

**16<sup>th</sup> International Workshop on Electrodeposited Nanostructures**  
**EDNANO-16**

**FULL PROGRAM**

Room 209 of the teaching centre "Scuola di Studi Umanistici e della Formazione - Università degli Studi di Firenze", Via Laura, 48, 50121 Firenze (FI), Italy.

**Thursday April 10<sup>th</sup> 2025**

8:00 – 9:00	<b>Registration</b>
9:00 – 9:30	<b>Opening Ceremony</b>
<b>I Session – Chair Walter Giurlani</b>	
9:30 – 9:50	(Opening Talk) Electroplating in Today's World Luca Magagnin – <i>Politecnico di Milano, Italy</i>
9:50 – 10:05	Propeline, a green electrolyte for precious metals electrometallurgy? Sophie Legeai – <i>University of Lorraine, France</i>
10:05 – 10:20	Thermoelectric nanowire structures as integrated sensors in composite materials Laurent Gravier – <i>University of Applied Sciences and Arts Western Switzerland, Switzerland</i>
<b>Coffee Break &amp; Poster Session</b>	
<b>II Session – Chair Andreas Bund</b>	
10:50 – 11:10	(Opening Talk) Electroplating of special metals: On the way towards 5-component high-entropy alloys László Péter – <i>HUN-REN Wigner Research Centre for Physics, Hungary</i>
11:10 – 11:25	Pulsed reverse electrochemical synthesis of Ag-TiO <sub>2</sub> composites from deep eutectic solvents: photocatalytic and antibacterial behaviour Sabrina State Rosoiu – <i>University POLITEHNICA of Bucharest &amp; IMT-Bucharest, Romania</i>
11:25 – 11:40	Effect of Fe/Ni Ratio on Electrodeposition of Ni-Fe Alloys and Their Bifunctional Catalytic Performance in Hydrogen and Oxygen Evolution Reactions Safya Elsharkawy – <i>AGH University of Krakow, Poland</i>
11:40 – 11:55	Self-terminated electrodeposition of ultrathin iron/ iron hydroxide films: concentration and pH buffer dependencies Martin Nichterwitz – <i>Chemnitz University of Technology, Germany</i>

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11:55 – 12:10	Enhanced anticorrosion properties of silver via metals nano-strike electrodeposition Roberta Emanuele – <i>Valmet Plating s.r.l., Italy</i>
12:10 – 12:25	Scanning Electron Microscope Observation of micro and nanostructured Coatings by Broad Ion Beam Milling for Cross Section preparation Paolo De Natale – <i>Hitachi High-Tech Europe GmbH, Italy</i>
<b>Lunch – Caffè del Verone, P.za della SS. Annunziata, 13</b>	
<b>III Session – Chair Piotr Zabinski</b>	
14:00 – 14:20	(Opening Talk) Zn-TiO <sub>2</sub> dispersion coatings electrodeposited in the presence of L-cysteine, N-acetyl-L-cysteine and thiourea Adriana Ispas – <i>Technische Universität Ilmenau, Germany</i>
14:20 – 14:35	Improving the electroplating simulation model for producing uniform coating thickness distribution Caterina Zanella – <i>Jönköping University, Sweden</i>
14:35 – 14:50	Solid lubrication for high-load duties: a graphene-based electroplated multilayer coating approach Lorenzo Fabbri – <i>Nanesa S.r.l., Italy</i>
14:50 – 15:05	Fast EQCM-D and Raman Characterization for (Sub-)Nanoscale Insights into Electrochemical Processes in Layered Oxide Materials Christian Leppin – <i>Ruhr University Bochum, Germany</i>
15:05 – 15:20	Effect of growth parameters on the morphology of electrodeposited Ni films Ayesha Mubshrah – <i>University of Bristol, UK</i>
15:20 – 15:35	Electrodeposited Ni-W Films: Exploring the Impact of Engineered Porosity and Tungsten Content on Mechanical and Magnetic Properties Roger de Paz – <i>Universitat Autònoma de Barcelona, Spain</i>
<b>Coffee Break &amp; Poster Session</b>	
<b>IV Session – Chair Wolfgang Hansal &amp; Andreas Richter</b>	
16:05 – 16:45	<b>Schwäbisch Gmünd Prize Winner election and talk</b>
16:45 – 17:00	Preparation of thin film anodes for post-lithium-batteries Böck Reinhard – <i>fem Research Institute, Germany</i>
17:00 – 17:15	Pulse Plating of Nickel-Germanium Alloys as Diffusion Barriers in Thermoelectric Devices Hannah Hilton-Tapp – <i>University of Leicester, UK</i>
17:15 – 18:55	<b>EAST Meeting – for EAST members</b>
20:00 – 23:00	<b>Social Dinner – Il Foyer, Via S. Gallo, 57</b>

