

Ministry of Education & Science of Ukraine  
Sumy State University  
IEEE Nanotechnology Council & IEEE Magnetics Society  
International Union for Pure & Applied Physics

**2021 IEEE 11<sup>th</sup> International Conference  
“Nanomaterials: Applications & Properties”  
(IEEE NAP – 2021)**

# **PROGRAM**

Odesa, Ukraine  
September 5–11, 2021

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## Information for the Participants

The Organizing Committee of the IEEE NAP-2021 Conference is delighted to  
**Welcome YOU to Ukraine!**

The IEEE NAP – 2021 Conference is devoted to the most interesting aspects of modern Materials Science with a 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 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 matter at the nanoscale will ultimately lead to revolutionary technological and industrial advances.

We welcome you to Ukraine and hope that the NAP-2021 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, thus ultimately accelerating the application of nanotechnology to address the most urgent societal needs.

The NAP-2021 Organizing Committee wishes you fruitful work and a pleasant stay in the beautiful town of Odesa!

### **ODESA**

Odesa is the third most populous city of Ukraine and a major tourism center, seaport, and transport hub located on the northwestern shore of the Black Sea. It is a city with a rich historical heritage, as well as a great place to relax. Any visitor to Odesa should first of all honor the iconic sights of the city such as Deribasovska Street, Primorsky Boulevard, Potemkin Stairs, and Privoz Market. There are numerous palaces of the 18-19<sup>th</sup> century, theaters and museums, the “Langeron” beach, and the Marine Station. For each person, Odesa reveals itself in many different and unique ways, captivating with its beauty and versatility.

### **CONFERENCE VENUE**

The Conference will be held on the 3<sup>rd</sup> and 4<sup>th</sup> floors of **GAGARINN HOTEL**. The hotel is located in the resort area of Arcadia. This 21-storeyed hotel complex of European class sprawling infrastructure. Gagarinn Hotel offers fully equipped rooms of different categories. Comfort and excellent service – the inherent characteristics of Gagarinn Hotel. For the guests– rooms with modern interiors and free internet access, conference rooms with a total service capacity of more than 1000 people, and all the necessary multimedia technology and a new format

restaurant and cozy Lobby Lounge Bar. The territory of the hotel complex includes a multifunctional shopping and entertainment center Gagarinn Plaza.

### CONFERENCE SESSIONS

The conference technical sessions and networking events will be held from Sunday, Sept. 5<sup>th</sup> through Friday, Sept. 10<sup>th</sup> at **Gagarinn Hotel, 5B Gagarin Plato, 65009 Odesa, Ukraine**. Zoom links will be provided for the participants who have decided to telecommute. Information about possible changes in the Program will be promptly communicated via emails and on our website (<https://nap.sumdu.edu.ua>) and FaceBook page ([www.facebook.com/nap.conference](http://www.facebook.com/nap.conference)).

### PRESENTATIONS

Speakers are expected to bring their presentation on a flash drive. All presentations will be loaded onto the desktop of the presentation room laptop *before* the start of the session. The use of personal laptop computers is discouraged. Speakers who have video clips in their presentation should check the compatibility with the projection equipment before the session starts.

Plenary & Tutorial Lectures: presentation – 40 min., questions – 5 min.

Keynote & Invited Talks: presentation – 25 min., questions – 5 min.

Regular contributions: presentation – 12 min., questions – 3 min.

It is important to stay within the time limit so that other presenters will have an equal opportunity to present their papers and answer questions.

Recommended poster sizes for on-site presentations are A0 (841 × 1189 mm).

**e-Poster Sessions** (6:00 PM – 8:00 PM on Monday, Wednesday, and Thursday) will be run in Zoom only. All e-Poster presenters are asked to prepare several slides with highlights of the main results of his/her work.

### LANGUAGE

English is the *official language* of the Conference.

