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e-mail: *info@ieeenap.org*

SECOND CALL for PAPERS

The 2024 IEEE 14th International Conference "Nanomaterials: Applications & Properties" is devoted to the most interesting aspects of modern Materials Science with the prime focus on nanoscale materials. The IEEE NAP-2024 Conference is organized through a partnership between the IEEE Nanotechnology Council and the University of Latvia, and technical support from the Latvian Academy of Sciences, the Institute of Electronics and Computer Sciences and Sumy State University, with endorsements and support from the IEEE Magnetics Society.

Although nanoscience and nanotechnology are still in their infancy, this rapidly evolving field of research is quickly transforming almost all aspects of our everyday life. From the low power electronics and supercomputers, to advanced drugs and personalized medicine, from new industrial applications, and renewable energy to advanced transportation and clean air technologies, nanoscience is the foundation of many of the transformational discoveries in the decades to come.

Our goal is to bring together a broad international community of scientists, engineers, and educators who are already involved in defining a future where the understanding and controlling of matter at the nanoscale will ultimately lead to revolutionary technological and industrial advances.

We welcome you to Riga and hope that the IEEE NAP-2024 Conference will serve as an excellent international platform for an engaging and informal exchange of ideas that provides opportunities to strengthen existing collaborations and catalyze new partnerships, and thus ultimately helps to accelerate the application of nanotechnology for addressing the most urgent societal needs.

Valentine Novosad	**Maksym Pogorielov**	**Alexander Pogrebnjak**
Argonne National Laboratory	University of Latvia	Sumy State University

PLENARY SPEAKERS

Yury GOGOTSI
Drexel University
(USA)

Stuart S.P. PARKIN
Max Planck Institute
for Microstructure
Physics (Germany)

Xinliang FENG
Dresden University of
Technology
(Germany)

Xiaoning JIANG
North Carolina State
University
(USA)

Stefan ANDERSSON-ENGELS
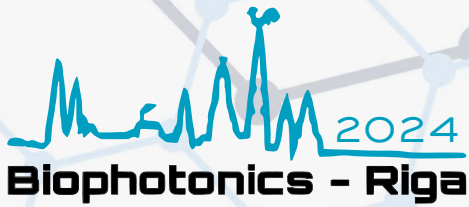Tyndall National Institute
(Ireland)

BIOPHOTONICS - RIGA SYMPOSIUM

Biophotonics - Riga 2024
4TH INTERNATIONAL CONFERENCE - SYMPOSIUM

At the international symposium, following the traditions of three previous "Biophotonics Riga" conferences held in 2013, 2017, and 2020, will be discussed the novel aspects of biophotonics with a focus on three main topics: **(i) Biomedical Tissue Imaging, (ii) Optical Clinical Diagnostics & Monitoring, and (iii) Skin Optics & Spectroscopy.**

Advances in these fields have increasing importance in public healthcare involving optical noninvasive technologies and improving quality of life. Papers related to the symposium theme are solicited, including theories, methodologies, and emerging applications. Contributions to theory and practice, including but not limited to the abovementioned areas, are invited.

Upon completing the registration process and fee payment, the Symposium participants will gain exclusive access to all technical sessions and networking events at the **2024 IEEE 14th International Conference "Nanomaterials: Applications & Properties"**.

PLENARY & INVITED SPEAKERS

Stefan ANDERSSON-ENGELS
Tyndall National Institute
(Ireland)

Walter BLONDEL
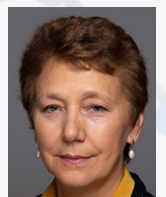University of Lorraine
(France)

Dror FIXLER
Bar-Ilan University
(Israel)

Boris MAJARON
University of Ljubljana
(Slovenia)

Igor MEGLINSKI
Aston University
(United Kingdom)

Tatiana NOVIKOVA
CNRS/Ecole polytechnique
(France)

Santiago ROYO
UPC Barselona
(Spain)

Bernhard ROTH
Hannover Centre for
Optical Technologies
(Germany)

