical Chemistry Chair: L. Catucci G 02 A. C. Perri Thiol-Functionalized Chitosan Derivative as a Novel Bioadsorbent for Selective Mercury Remediation G 03 M. Baratta Synthesis and Preparation of Cyclodextrin Modified Carbon Nanotube Buckypapers for the Efficient Removal of Carbofuran from Water G 04 S. Nanan Magnetic Fe ₃ O ₄ /BiOBr for Sunlight Degradation of Tetracycline Antibiotic G 05 F. Secci Probing Aluminum Speciation and Surface Acidity in Mesostructured Aluminosilicates: Structure-Acidity Insights for CO ₂ -to-DME Conversion

13:30–15:15

Lunch

15:15–16:00
Room A

Plenary lecture

R. Marcilla, *Unlocking the Potential of Organic Materials for Energy Storage: The Fascinating Journey Toward Sustainable Batteries* – Chair: M. Striccoli

16:00–16:30
Room A

Keynote lecture

A.B. Muñoz–García, *Addressing Complexity in Energy Materials and Interfaces: Predictive Modelling Strategies Beyond DFT* – Chair: M. Striccoli

16:45–17:30

Room A	Room B	Room C
Theory, Modelling, and Data-Driven Physical Chemistry Chair: M. Cossi B O7 M. A. Zambrano Angulo Atomistic Insights into Hole Injection at Multi-Cation Perovskite/HTL Interfaces B O8 A. Landi From Electronic Structure to Nonradiative Pathways in INVEST Emitters: a Combined Electronic-Structure and Quantum-Dynamics Perspective	Physical Chemistry for Health and Life Sciences Chair: L. Latterini D O9 I. Miletto Advanced $\text{Yb}^{3+}/\text{Er}^{3+}\text{-TiO}_2$ Architectures: Mastering Upconversion for NIR-to-Visible Light Harvesting D O10 L. Fabiano Tuning Physicochemical Properties of PEDOT: PSS/HNTs Nano Composites for Smart Bioactive Interfaces D O11 V. Piscopo Development of Dielectric/Metal/Dielectric (DMD) Architectures for Optical Biosensing Applications	Electrochemistry, Catalysis, and Energy Conversion Chair: M. Striccoli E O9 F. Murgia Boosted Ionic Conductivity in $\text{Na}_2\text{B}_{12}\text{H}_{12}/\text{SiO}_2$ Nanocomposite Electrolyte for Solid-State Sodium Batteries E O10 U. Mattia Enhanced Biophotocurrent Generation via Tailored Nano-Biointerfaces in <i>Rhodobacter Capsulatus</i> Biohybrids E O11 S. Brutti The SIGNE Project: Composite Silicon Nanowire on Graphite Anodes with Ni-Rich Cathodes and Safe Ether Based Electrolytes for High-Capacity Li-Ion Batteries

17:30–19:00

Poster session and refreshment

19:30–on

Social event: Guided tour following the “Di Arco in Arco” itinerary in Bari’s Old Town

09:15–10:00
Room A

Plenary lecture

R. Mezzenga, *Amyloid–Metal Supramolecular Hybrids for Health and Environmental Remediation Technologies* – Chair: E. Selli

10:00–10:30
Room A

Keynote lecture

E. Gianotti, *Confined Spaces, Boundless Opportunities: Controlling Confinement in Porous Materials from Catalysis to Nanomedicine* – Chair: E. Selli

10:30–11:15

Room A	Room B	Room E
Theory, Modelling, and Data-Driven Physical Chemistry Chair: A. Massaro B O10 M. Corno Atomistic Modelling of Hydroxyapatite Surfaces: from Biomolecular Adsorption to Environmental Catalysis B O11 V. Palumbo A New Method to Characterize the Porosity of Materials: Distribution of Nanoporous Volume, Specific Surfaces and Prediction of Gas Adsorption B O12 S. C. Sarnataro Computational Exploration of Derivatized Cyclodextrin-Based Drug Delivery Systems	Physical Chemistry for Health and Life Sciences Chair: L. Petraccone D O12 P. Albanese Photomodulation of Vesicle Dynamics Using Fluorescent Photoswitchable Amphiphiles D O13 N. Depalo pH-Responsive Dendritic Large-Pore Mesoporous Silica Nanoplatfoms for 5-Fluorouracil Delivery in Colorectal Cancer D O14 A. Auditore Decoding Molecular Information via Mass Transport–Electron Transfer Coupling	Environmental Physical Chemistry Chair: E. Selli G O6 G. Ancora A Sequential Probe Adsorption Approach for the Characterization of Acid Sites in Hierarchical Zeolites G O7 G. Mulas Valuable Waste for CO ₂ Conversion and H ₂ Evolution Induced by Mechanical Energy G O8 V. Ancona Use of Vis-NIR Spectroscopy for Environmental Monitoring: Potential and Applications