### BEST PRESENTATION AWARDS, EXCLUSIVELY SPONSORED BY [ANGSTROM ENGINEERING INC](#)

The Conference Chairs and Organizing Committee Members will select the best oral and poster presentations. The presentations will be evaluated according to the quality of the research, originality of the work, and presentation quality. Students and early career presenters, co-authors of the proceeding paper, are eligible for these awards. The winners will receive a “*Future Star in Nanoscience & Nanotechnology*” award certificate.

### CONFERENCE PROCEEDINGS

The proceeding papers will be published online on the IEEE Xplore Digital Library site.

“*PROCEEDINGS OF THE 2021 IEEE 11<sup>TH</sup> INTERNATIONAL CONFERENCE “NANOMATERIALS: APPLICATIONS & PROPERTIES” (PROC. IEEE NAP-2021)*”

Publisher: IEEE Publishing

ISBN: 978-1-6654-3907-7

## Conference Chairs

**Alexander Pogrebnjak** (Ukraine)

**Valentine Novosad** (USA)

## International Scientific Advisory Committee

Valentine Novosad (USA)	James E. Morris (USA)	André Anders (Germany)
Vladimir Cambel (Slovakia)	Oksana Chubykalo-Fesenko (Spain)	Andrii Chumak (Austria)
Geraldine Dantelle (France)	Haifeng Ding (China)	Nicoletta Ditaranto (Italy)
Denise Erb (Germany)	Yury Gogotsi (USA)	Yuko Ichiyanagi (Japan)
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Yonhua Tzeng (Taiwan)	Roman Viter (Latvia)	Pawel Zukowski (Poland)
Oleksandr Prokopenko (Ukraine)	Maksym Pogorielov (Ukraine)	

## Local Organizing Committee

Alexander Pogrebnjak (Ukraine)	Valentine Novosad (USA)	Goran Karapetrov (USA)
Yurii Shabelnyk (Ukraine)	Maksym Pogorielov (Ukraine)	Oleksandr Prokopenko (Ukraine)
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Katerina Medjanik (Germany)	Taras Lyutyy (Ukraine)	Kateryna Smyrnova (Ukraine)
Marta Wala (Poland)	Matteo Bruno Lodi (Italy)	

## Contact Information

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Prof. Alexander Pogrebnjak, General Chair,  
Dr. Valentyn Novosad, General Co-Chair,  
Nanomaterials: Applications and Properties 2021,  
Hotel Gagarinn, Odesa, Ukraine.

15<sup>th</sup> August 2021

Dear Alexander and Val,

Congratulations on yet again organizing an ultra-successful NAP conference. The world is more than ready for an in-person conference after a year and a half of pandemic, and I can only wish that I could be there with you again.

I hope that you remind the students in attendance that they are on the path to immensely satisfying lifelong careers of discovery and application in the most rapidly moving research field around. Although commonly regarded as new, nanotechnology research existed before the term was coined and that there is a wealth of relevant literature from before the Internet, and now nanotechnology is having dramatic effects in multiple fields, for example the rapid development of Covid vaccines. Nanotechnology is inherently multidisciplinary, and the complete nanotechnologist will have a solid foundation in all the STEM fields, but if one looks closely, nanomaterials are at the center of almost all current nanotechnology research, from nanodevices to new structural composites to drug delivery strategies. As for your older attendees, well, they know all that already!

For all ages, conferences such as NAP are vital for professional development. This is where one can meet and argue with peers and colleagues and develop relationships that will persist and provide support throughout one's future career. But it is important to note, too, that to get the most out of anything one must put something back.

Many of the students at NAP are actively involved in the conference's organization and this is a great start. However, I must put in a plug here for the IEEE Nanotechnology Council (NTC) which is a NAP sponsor. It is not generally known, but one can sign on as a NTC "participant" at no cost, and while the tangible benefits are limited to the Newsletter, one can also volunteer in various ways, e.g. as a Technical Committee member or a member of the TryNano team, etc., to enter the NTC community. But to hold office, one still needs to be an IEEE and NTC Member Society member.