Małgorzata SZCZERSKA
Gdańsk University of
Technology
(Poland)

Göran SALERUD
Linköping University
(Sweden)

Ričardas ROTOMSKIS
National Cancer Institute
(Lithuania)

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Dr. Ilze Ošiņa (Co-Chair)
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Institute of Atomic Physics and
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CONFERENCE TRACKS & TOPICS

Join us for a series of workshops, talks and poster sessions that cover the following technical categories:

1. Nanomaterials Synthesis
a. Novel routes for the synthesis and self-assembly of "building blocks";
b. Size-, shape- and composition-dependent properties;
c. Block copolymers, interfacial science and morphology control;
d. Nanocomposites and nanohybrids, micro- and nano-encapsulation;
e. Carbon -based fullerenes, carbon nanotubes, graphene and its derivatives, graphene oxide, nanodiamonds, quantum dots;
f. **2D transition metal carbides/nitrides: MXenes.**

3. Multifunctional Thin Films & Coatings
a. Advances in deposition techniques;
b. Thin film growth & epitaxy: theory & experiments;
c. New materials in thin film form: diamond-like films, granular alloys, high entropy alloys, oxynitrides, intermetallic compounds;
d. Hard, wear-, oxidation-resistant and multifunctional coatings;
e. Advances in nanomaterials and surface characterization tools and techniques;
f. Electroless deposition;
g. Electrochemical (electrolytic plasma processing, plasma enhanced chemical vapour deposition, plasma electrolytic oxidation) deposition;
h. Industrial applications.

5. Nanophotonics
a. Plasmonic structures and quantum dots;
b. Nanophotonics and optical manipulation;
c. Spectroscopic studies of nanoscale materials;
d. Molecular energy transfer and light harvesting;
e. Photonic and optoelectronic materials and devices;
f. Photodetectors, sensors and imaging;
g. Microwave optics and devices, including superconducting and single photon detectors;
h. Quantum information science.

8. Superconductivity in Nanoscale & Mesoscopic Systems
a. Superconducting thin films and patterned structures;
b. Hybrid systems, proximity size-dependent effects;
c. Imaging and vortex dynamics;
d. Josephson effect, nanoSQUIDs, and superconducting electronics;
e. Superconducting detectors and nanosensors.

10. Nanomaterials for Energy & Environment
a. Nanomaterials for solar-to-electric energy conversion;
b. Hydrogen and fuels cells;
c. Energy storage and generation;
d. Bio-inspired energy materials;
e. Nanomaterials for environment protection and remediation; CO reduction;
f. Nanotech for water technologies.

12. Ultrashort Laser-matter Interactions & Materials Processing
a. Fundamentals of light-matter interactions in non-perturbative regimes, including energy-particle coupling dynamics and relaxation processes;
b. Laser-based 2D or 3D micro- and nano-fabrication, including ablation, cutting, welding, transfer and periodic surface structures;
c. Laser processing of soft matter, including biological materials, polymers and colloids;
d. Laser synthesis of materials, including ablation, pulsed laser deposition, crystallization, hyperdoping and defect generation in bulk and on surfaces;
e. Laser generation of nanoparticles and nanostructured materials in various environments, including but not limited to vacuum, gas and liquid environments.

2. Electrochemistry of Nanomaterials
a. Electrochemical processes at a nanoscale;
b. Nanomaterials and nanodevices for electrochemical sensing;
c. Synthesis and characterization of electrocatalytic electrodes;
d. Electrochemical surface modification and corrosion mechanisms;
e. Photoelectrochemistry of nanomaterials;
f. Electrochemical phenomena at the nanobio hybrids and interfaces.

4. Nanoscale Characterization & Imaging
a. Nanoscale science and engineering, including manipulation of matter at the atomic/molecular scale and assembly phenomena;
b. Interactions at surfaces of soft matter, including polymers and biomaterials;
c. Electrochemistry at surfaces and interfaces;
d. Optical, scanning probe, X-ray, ion- and electron microscopy;
e. Semiconductors – surface and interface;
f. Electromigration in nanocontacts.

