



# 2019 IEEE 9-th International Conference on Nanomaterials: Applications & Properties #NAP2019

Sept. 15-20, 2019 Odesa, Ukraine



## SECOND CALL for PAPER

### CONFERENCE CO-CHAIRS

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The NAP – 2019 Conference is devoted to the most interesting aspects of modern Materials Science with the prime focus on nanoscale materials. 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 Ukraine and hope that the NAP-2019 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 accelerating the application of nanotechnology to address the most urgent societal needs.

We look forward to seeing you in Odesa and to an exciting and enjoyable Conference.

**Alexander Pogrebnyak**

Sumy State University

**Valentyn Novosad**

Argonne National

## PLENARY and KEYNOTE SPEAKERS



**Paul S. Weiss,**  
California NanoSystems  
Institute  
(USA)



**Xixiang Zhang,**  
King Abdullah University of  
Science and Technology  
(Kingdom of Saudi Arabia)



**Katsuhiko Ariga,**  
University of Tokyo, Graduate  
School of Frontier Sciences  
(Japan)



**Vladimir Tsukruk,**  
Georgia Institute of Technology  
(USA)



**Jr-Hau He,**  
King Abdullah University of  
Science and Technology  
(Kingdom of Saudi Arabia)



**CheolGi Kim,**  
Daegu Gyeongbuk Institute of  
Science & Technology (DGIST)  
(Korea)



**Katsuaki Suganuma,**  
Institute of Scientific and  
Industrial Research, Osaka  
University (Japan)



## SCOPE of the CONFERENCE

This Conference will include basic and applied science and technology related to the field of Spintronics, Photonics, Thin films, 2D Materials, Nanoparticles and Nanocomposites, Energy materials, Nanomedicine. The technical subject categories are as follows:

### 1. Synthesis and Self-Assembly of Nanomaterials

- New 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;
- Micro- and nano-encapsulation, coatings, diffusion and controlled release technology;
- Nanocomposites and nanohybrids;
- Theory and modeling of the formation, evolution, and self-organization of nanoscale systems.

### 3. Surface Science & Imaging

- 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;
- Optical, scanning probe, X-ray, ion- and electron microscopy;
- Semiconductors – surface and interface;
- Electromigration in nanocontacts.

### 5. Magnetism

- Spin currents generation, manipulation and transport;
- Magnonics, spin waves and magnetization dynamics;
- Spin textures, including magnetic domains, vortices and skyrmions;
- Amorphous and nanocrystalline magnetic materials;
- Hard magnets: thin films, nanostructures, and recording media;
- Magnetic ribbons, thin films, nanoparticles, and nanowires;
- Heusler alloys and magnetocaloric materials;
- Magneto-optical materials and devices;
- Memories, sensors, logic and spin-based devices;
- Interplay between magnetism and superconductivity.

### 7. Biomedical Applications

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

### 9. Miscellaneous and Interdisciplinary Topics

- Quantum computing;
- Nano- and micro-fabrication techniques;
- Thermal transport and heat exchange at nanoscale;
- Experiments at extreme environments (low/high temperatures, high vacuum or high pressures);
- Ethical, and societal issues in nanotechnology;
- Nanotech business and intellectual property aspects;
- National innovation policies and the globalization of nanotechnology.

### 2. Thin Films & Coatings

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

### 4. Photonics

- Plasmonic structures and quantum dots;
- Nanophotonics and optical manipulation;
- Spectroscopic studies of nanoscale materials;
- Molecular energy transfer and light harvesting;
- Photonic and optoelectronic materials and devices;
- Photodetectors, sensors and imaging;
- Microwave optics and devices, including superconducting and single photon detectors;
- Quantum information science.

### 6. Nanomaterials for Energy and Environment

- Nanomaterials for solar-to-electric energy conversion;
- Hydrogen and fuels cells;
- Energy storage and generation;
- Bio-inspired energy materials;
- Nanomaterials for environment protection and remediation; CO reduction;
- Nanotech for water technologies.

### 8. 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;
- Assembly operations using molecular manipulators;
- Software for modelling of nanomaterials;
- Mechanics of nanomaterials;
- Microstructure-based models and dislocation analysis;
- Quantum mechanics for modelling of nanomaterials.