You know what they say about all work and no play, and I have vivid memories of your historical and cultural tours of Odesa in 2019. I see you have added similar events to the program ,,,,, and "Yoga-on-the Beach" as the ultimate innovation!

A handwritten signature in black ink, appearing to read 'J. E. Morris'.

James E Morris, PhD, PE, LF-IEEE, Doctor Honoris Causa,  
Professor Emeritus of Electrical & Computer Engineering,  
Portland State University, Portland OR, U.S.A.  
IEEE Nanotechnology Council President (j.e.morris@ieee.org)



MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
SUMY STATE UNIVERSITY



2 Rymsky-Korsakov St., 40007 Sumy Ukraine

August 18, 2021

Dear Colleagues,


I'd like to personally welcome each of you to the 2021 IEEE International Conference "NANOMATERIALS: APPLICATIONS & PROPERTIES" to be held in Odesa on Sept. 5-11, 2021.

We are fortunate to live in an exciting time of new opportunities for the cutting-edge research and practical applications of nanoscience and nanotechnology. Educating the next generation of scientists and engineers, disseminating scientific results, and expanding our global collaborative networks are also among the top priorities for our administration and university professors and researchers. Thus, we are happy to partner, the 5th year in a row, with the IEEE Nanotechnology Council to organize an international conference focussed on nanomaterials. We are proud and honored that the NAP conference is supported and endorsed by the International Union for Pure & Applied Physics and the IEEE Magnetics Society, another two world-leading organizations that promote science and engineering as a universal driving force of global economic development and prosperity. I would like to thank our sponsors and partners, whose generous support helped us to fund participation of almost thirty Ph.D. students.

Organizing the Conference in a hybrid format gives an entirely new meaning to the concept of the international scientific exchange without borders, as evidenced by the co-authorship of submitted IEEE NAP-2021 contributions from 37 (!) countries. The conference program also includes several highlight events such as round table "Meet the Experts" organized by our Young Professionals & Student Activities Chairs, Women in Science and Engineering career development mini-workshop, tutorial lectures for students, networking mixers and socials, excursions, and much more. I wish you a fruitful work at the Conference, and an enjoyable stay in Gagarinn Hotel.

Having this opportunity, I'd like to thank each of you for attending the IEEE NAP-2021 Conference and bringing your expertise to our meeting.

Have pleasant travels and a safe return home.  
With my warmest regards

  
Prof. Vasyl D. Karpusha,  
Rector of Sumy State University



Management and staff of Gagarinn Hotel glad to host participants of the IEEE International Conference "Nanomaterials: Applications & Properties" (IEEE NAP-2021) again.

The comfortable Gagarinn Hotel is happy to open its doors to our guests.

If you want to comfortably relax during the trip, organize an important meeting or a bright holiday, we are happy to welcome you within our walls.

- The heart of Arcadia, close to beaches, summer clubs, fashionable restaurants and major attractions of the city.
- Only 10 minutes walk to the sea.
- The hotel is ideal for a quiet family trip, as well as for active recreation with friends or a business trip.
- 248 comfortable hotel rooms with sea and city views.
- Round the clock Room Service.
- Friendly staff - real professionals.
- Shopping in Gagarinn Plaza, children's centers, beauty salon, parking and car wash, business center Lobby bar.

A respectable and at the same time cozy place in one of the best hotels is a lobby bar, which can serve as a place for formal or informal negotiations. The classic setting is conducive to a quiet conversation or reading a book.

#### Conference service

of 9 modern conference halls. Here you can rent space for any corporate or private event: conference, presentation, seminar, training, business meeting, team building and more.

- High speed Wi-Fi
- All multimedia and presentation equipment
- Air conditioning system

- our managers will provide the necessary support for your event.

Gagarinn Hotel provides all kinds of catering services, such as coffee breaks, business lunches, dinners and banquets.