6. Transport Properties in Nanoscale Systems
a. Molecular scale electronics;
b. Transport properties in 2D materials;
c. Nanocircuitry and nanowires;- Heterostructures and quantum wells.

7. Nanomagnetism & Magnetic Materials
a. Magnetic nanoparticles, nanowires, thin films and patterned nanostructures;
b. Magnetization reversal, domain structure, spin vortices and skyrmions;
c. Spin waves and magnonics;
d. Spin currents: generation, manipulation and transport;
e. Spintronics: memories, field sensors, logic and spin-based devices;
f. Nanocrystalline and amorphous magnetic materials;
g. Magnetic anisotropy and recording media;
h. Heusler alloys, magnetocaloric and magneto-optical materials.

9. Nanosensors, Nanodevices & Applications
a. Micro/nano electromechanical systems and sensors;
b. Piezoelectric sensors;
c. Field-effect transistors;
d. Plasmonic and surface-enhanced Raman spectroscopy nanosensors;
e. Magnetoelectronic or spintronic nanodevices;
f. RF, microwave, IR, UV-VIS and X-ray sensors and single photon detectors.

11. Nanobiomedical Research & Applications
a. Nanoparticles-based platforms for cancer diagnostics, imaging and treatment;
b. Nanoparticles manipulation, microfluidics and lab-on-chip technologies;
c. Nanodevices and sensors for bio/nanomedicine;
d. Bio-nanomaterials and tissue engineering;
e. DNA nanotechnology;
f. Nanotoxicity.

13. Theory & Modeling
a. First-principles methods;
b. Non-equilibrium thermodynamics;
c. Multiscale methods for charge/heat transport in nano- and mesoscale systems;
d. Atomistic quantum transport simulations;
e. Simulation of organic semiconductor devices;
f. Assembly operations using molecular manipulators;
g. Software for modelling of nanomaterials;
h. Mechanics of nanomaterials;
k. Microstructure-based models and dislocation analysis;
l. Quantum mechanics for modelling of nanomaterials.

14. Interdisciplinary & Miscellaneous Topics
a. Quantum computing;
b. Nano- and micro-fabrication techniques;
c. Thermal transport and heat exchange at nanoscale;

d. Experiments at extreme environments (low/high temperatures, high vacuum or high pressures);
f. Ethical, and societal issues in nanotechnology;
e. Nanotech business and intellectual property aspects.

UNIVERSITY OF LATVIA — Sumy State University — IEEE NANO Nanotechnology Council® — IEEE MAGNETICS — ELEKTRONIKAS UN DATORZINĀTŅU INSTITŪTS — INSTITUTE OF ELECTRONICS AND COMPUTER SCIENCE

2024 IEEE 14-th International Conference on Nanomaterials: Applications & Properties

Sept. 8-13, 2024, Riga, Latvia

NAP-2024

IMPORTANT DATES

Abstract submission deadline...Apr 15, 2024
Abstract acceptance notifications...May 01, 2024
4-Pages Paper submission deadline...Jun 01, 2024
Grant application deadline..Jun 10, 2024
Early registration fees deadline..Jun 15, 2024
Manuscript acceptance/rejection notifications...Jul 31, 2024
"Nanoscience as Art" Contest deadline..Jul 31, 2024
Conference Program available...Aug 15, 2024
Registration Desk goes live & #NAP2024 Welcome Reception...Sept 08, 2024
Sessions start...Sept 09, 2024
Conference closing..Sept 13, 2024
Departure day... Sept 14, 2024

REGISTRATION FEES

	Early bird fees (before June 15th, 2024)	Regular fees	On-site registration fees
Regular:	400 EUR	500 EUR	600 EUR
Ph.D Student:	200 EUR	300 EUR	400 EUR

(*) Invited Speakers, IEEE Members: 20% discount; The discounts are NOT stackable.
Accompanying person: Free
Registration fees are waived for IEEE Life Members and their spouses or partners attending the Conference.