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**Friday April 11<sup>th</sup> 2025**

<b>V Session – Chair Massimo Innocenti</b>	
9:00 – 9:20	(Opening Talk) Electrodeposition of aluminium composite coatings from chloroaluminate based ionic liquids Andreas Bund – <i>Technische Universitaet Ilmenau, Germany</i>
9:20 – 9:35	Electrochemical synthesis of nanostructured MOFs Wouter Maijenburg – <i>Martin-Luther-University Halle-Wittenberg, Germany</i>
9:35 – 9:50	Electrodeposited copper selenide films and their thermoelectric performance Elena Pérez Picazo – <i>IMN-CNM CSIC, Spain</i>
9:50 – 10:05	Electrodeposition of Tin Selenide on gold substrate Axel Tahir – <i>Université de Lorraine, France</i>
10:05 – 10:20	3D-CuNi interconnected nanonetworks obtained by electrodeposition with high thermoelectric figure of merit Cristina Vicente Manzano – <i>IMN-CNM CSIC, Spain</i>
<b>Coffee Break &amp; Poster Session</b>	
<b>VI Session – Chair Luca Magagnin</b>	
10:50 – 11:05	Effect of heat treatment on electrodeposited Sn NWs in Anodic Alumina Oxide Templates Evangelia Pavlatou – <i>National Technical University of Athens, Greece</i>
11:05 – 11:20	Coinage Metal-Glutathione Nanostructured Gels on Nanoparticles and Electrodes Alexander Vaskevich – <i>Weizmann Institute of Science, Israel</i>
11:20 – 11:35	Optimization of electrosynthesized Zn-based materials for sustainable antimicrobial applications Margherita Izzi – <i>Università degli Studi di Bari Aldo Moro, Italy</i>
11:35 – 11:50	Effect of Growth Temperature on the Physico-chemical Properties of Sprayed cadmium oxide thin films Sandeep Desai – <i>KIT's College of Engineering, India</i>
11:50 – 12:05	Electrochemical deposition of Ni-matrix nanocomposite coatings with 2D nanomaterials prepared by a boric-free electrolytic bath Angeliki Nikolaou – <i>Creative Nano PC, Greece</i>
12:05 – 12:20	Comprehensive study of Ni/SiC coatings deposited from a novel, boric acid free bath as candidate for replacement of hard chromium Kata Berkesi – <i>Creative Nano, Greece</i>