#### Casino

On the 8th floor of the Gagarinn Hotel you will find the 24-hour First Casino:

- 9 roulette tables;
- 40 card and poker tables;
- 300 slot machines;
- comfortable private halls;
- 3 bars and a European restaurant.

#### Gagarinn FoodHub Restaurant

On the second floor of the Gagarinn Hotel is the Gagarinn Food Hub with 300 seats. This is a great place for business lunches, corporate events and celebrations.

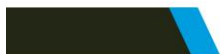
Here guests are offered dishes:

- European,
- Asian,
- Ukrainian,
- local Odessa cuisine.

Also at your service - a drink menu, a variety of buffets.

We wish you fruitful work and a pleasant staying in Odessa.

Ours faithfully, General Manager of Gagarinn Hotel  
Kulakov Yuriy



Gagarinske plateau, 5B  
Odessa, Ukraine



[gagarinn.com](http://gagarinn.com)



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## Conference Program

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SUNDAY, SEPTEMBER 5, 2021

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**2:00 PM – 4:30 PM    ATTENDEES ARRIVAL & REGISTRATION**

**Registration desk's daily schedule: 10 AM -NOON & 2 PM-5 PM**

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**CONFERENCE OPENING SESSION**

**CONFERENCE HALL KYIV & ZOOM**

**(Hotel Gagarinn, 3<sup>rd</sup> floor)**

4:30 PM – 4:45 PM    Welcome to the IEEE NAP-2021 Conference!

**Prof. Alexander Pogrebnjak & Dr. Valentine Novosad (USA)**

IEEE NAP-2021 Conference General Chairs

4:45PM – 5:30 PM    INVITED **TUTORIAL LECTURE**

**Prof. Nestor Zaluzec, Northern Illinois University, USA**

“State-of-the-Art Electron Microscopy”

5:30 PM – 7:00 PM    **IEEE NAP-2021 Sponsors at the Spotlight**

**Highlight talks by:** Sumy State University, IEEE NTC, IEEE MagSoc,

IUPAP, ThaTec, Zeiss, Anton Paar, Atlant 3D & Angstrom Engineering

8:00 PM – 10:00 PM    **CONFERENCE CHAIRS WELCOME RECEPTION**

(Hotel Gagarinn, FoodHub Restaurant, 2<sup>nd</sup> floor)

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**MONDAY, SEPTEMBER 6, 2021**

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**MONDAY MORNING SESSION****IEEE NAP-2021 PLENARY SESSION****TRENDS & ADVANCES IN PHYSICS & CHEMISTRY OF NANOMATERIALS****CONFERENCE HALL CHICAGO & ZOOM**

9:00AM – 9:45AM **Plenary Talk 1 (in Zoom)**

**Prof. Shaowei Chen**, *University of California, Santa Cruz, USA*

Metal/Carbon Nanocomposite Catalysts for Electrochemical Energy Technologies (ID #3818)

9:45AM – 10:30AM **Plenary Talk 2**

**Prof. Yury Gogotsi**, *Drexel University, USA*

Colors of MXenes – Optical Properties and Optoelectronic Applications of 2D Carbides and Nitrides (ID #3817)

10:30AM – 11:00AM **Coffee break** (Conference Hall LAS VEGAS)

**10:30AM – 12:30PM Poster Session #1** (CONFERENCE HALLS LAS VEGAS & CHICAGO)

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12:30PM – 2:00PM **Lunch break**

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**MONDAY AFTERNOON SESSION****IEEE NAP-2021 PLENARY SESSION (continued)****TRENDS & ADVANCES IN PHYSICS & CHEMISTRY OF NANOMATERIALS****CONFERENCE HALL CHICAGO & ZOOM**

2:00PM – 2:45PM **Plenary Talk 3**

**Prof. Laura H. Greene**, *Florida State University & National High Magnetic Field Laboratory USA*

The Dark Energy of Quantum Materials (ID #3816)