CONFERENCE VENUE

Radisson Blu Latvija Conference & Spa Hotel
Elizabetes street 55 Riga LV-1010 Latvia
Web: https://www.radissonhotels.com/en-us/hotels/radisson-blu-conference-riga-latvija-spa

Join us:

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WELCOME to RIGA

Riga, the capital of Latvia, is not only the crown jewel of Latvia, but also of the Baltics. The city is situated on the Gulf of Riga at the mouth of the Daugava River into the Baltic Sea. Founded in 1201, Riga joined the Hanseatic League in 1282 and became the dominant trading center on the eastern bank of the Baltic Sea.

Riga's Old Town is a UNESCO World Heritage Site. Riga has a beautiful and varied architecture. The Old Town has a remarkable number of architectural monuments - from Romanesque style to Gothic and Baroque. A walk through the streets of the Old Town will be an exciting experience for anyone visiting Riga.
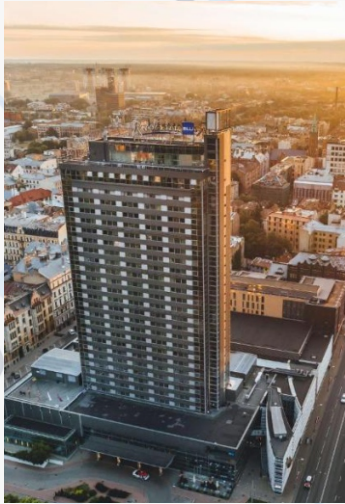
CONFERENCE VENUE

Radisson Blu Latvija Conference & Spa Hotel

The 4-star Radisson Blu Latvija Conference & Spa Hotel is located in the heart of Riga. It offers stylish interiors, many dining venues, spa facilities and spacious rooms with free WiFi.

A varied buffet can be enjoyed at the Esplanade Restaurant. Hotel Lobby bar is a popular meeting spot throughout the day, it is a perfect for low-key business catch ups, family gatherings, and pre-dinner receptions. At the Skyline Bar guest can enjoy drinks and a panoramic view of the city's skyline.

Radisson Blu Latvija Conference & Spa Hotel is situated 300 metres from the Freedom Monument. The University of Latvia is only 750 metres from the hotel. The Riga Airport is 10 km away. The Riga Train Station is 2 km from the hotel.

Fabolous 8.7
7,036 reviews

- 📶 Free Wi-Fi
- 🚭 Non-smoking rooms
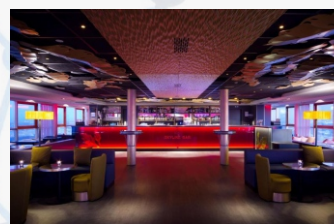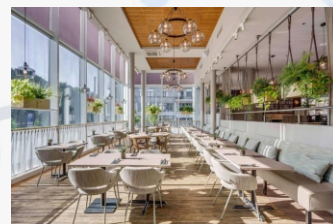- 🚌 Airport shuttle
- 🅿 Parking on site
- 🍸 Bar
- 🏊 Swimming pool
- 🏙 City view
- 🍴 Restaurant
- 🐾 Pets allowed
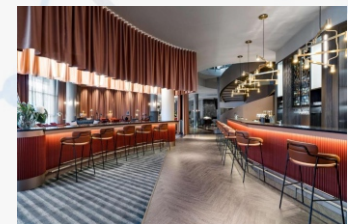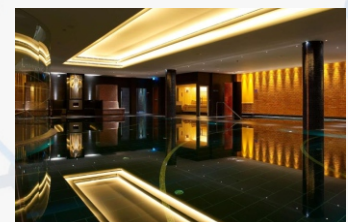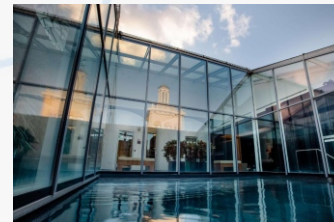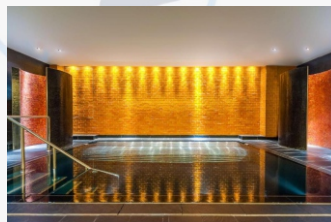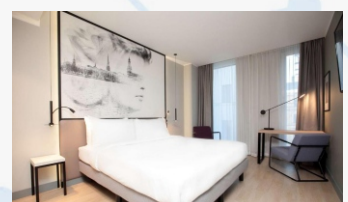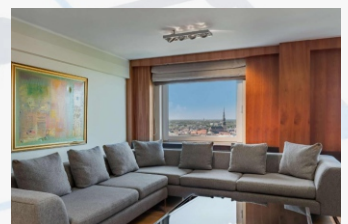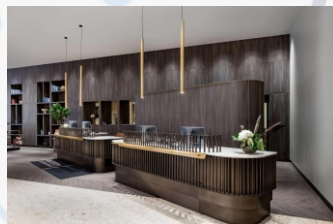
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IEEE NANO
Nanotechnology Council ®