## PROGRAM

The program will consist of invited and contributed papers falling broadly within the scope of the categories listed above. There will also be a special sessions during the week.



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## IMPORTANT DATES

Registration and full paper submission.....	May 6, 2019
Full paper acceptance notification.....	July 15, 2019
Student Travel Grant Application Deadline.....	May 20, 2019
Conference Program available.....	August 5, 2019
Arrival confirmation starts.....	August 10, 2019
Arrival confirmation deadline.....	August 20, 2019
Hotel Reservations Opens.....	August 1, 2019
Registration Desk goes live & #NAP2019 Welcome Reception.....	September 14, 2019
Sessions start.....	September 15, 2019
Conference closing.....	September 20, 2019
Departure day.....	September 21, 2019

## REGISTRATION FEES

	International participants	Participants from CSI	Participants from Ukraine
Regular:	300 EUR	150 EUR	2000 UAH
Ph.D Student:	200 EUR	100 EUR	1500 UAH
Student:	100 EUR	50 EUR	1000 UAH
<i>IEEE members discount: 20 %, Accompanying person - 1/2 Fee</i>			

## CONFERENCE VENUE

**Gagarinn Hotel (4 stars)**  
5B, Gagarin Plato, Odesa City, Ukraine  
65009  
Web: <https://gagarinn.com>

## ORGANIZERS

**Main Organizer: Sumy State University (Ukraine)**

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**Co-organizers:** Drexel University (USA)

**Supported by:** Ministry of Education and Science of Ukraine, IEEE Magnetic Society, IEEE Nanotechnology Council, IUPAP (Singapore)

Join us:





# ACCOMMODATION



The inhabitants of the city affectionately call Odesa "mother", her guests - "a pearl by the sea". But for some, it still remains a "stranger" - an uncharted geographical point on the world map.

Odesa is a unique place in the South of Ukraine, where thanks to a combination of more than 100 nationalities, a unique Odesa language, Odesa cuisine and unique Odesa humor were formed. If you ask any Odesa citizen, why go to Odesa, then he will throw his heavy bags from the market and will enthusiastically enumerate, bending his fingers and not giving the slightest opportunity to object ("Oits, stop telling me").

**Gagarinn Hotel** is the four-star hotel located in Arcadia, the vivid tourist area of the city. Gagarinn Hotel is the best place for business and leisure that is located not far from the beaches, nightclubs, up-to-date restaurants and other city attractions.

## ENDORSED by



The IEEE Magnetics Society is the premiere organization for professionals in magnetics research and technology worldwide. Focus is on all matters involved in the fundamental development, design, and application of magnetic devices, including magnetic materials and phenomena. The society sponsors numerous conferences throughout the year, including the annual Conference on the Computation of Electromagnetic Fields.



The IEEE Nanotechnology Council (NTC) is a multi-disciplinary group whose purpose is to advance and coordinate work in the field of Nanotechnology carried out throughout the IEEE in scientific, literary and educational areas. The Council supports the theory, design, and development of nanotechnology and its scientific, engineering, and industrial applications.



The International Union of Pure and Applied Physics is an international non-governmental organization whose mission is to assist in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems of concern to humanity.



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## INTERNATIONAL SCIENTIFIC COMMITTEE

<b>Valentyn Novosad</b>	Argonne National Laboratory (USA)
<b>Yonhua Tzeng</b>	National Cheng Kung University (Taiwan), IEEE Fellow and Nanotechnology Council President
<b>James E. Morris</b>	Portland State University (USA), Life Fellow - IEEE
<b>Dino Fiorani</b>	President of the European Magnetism Association (EMA), Research Director Associate to Institute of Structure of Matter of CNR
<b>Oleksiy Kolezhuk</b>	Deputy Head of the Scientific Committee of the National Council on Science and Technology of Ukraine
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<b>Jindrich Musil</b>	University of West Bohemia in Pilsen (Czech Republic)
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<b>Helmut SchultheiB</b>	Institute of Ion Beam Physics and Materials Research, Helmholtz-Zentrum Dresden-Rossendorf   HZDR (Germany)
<b>Denis Kuznetsov</b>	National University of Science and Technology "MISIS" (Russia)
<b>Andriy Kovalenko</b>	National Institute for Nanotechnology, (Canada)
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