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<b>Lunch – Il Foyer, Via S. Gallo, 57</b>	
<b>VII Session – Chair László Péter</b>	
14:00 – 14:20	(Opening Talk) The role of Ni and Co thin film properties on Hydrogen Evolution Reaction Piotr Zabinski – <i>AGH University of Krakow, Poland</i>
14:20 – 14:35	Understanding Hydrogen Evolution Reaction Induced Modification on Electrodeposited Au-Pd Nanoparticles Paolo Cignoni – <i>Ruhr University Bochum, Germany</i>
14:35 – 14:50	Stability investigations of Electrodeposited Ni <sub>3</sub> Se <sub>2</sub> thin films after Hydrogen Evolution Reaction Dawid Kutyla – <i>AGH University of Krakow, Poland</i>
14:50 – 15:05	Synergistic effects of an electrodeposited CoNi alloy catalyst for sustainable hydrogen production Judit Lloreda – <i>Universitat de Barcelona, Spain</i>
15:05 – 15:20	Electrochemical Preparation and Characterization of Porous Nickel Layers as Catalyst Support Structures for Anion Exchange Membrane Electrolyzers Christian Höß – <i>Technische Universität Ilmenau, Germany</i>
15:20 – 15:35	Electrochemical Dealloying of AgAuCuPdPt Thin Film for Improved Hydrogen Evolution Catalysis Dean-Robin Nettler – <i>Ruhr University Bochum, Germany</i>
<b>Coffee Break &amp; Poster Session</b>	
<b>VIII Session – Chair Adriana Ispas</b>	
16:05 – 16:20	Inkjet Assisted Electroforming of Untethered Magnetic Microdevices for Smart Drug Delivery Applications Roberto Bernasconi – <i>Politecnico di Milano, Italy</i>
16:20 – 16:35	Downscaling magnetic field gradients for copper magnetoelectrodeposition on the micrometer-scale Francesca Sgarbi Stabellini – <i>Leibniz Institute for Solid State and Materials Research, Germany</i>
16:35 – 16:50	Exploring magneto-ionic effects in electrodeposited nickel-iron alloys Anna Ullrich – <i>Chemnitz University of Technology, Germany</i>
16:50 – 17:05	Electrodeposited Ni-MoOx coatings as high efficiency catalysts for green hydrogen production in alkaline solution Aleksandar Petričević – <i>University of Belgrade, Serbia</i>
17:05 – 18:00	<b>Final Announcements and Greetings</b>

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Saturday April 12<sup>th</sup> 2025

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9:30 – 12:00

Guided tour of Palazzo Vecchio Museum

### List of Posters

1. Electrochemical synthesis, characterization and functionalization of nanoporous Au nanostructures - Anitta Jose, Leibniz Institute for Solid State and Materials Research, Germany
2. Enhancing Ni Thin Film Properties via Electrodeposition in Magnetic Fields: A Deep Eutectic Solvent Approach - Safya Elsharkawya, AGH University of Krakow, Poland
3. Electroless deposition of Ru NPs for heterogeneous catalysis application - Judit Lloreda, Universitat de Barcelona, Spain
4. Giant Spectral Shifts of Electrochemically Polarized Plasmonic Nanoparticle on a Mirror - Alexander Vaskevich, Weizmann Institute of Science, Israel
5. Evaluation of adhesion characteristics of electrolytically produced copper thin films of nanostructured characteristics: theory vs. experiment - Ivana O. Mladenović, University of Belgrade, Serbia
6. Influence of duty cycle in the pulsating current regime on morphology and structure of copper coatings - Ivana O. Mladenović, University of Belgrade, Serbia
7. Combined Effect of Boric Acid and Heterogenous Magnetic Field on Cu-Ni Electrodeposition - Zaher Jlailati, Ruhr University Bochum, Deutschland
8. How electrodeposition conditions of palladium affect hydrogen absorption - Andrea Comparini, Valmet Plating s.r.l., Italy
9. Metal oxide nanofibers made via electrospinning for photoelectrochemical water splitting - Wouter Maijenburg, Martin-Luther-University Halle-Wittenberg, Germany
10. Cu<sub>2</sub>O photocathodes: From electrochemical synthesis to improved stability with an ALD-based TiO<sub>2</sub> coating - Anne Noubi, Martin-Luther-University Halle-Wittenberg, Germany
11. Role of the local diffusion fields in electrolytic formation of zinc irregular forms from the alkaline electrolyte - Nebojša D. Nikolić, University of Belgrade, Serbia
12. Anodization of Multicomponent Alloys for degradation of environmental pollutants - Katarzyna Skibińska, AGH University of Krakow, Poland
13. Evaluating the substrate effect and durability of electrochromic WO<sub>3</sub> films for smart window applications - Eve Evans Perks, University of Bristol, UK