The IEEE Nanotechnology Council focuses on the advancement and coordination of work in the field of Nanotechnology. The Council is a multi-disciplinary group supporting the theory, design, and development of nanotechnology and its scientific, engineering, and industrial applications. The Council sponsors well-recognized, international conferences and publications. Through the Council's sponsored activities, participants have the opportunity to publish and collaborate on research, network with colleagues, stay current on news and events, develop standards, and participate in educational activities. There are no membership requirements to join and participation in this Technical Council is free for current IEEE members!

UNIVERSITY OF LATVIA

The University of Latvia stands as a premier educational and research institution in Latvia, holding a distinguished position among the Baltic states. Its mission is to contribute significantly to global scientific advancement, higher education, and the transfer of knowledge, technology, and innovation. Renowned for its scientific excellence on an international scale, the University of Latvia cultivates an interdisciplinary, innovative, and open environment conducive to exceptional work and study. The University's activities are fundamental to the sustainable development and economic transformation of the Republic of Latvia.

Sumy State University

Sumy State University (SumDU) is a higher educational institution in Sumy, Ukraine. It enrolls over 12 000 students pursuing pre-undergraduate, undergraduate, specialist, and master degrees in 57 majors and 25 fields. About 1 300 foreign students represent almost 50 countries worldwide. Today, SumDU is a leading university of a classical type with the III-IV accreditation level in the region.
SumDU enters the TOP-group (3%) of leading universities of the world and is classified as a university with high research intensity according to the international ranking of higher education institutions QS World University Rankings. According to these rankings, SumDU enters the group of leading Ukrainian universities. SumDU also ranked 101-150 among the fastest-rising young stars of the higher education world by the QS.

The Latvian Academy of Sciences (LAS) was founded in February 1946 According to the charter of the LAS adopted in 1992, one of the main tasks of the Academy is to promote the development of basic and applied sciences in Latvia, interdisciplinary research in particular, as well as to pass the cultural and historical heritage of the Latvian people on to world culture and science.
The Latvian Academy of Sciences represents Latvia in: the International Council for Science (ICSU), Association of All European Academies (ALLEA), World Federation of Scientists (WFS), Union Académique Internationale (UAI), UNESCO, InterAcademy Panel (IAP) and other international scientific organizations.

ELEKTRONIKAS UN DATORZINĀTŅU INSTITŪTS — INSTITUTE OF ELECTRONICS AND COMPUTER SCIENCE

The Institute of Electronics and Computer Science (EDI) is the highest-rated scientific institution in Latvia in the field of engineering and technologies, with a distinguished focus on Smart Embedded Cooperative Systems. EDI's mission is to perceive the world and design a better future by creating new knowledge, developing innovative technologies, and demonstrating their practical significance in real-life applications. Leveraging its expertise across various domains including smart mobility, industry, health, digital life, energy, and space, EDI is committed to advancing research in the following key areas: extremely precise event timing, remote sensing and space data processing, robotics and machine perception, signal processing and embedded intelligence, as well as smart sensors and IoT.

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