11:15–12:00

Coffee break

12:00–12:45
Room A

Plenary lecture

D. Berti, *Engineering Nano–Bio Interfaces: from Self-Assembly to Functional Hybrid Nanosystems* – Chair: G. Palazzo

12:45–13:15

Room A	Room B	Room E
Fundamental Physical Chemistry: Structure, Dynamics, and Spectroscopy Chair: G. Graziano A O13 L. Gentile Acid-Induced Plasticization on Cellulose Thin Films A O14 R. Lettieri Structure–Property Relationships in Cellulose Acetate Composites Containing Microalgal Residues	Soft Matter, Interfaces, and Complex Systems Chair: G. Palazzo C O9 L. Bellandi Physicochemical Characterization of PVA-Based Twin Chain Polymeric Networks Loaded with a Citric Acid Solution C O10 P. Tordi Ion-Programmed Biopolymer Organohydrogels for Multiresponsive Soft Electronics	Materials and Nanoscience for Sustainable Technologies Chair: P. Fini F O7 R. Labarile Microbial Photosynthesis for Space Applications F O8 G. Rando Next-Generation Sustainable Membranes: Nanostructured Platforms for Environmental and Energy Challenges

13:15–14:45

Lunch

14:45–15:15
Room A

Kenote lecture

C. Milanese, *The C Treasure in Biomasses for Energy and Analytical Applications*
Chair: G.P. Suranna

15:15–16:00

Room A	Room B	Room E
Fundamental Physical Chemistry: Structure, Dynamics, and Spectroscopy Chair: G.P. Suranna A O15 D. Valli Doping Strategies in Lead-Free Double Perovskites for X-Ray to NIR Photodetection A O16 M. C. Di Gregorio Engineering Metal–Organic Frameworks for Highly Nonlinear Photonics A O17 T. Gentili Infrared-Activated Dynamic Crystals: Remote Motion in a Metal–Organic Framework	Soft Matter, Interfaces, and Complex Systems Chair: N. Depalo C O11 E. Gatto From Nature to Nanoscience: Peptide Building Blocks Driving Photoinduced Electron Transfer C O12 M. Trotta Repurposing Bacterial Photosynthesis B O9 R. Sarkar First-Principles-Based Insights into Adsorption and Reactivity of Na ⁺ Salt and Room-Temperature Ionic Liquids at Sodium Metal Surface	Electrochemistry, Catalysis, and Energy Conversion Chair: D. Peddis E O12 H. P. Bloch A Comprehensive DFT Study of the Mechanism of Selective PE Oxidation with a Ruthenium–Porphyrin Catalyst E O13 D. Conelli Photoinduced Surface-Driven Bromination of Electron-Rich Arenes on Lead-Free Cs ₂ AgBiBr ₆ Microcrystals under Sustainable Conditions E O14 G. Manca Ultrafast Piezo-Assisted Engineering of Metal–ZnO Interfaces for Catalytic Applications

16:00–16:45

Coffee break

16:45–19:00
Room A

Assembly of the Physical Chemistry Division and Medals Ceremony

20:30 – on

Social dinner at Villa Romanazzi Carducci

09:15–09:45
Room A

Keynote lecture

M. R. Plutino, *Innovative Hybrid Materials for a Sustainable Future: Bridging Circular Resources, Nanotechnologies, and Green Transition* – Chair: S. Melandri

09:45–11:00

Room A	Room B	Room E
Fundamental Physical Chemistry: Structure, Dynamics, and Spectroscopy Chair: S. Melandri A O18 F. Locardi Persistent Luminescence Nanocrystals A O19 R. Gelli Bisphosphonates and Polyacrylates Control the Size and Assembly of Amorphous Magnesium–Calcium Phosphate Particles A O20 A. Mangolini Structural and Magnetic Properties of Iso-Oriented Assemblies of Co–Zn Ferrite Nanoparticles A O21 V. Scardaci Study and Characterization of the Gold Nanoparticle's Formation Mechanism by Re-Irradiation of Linear Bromide Induced Gold Nanoparticle Chains A O22 C. N. Dibenedetto Assembling Colloidal Emissive Nanocrystals into 3D Super-Architectures	Soft Matter, Interfaces, and Complex Systems Chair: D. Berti C O13 F. Sarnelli A Physicochemical Approach to Surfactant-Mediated Deposition of Volatile Compounds from Detergent Formulations onto Fabrics C O14 C. Adamo Controlling Fibroin Self-Assembly in Sustainable Consolidants for Fragile Silk Artifacts C O15 M. Baglioni Influence of Surfactants on Industrial Cheese Sauces C O16 G. Ballabio Interfacial and Emulsifying Properties of Potato Protein Hydrolysates Obtained by Enzymatic Processing C O17 J. Costa Physicochemical Characterization of High-Performance Chitosan Based Adhesives: a Sustainable Approach to Enhance Interfacial Adhesion	Materials and Nanoscience for Sustainable Technologies Chair: B. Pignataro F O9 C. Ingrosso Innovative Hybrid Nanocomposites based on Soot Carbon Nanoparticles Decorated with Au Nanoparticles for Electroanalytical Sensors F O10 C. Carandente Coscia Modulating the Morphology of Lignin Microparticles via Green Solvent-Shifting F O11 F. Morari Activated Carbon Derived from Agro-Industrial Waste for H ₂ Storage F O12 M. Tonelli 3D-Printable Bioreceptive M–S–H Cements Containing Large Quantities of Marble Dust Waste F O13 L. Viacava Flexible Synthesis of Copper, Iodine – Based Coordination Polymers with Modulable Luminescent Emission

11:00–12:00

Coffee break

12:00–13:00
Room A

Conference awards ceremony

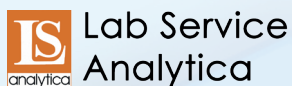
13:00–13:30
Room A

Closing remarks

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