2:45PM – 3:30PM **Plenary Talk 4**

**Prof. Bingqing (B.Q.) Wei**, *University of Delaware, USA*

Super-Semiconductor: An Intriguing Conducting Material (ID #3819)

3:30PM – 4:00PM **Group Photo (in front of GAGARINN hotel)**

4:00PM – 5:00PM

**IEEE NAP-2021 YP & STUDENT ACTIVITIES CHAIRS** present:  
**“Meet the Experts” Round Table.**

**Panelists:**

Prof. Yury Gogotsi, *Drexel University, USA*  
Prof. Laura H. Greene, *Florida State University, USA*  
Prof. Rafal Sliz, *University of Oulu, Finland*  
Prof. Bethanie J. H. Stadler, *University of Minnesota, USA*  
Prof. Bingqing Wei, *University of Delaware, USA*

**Moderators:**

Matteo B. Lodi, *University of Cagliari, Italy*  
Kateryna Smyrnova, *Sumy State University, Ukraine*  
Marta Wala, *Silesian University of Technology, Poland*

6:00PM – 8:00PM

**e-POSTERS (in Zoom!)**

8:00PM – 9:00PM

**IEEE YOUNG PROFESSIONALS MEET-UP & MIXER**

**Exclusively sponsored by the IEEE NTC Young Professionals**

(Hotel Gagarinn, FoodHub Restaurant, 2<sup>nd</sup> floor)

Learn more about the IEEE Nanotechnology Council @ <https://ieeenano.org>

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**TUESDAY, SEPTEMBER 7, 2021**

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**TUESDAY MORNING SESSIONS****ORAL SESSION #1A****MAGNETIC MATERIALS & PHENOMENA****CONFERENCE HALL CHICAGO & ZOOM**

9:00AM – 9:30AM

**Invited Talk 1**

**Prof. Atsufumi Hirohata**, *University of York, United Kingdom*  
K. Elphick, D. Lloyd, R. Monma, T. Ichinose, T. Tsuchiya, T. Roy, M. Tsujikawa, Sh. Mizukami, M. Shirai, A. Hirohata / *New Ferromagnetic Materials for Spintronic Devices Predicted by Machine Learning* (ID #3663)

9:30AM – 10:00AM

**Invited Talk 2**

**Dr. Vladimir Golub**, *Institute of Magnetism NASU & MESU, Ukraine*  
V. Golub, V. L'vov, O. Salyuk, J.M. Barandiaran, V. Chernenko / *Magnetic Anisotropy of Nanotwinned Martensite in Magnetic Shape Memory Alloys* (ID #3549)

10:00AM – 10:15AM

**Contributed Talk 1**

**A.A. Larsen**, A. Poulia, A. Azar, C. Bazioti, P. Carvalho, A.E. Gunnæs, B. Belle, S. Diplas, P. Mikheenko / *Identifying Magnetic Phases in Additively Manufactured High-Entropy Alloy FeCoNiAl<sub>x</sub>Mn<sub>x</sub>* (ID #3535)

10:15AM – 10:30AM

**Contributed Talk 2**

A. Pakalniskis, **R. Skaudzius**, D. Karpinsky, G. Niaura, A. Kareiva / *In-depth Structural Investigation of Samarium-Doped Bismuth Ferrite Across its Phase Boundary* (ID #3551)

10:30AM – 11:00AM

**Coffee break** (Conference Hall LAS VEGAS)

11:00AM – 11:30AM

**Invited Talk 3**

**Prof. Sara Majetich**, *Carnegie Mellon University, USA*  
Sara A. Majetich, Brad Parks, Hao Chen, So Young Jeon / *Superparamagnetic Tunnel Junctions and Coupled Magnetic Dots* (ID #3846)

11:30AM – Noon

**Invited Talk 4**

**Prof. Bethanie Stadler**, *University of Minnesota, USA*  
B.J.H. Stadler, R. Zamani, Y. Chen, J. Um, D. Shore / *Magnetic Nanowires in Band-aids, Barcodes & Nanowarmers*

