



IEEE International Conference “Nanomaterials: Applications & Properties”

Bratislava, SLOVAKIA, Sep. 10-15, 2023

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CALL FOR PAPERS

MAIN TOPICS: ♦ Synthesis & Nanofabrication; ♦ Multifunctional Films & Coatings; ♦ Electrochemistry; ♦ Carbon-based Nanomaterials; ♦ Nanoscale Characterization; ♦ Electronic, Photonic & Quantum Materials & Properties; ♦ Magnetism, Magnetic Materials & Phenomena; ♦ Sensors & Nanodevices; Nanotechnology for Energy, Water & Environ. Applications; ♦ Nanomedicine & Bionanotechnology; ♦ Theory & Modeling.

CONFERENCE VENUE

Crowne Plaza Bratislava Hotel, <https://cpbratislava.sk/>
a four-star hotel on the historical city center in Bratislava

EARLY REGISTRATION FEES (*)

Regular attendees: 400 EUR / 400 USD
Ph.D. Students: 200 EUR / 200 USD
* before June 15th, 2023
Invited Speakers, IEEE Members: 20% discount

IMPORTANT DATES

Abstract Submission: Feb. 01 - Apr. 15, 2023
4-Pages Paper Submission: Apr. 15 - May 15, 2023
Early registration fees deadline: June 15, 2023
Program posted online: Aug. 15, 2023
On-site Registration: Sept. 10, 2023

CONFERENCE FORMAT & PRESENTATION

The plenary presentations are 40 min (+5min for Q&A)
The invited presentations are 25 min (+5min for Q&A)
The contribution talks are 10 min (+5min for Q&A)
Format for poster presentation is A0, portrait
Some onsite IEEE NAP-2023 events will be live streaming.



AWARDS & GRANTS

Rising Star in Nanoscience & Nanotechnology
Best Paper Award
“Nanoscience as Art” Competition
“East Meets West” Grant Program

ORGANIZING COMMITTEE

Honorary Chair: Pavol Šajgalík
General Chairs &
Local Organizing Committee Chairs:
Vladimír Cambel & Ľubomír Čaplovič
General Co-Chair: Alexander Pogrebnyak
Conference Secretary: Yurii Shabelnyk
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& Miroslava Blázyová

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Sýkora, Oleksandr Dobrovolskiy, Ján Šoltýs
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& Martin Hulman
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Tracks & Topics

Nanomaterials Synthesis & Self-assembly

- ✓ Novel routes for synthesis of "building blocks";
- ✓ Size-, shape- and composition-dependent properties;
- ✓ Top-down and bottom-up approached for self-assembly;
- ✓ Block-co-polymers, interfacial science and morphology control; ✓ Nanocomposites & nanohybrids; ✓ 2D transition metal carbides/nitrides: MXenes.; ✓ Nano- and micro-fabrication techniques.

Electrochemistry of Nanomaterials

- ✓ Electrochemical processes at a nanoscale; ✓ Nanomaterials and nanodevices for electrochemical sensing;
- ✓ Synthesis and characterization of electrocatalytic electrodes; ✓ Electrochemical surface modification and corrosion mechanisms; ✓ Photoelectrochemistry of nanomaterials; ✓ Electrochemical phenomena at the nanobio hybrids and interfaces.

Nanophotonics

- ✓ Plasmonic structures and quantum dots; ✓ Near field microscopy; ✓ Nano-optics and optical tweezers;
- ✓ Spectroscopic studies of nanoscale materials; ✓ Molecular energy transfer and light harvesting; ✓ Photonic and optoelectronic materials and devices; ✓ Photo-detectors, sensors and imaging.

Nanomagnetism & Magnetic Materials

- ✓ Magnetic nanoparticles, nanowires, thin films and patterned nanostructures; ✓ Magnetization reversal, domain structure, spin vortices and skyrmions; ✓ Spin waves and magnonics; ✓ Spin currents: generation, manipulation and transport; ✓ Spintronics: memories, field sensors, logic and spin-based devices; ✓ Magnetic anisotropy and recording media; ✓ Heusler alloys, magnetocaloric and magneto-optical materials.

Nanosensors & Nanodevices

- ✓ Field-effect transistors; ✓ Micro/nano electromechanical systems and sensors; ✓ Piezoelectric sensors;
- ✓ Plasmonic and surface-enhanced Raman spectroscopy; ✓ Magneto-electronic or spintronic nanodevices; ✓ RF, microwave, IR, UV-VIS and X-ray sensors, and single photon detectors; ✓ Quantum computing devices.

Nanobiomedical Research & Applications

- ✓ Nanoparticles manipulation, microfluidics and lab-on-chip technologies; ✓ Nanoplatfoms for cancer diagnostics, imaging and treatment; ✓ Nanodevices and sensors for bio/nanomedicine; ✓ Bio-nanomaterials and tissue engineering; ✓ DNA nanotechnology; ✓ Nanotoxicity.

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Multifunctional Thin Films & Coatings

- ✓ Advances in PVD, CVD and ALD techniques; ✓ Thin film growth & epitaxy; ✓ New thin film materials: diamond-like films, granular alloys, HEA, oxynitrides, intermetallic compounds; ✓ Hard, wear-, oxidation-resistant and multifunctional coatings; ✓ Electroplating and electroless deposition; ✓ Surface oxidation and corrosion properties; ✓ Industrial applications.

Nanoscale Characterization & Imaging

- ✓ Optical, scanning probe, X-ray, ion- and electron microscopy; ✓ Nanoscale science and engineering, including manipulation of matter at the atomic/molecular scale and assembly phenomena; ✓ Interactions at surfaces of soft matter, including polymers and biomaterials; ✓ Electrochemistry at surfaces and interfaces.

Transport Properties in Nanoscale Systems

- ✓ Molecular scale electronics; ✓ Transport properties in 2D materials; ✓ Nanocircuitry and nanowires; ✓ Heterostructures and quantum wells; ✓ Thermal transport and heat exchange at nanoscale.

Superconductivity in Nanoscale & Mesoscopic Systems

- ✓ Superconducting materials, thin films and patterned structures; ✓ Hybrid systems, proximity and size-dependent effects; ✓ Imaging and vortex dynamics; ✓ Josephson junctions and nanoSQUIDs; ✓ Superconducting electronics, detectors and sensors.

Nanomaterials for Energy & Environment

- ✓ Nanomaterials for solar-to-electric energy conversion; ✓ Hydrogen and fuel cells; ✓ Energy storage and generation; ✓ Bio-inspired energy materials; ✓ Nanomaterials for circular economy, environmental protection and remediation; CO reduction; ✓ Nanotech for water technologies.

Theory & Modeling

- ✓ First-principles methods; ✓ Non-equilibrium thermodynamics; ✓ Multiscale methods for charge/heat transport in nano- and mesoscale systems; ✓ Atomistic quantum transport simulations; ✓ Simulation of organic semiconductor devices; ✓ Microstructure-based models and dislocation analysis; ✓ Quantum computing.

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