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14. Characterization of Sb–Pd electrocatalyst formed by electrodeposition technique for application in Direct Ethanol Fuel Cells - Jelena D. Lović, University of Belgrade, Serbia
15. A Supramolecular Approach to Single Atom PGM-based Catalysts: from Metal Recovery and Cross-Couplings to the Oxygen Reduction Reaction - Matteo Savastano, University San Raffaele, Italy
16. The influence of starting plant material on Ni@C-type catalysts' characteristics - Kamil Dudek, AGH University of Cracow, Poland
17. OER Properties of Ni-Co-CeO<sub>2</sub>/Ni Composite Electrode Prepared by Magnetically Induced Jet Electrodeposition - Wei Jiang, Technische Universität Dresden, Germany
18. Electrodeposition of Tunable Ag-Au Nanoparticles from Reverse Micelles - Thais Schroeder Rossi, Ruhr-Universität Bochum, Germany
19. P.U.L.S.E.: Unified Process on Zamak, Brass, and Aluminum Alloys, Safe and Eco-Friendly - Arianna Meoli, Creazioni Lorenza srl, Italy
20. The effect of surface morphology on electrocatalytic performances of Pt@Ni and Pt@Cr thin film catalysts for the methanol oxidation reaction - Sanja I. Stevanović, University of Belgrade, Republic of Serbia
21. Comparative Study of Platinum Deposition Methods on Ni Support for Enhanced Formic Acid Electrooxidation - Dragana L. Milošević, University of Belgrade, Republic of Serbia
22. Electrodeposited Near-Room-Temperature Micro-Thermoelectric Generators - Farjana J. Sonia, Leibniz Institute for Solid State and Materials Research, Germany
23. Electrodeposition of Sn-Ni Alloy Nanowires Involving Deep Eutectic Solvents - Liana Anicai, National University of Science and Technology POLITEHNICA Bucharest, Romania
24. The Role of Nanostructuring in Pseudocapacitive Manganese Oxide Materials - Oliver Röth, University Bochum, Germany
25. Electrodeposition of Crystalline Thin Films of Co<sub>3</sub>O<sub>4</sub> on Glassy Carbon with Octahedral Nanoparticles-like Morphology: Exploring Shape-Selective Growth Mechanisms - Anas Akhtar, Ruhr-Universität Bochum, Germany
26. Pulse electrodeposition of a free-nickel gold-iron alloy for decorative applications - Giammarco Maria Romano, University of Florence, Italy
27. Electrodeposition-Based Synthesis of Hierarchical Nanoporous Au Nanowire Networks and Their Electrochemical Properties - Mohan Li, GSI Helmholtz Centre for Heavy Ion Research, Germany
28. Obtaining Pd-Decorated Carbon Black and Graphene Catalysts from Electroplating Wastewater for Efficient Oxygen Reduction Reaction - Marco Bonechi, University of Florence, Italy
29. Oxygen reduction reaction (ORR) in alkaline medium catalyzed using atomically precise Pd (II) catalysts, prepared by extraction of Pd(II) from a mixture of metal ions using

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modified multi walled carbon nanotubes (MWCNT) - Francesco Montanari, University of Florence, Italy

30. Electrodeposition of Metals on Silicon for Enhanced Silicon Nanowires (NWs) Fabrication via Metal Assisted Chemical Etching (MACE) - Giulio Pappaiani, University of Florence, Italy
31. Electroplating in the presence of Microplastics: investigating their influence on Copper deposition – Claudia Giovani, University of Florence, Italy
32. Specific ion effects on nickel electrodeposition - Elena Mariani, University of Florence, Italy
33. Novel sustainable acid copper formulations: the L-Cysteine case - Fabio Biffoli, University of Florence, Italy
34. P.U.L.S.E: Development of an Innovative and Sustainable Cyanide-Free Electroplating Process for Advanced Surface Treatments - Elena Mariani, University of Florence, Italy
35. FREEGALVAN: Development and optimization of new processes, products and prototypes for life cycle extension of items from faucets, fashion accessories and jewelry - Fabio Biffoli, University of Florence, Italy
36. P.U.L.S.E: Design and Development of Recycled Brass Articles to be Treated with an Innovative and Sustainable Cyanide-free Electroplating Process - Roberta Balzelli, Prestige s.r.l.