Noon – 12:15PM

**Contributed Talk 3**

T. Blachowicz, P. Steblinski, J. Grzybowski, **A. Ehrmann** / *Magnetization Dynamics in Nanofiber Networks* (ID #3509)

12:15PM – 12:30PM

**Contributed Talk 4**

**R. Politskiy**, P. Shpatar, M. Vistak, O. Malanchuk, I. Kremer,  
I. Diskovskiy / *Nanostructured Detector of Electromagnetic Radiation  
Based on Spintronics Devices* (ID #3556)

12:30PM – 2:00PM

**Lunch break****TUESDAY AFTERNOON SESSIONS**

2:00PM – 2:45PM

INVITED **TUTORIAL LECTURE**

**Mr. Vladimir Pashko**, *Donau Lab Ukraine*  
*Useful Tools for Nanoworld Journey*

**ORAL SESSION #1B****SPIN WAVES & MAGNONICS****CONFERENCE HALL CHICAGO & ZOOM**

2:45PM – 3:15PM

**Invited Talk 5**

**Prof. Andrii Chumak**, *University of Vienna, Austria*  
A. Chumak, Qi Wang, Ph. Pirro / *Inverse-Design Magnonics* (ID #3733)

3:15PM – 3:45PM

**Invited Talk 6**

**Dr. Michal Urbánek**, *CEITEC Nano Research Infrastructure, Czech  
Republic*  
*Spin Wave Propagation in Materials with Locally Controlled Structural  
and Magnetic Properties* (ID #3796)

3:45PM – 4:00PM

**Contributed Talk 5**

Qi Wang, **R. Verba**, A. Chumak / *Nanoscale Spin-Wave Directional  
Coupler Based on Exchange Interaction* (ID #3524)

4:00PM – 4:15PM

**Contributed Talk 6**

**C. Trevillian**, V. Tyberkevych / *Increasing Fidelity of Magnon-Mediated  
Quantum Gates by off-Resonance Coupling* (ID #3797)

4:15PM – 4:30PM

**Contributed Talk 7**

**P.Yu. Artemchuk**, V.S. Tyberkevych, A.N. Slavin / *A Model for Simple  
Description of Bose-Einstein Condensate of Magnons at Room  
Temperature* (ID #3781)

4:30PM – 4:45PM **Contributed Talk 8**

**D.A. Bozhko**, P. Frey, V.S. L'vov, B. Hillebrands, A.A. Serga / Double Accumulation and Anisotropic Transport of Magneto-Elastic Bosons in Yttrium Iron Garnet Films (ID #3599)

4:45AM – 5:15PM **Coffee break** (Conference Hall LAS VEGAS)

5:15PM – 6:30PM **WOMEN IN SCIENCE & ENGINEERING: NETWORKING EVENT & MIXER**

Sponsored by the IEEE Nanotechnology Council: <https://ieeenano.org> and the International Union for Pure & Applied Physics: <https://iupap.org>.

**Special Guest Speaker: Prof. Laura H. Greene**, National High Magnetic Field Laboratory - Tallahassee, USA

**Negotiation Skills and Career-building: Making the Most of Your Talent**

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## TUESDAY MORNING SESSIONS

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### ORAL SESSION #2A

#### NANO BIO INTERFACING & NANOMEDICINE

(CONFERENCE HALL “MIAMI” & ZOOM)

The session is co-organized with H-2020 MSCA-RISE projects

NanoSurf 777926 and CanBioSe 778157.

9:00AM – 9:15AM **Contributed Talk 9**

**K. Goc**, A. Radziszewska, J.M. Michalik, C. Kapusta, J. Przewoźnik / Properties of Metal Doped Graphene Flakes Obtained by Three-Electrode Electrochemical Method (ID #3718)

9:15AM – 9:30AM **Contributed Talk 10**

**G.M. Vlasceanu**, M. Ionitta / Biopolymer Hybrids Reinforced with Graphene Oxide with Ectopic Osteoinductive Behavior in vivo (ID #3485)

9:30AM – 10:00AM **Invited Talk 7**

**Prof. Oleg Lupan**, Technical University of Moldova, Republic of Moldova  
N. Ababii, O. Lupan, S. Hansen, M.T. Bodduluri, V. Postica, R. Adelung, H. Krüger / High-Performance Gas Sensors Using Heterostructures Based on Binary and Ternary Metal Oxides (ID #3534)

10:00AM – 10:30AM **Keynote Talk 1**

**Prof. Mikhael Bechelany**, Institut Européen des Membranes, France  
Bionanomaterials: Design, Properties & Applications (ID #3673)

10:30AM – 11:00AM **Coffee break** (Conference Hall LAS VEGAS)

11:00AM – 11:30AM **Invited Talk 8**

**Prof. Oksana Sulaieva**, *Medical Laboratory CSD, Ukraine*

Assessing Tissue Response to Biomaterials: When? What? How?  
(ID #3810)

11:30AM – 12:30PM **Jean Monnet Action Tutorial (under the project 620717-EPP-1-2020-1-UA-EPPJMO-MODULE)**

**Dr. Alicja Kazek-Kęsik**, *Silesian University of Technology, Poland*

Formation of Hybrid, Antibacterial Coating on Titanium Implant for  
Animal

12:30PM – 2:00PM

**Lunch break**

## **TUESDAY AFTERNOON SESSIONS**

### **ORAL SESSION #2B**

#### **NANOBIO INTERFACING & NANOMEDICINE**

#### **CONFERENCE HALL MIAMI & ZOOM**

**The session is co-organized with H-2020 MSCA-RISE projects  
NanoSurf 777926 and CanBioSe 778157.**

2:45PM – 3:00PM **Contributed Talk 11**

A. Roshchupkin, Ye. Husak, I. Yanko, P. Ekpe, V. Balitskyi, D. Burduli, I. Baginskyi, O. Gogotsi, V. Zahorodna, **M. Pogorielov**, S. Kyrylenko / Possible Autocatalytic Reduction of Resazurin by MXenes with Cultured Cells (ID #3827)

3:00PM – 3:15PM **Contributed Talk 12**

**P. Ekpe**, Ye. Husak, I. Yanko, A. Roshchupkin, A. Stepanenko, O. Gogotsi, V. Zahorodna, D. Burduli, I. Baginskyi, V. Balitskyi, M. Pogorielov, S. Kyrylenko / Visualisation of Ti3C2TX MXenes in Eukaryotic Cells by Transmission Electron Microscopy (ID #3828)

3:15PM – 3:30PM **Contributed Talk 13**

**T. Cebe**, M. Balasubramanian, N.H. Green, G. Reilly / Osteogenesis Imperfecta Collagen Fiber Visualization on Plasma Deposited Polycaprolactone Scaffolds (ID #3841)

3:30PM – 3:45PM **Contributed Talk 14**

**Ye. Husak**, K. Zaitseva, A. Turlybekuly, K. Diedkova, M. Sliusarenko, I. Yanko, S. Kyrylenko, A. Pogrebnjak, W. Simka, M. Pogorielov / Ti6Al4V Scaffolds with Alkali Activated Surfaces for Tissue Engineering (ID #3845)

**3:45PM – 4:00PM      Contributed Talk 15**

**M. Piatkowski**, Ju. Radwan-Pragłowska, L. Janus, A. Sierakowska,  
M. Ziabka / Chitosan-Based 3D Nanocomposite Bioactive Scaffolds:  
Synthesis and Characterization (ID #3833)

**4:00PM – 4:15PM      Contributed Talk 16**

**M.B. Lodi**, A. Fanti / Multiphysics Modeling of Magnetic Scaffolds for  
Biomedical Applications (ID #3598)

**4:15PM – 4:45PM      Invited Talk 9**

**Prof. Diego Mantovani**, *Laval University, Canada*  
Nanomaterials and Nanocoatings for the Next Generation of Health and  
Regenerative Medicine (ID #3831)

**4:45AM – 5:15PM      Coffee break** (Conference Hall LAS VEGAS)

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**TUESDAY MORNING SESSIONS**


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**ORAL SESSION #3A**

**NANOMATERIALS & NANOCOMPOSITES SYNTHESIS**  
(CONFERENCE HALL PARIS & ZOOM)

**9:00AM – 9:30AM      Invited Talk 10**

**Prof. Souad Ammar-Merah**, *Paris Diderot University, France*  
T. Gaudisson, F. Calvayrac, B.S. Youmbi, M. Seydou, N. Menguy, S.  
Ammar-Merah / Experimental and Theoretical Evidence for Oriented  
Aggregation Crystal Growth of Oxide Particles in Polyol (ID #3775)

**9:30AM – 9:45AM      Contributed Talk 17**

**P. Goel**, S. Mishra, A. Deep / High Luminescent and Ultra-Stable Metal  
Halide Perovskite and Metal-Organic Frameworks-Based  
Nanocomposites for LED Applications (ID #3763)

**9:45AM – 10:00AM      Contributed Talk 18**

**A. Stepura**, M. Procházka, M. Omastová, D. Zeleniakiene, A. Aniskevich  
/ Polymer Nanocomposites with Hybrid Nanofillers (ID #3706)

**10:00AM – 10:15AM      Contributed Talk 19**

**O. Kovalenko**, D. Vengust, M. Maček Kržmanc, M. Spreitzer, S. Škapin,  
A. Ragulya / Influence of Supersaturation on the Obtaining of Single-  
Crystalline BaTiO<sub>3</sub> Nanorods via a Single-Step Hydrothermal Technique  
(ID #3803)

**10:15AM – 10:30AM      Contributed Talk 20**

**A. Laikhtman** / Tungsten Disulfide Nanoparticles as Media for Hydrogen  
Storage: Experiment and Simulations (ID #3855)

**10:30AM – 11:00AM      Coffee break** (Conference Hall LAS VEGAS)



**11:00AM – 11:15AM    Contributed Talk 21**

**I. Hnylytsia** / Study of the Effect of Nanosized Additives on the Structure and Properties of Silicon Carbide Based Ceramics (ID #3483)

**11:15AM – 11:30AM    Contributed Talk 22**

E. Paineau, **G. Sokolsky**, M. Zahornyi, A. Ragulya, N. Gayuk, I. Kovinchuk / INTs/MnO<sub>2</sub>/TiO<sub>2</sub>/PANI Composites: Toward New Applications and Enforced Functionality (ID #3541)

**11:30AM – 11:45AM    Contributed Talk 23**

**L. Sartinska**, A. Efimov / Formation of Bubble Composites Based on Boron Nitride under Effect of Concentrated Light (ID #3685)

**11:45AM – Noon    Contributed Talk 24**

**O.V. Shvets**, M.M. Kurmach, K.M. Konysheva / Hierarchical Zeolites Catalysts for Fine Chemical Synthesis and Hydrocarbons Transformation Reactions (ID #3681)

**Noon – 12:15PM    Contributed Talk 25**

**Ye. Kim**, N. Bakranov / Obtaining and Research of Composite Materials Based on Wide-Gap Semiconductors: Zinc Oxide and Titanium Dioxide (ID #3628)

**12:15PM – 12:30PM    Contributed Talk 26**

**S. Kolotilov**, V. Asaula, S. Sotnik, O. Pariiska, S. Ryabukhin, D. Volochnyuk / Composites of 3D Metal Nanoparticles, N-Doped Carbon and Porous Carriers for Catalytic Hydrogenation, Amination and Cyclization Processes (ID #3776)

**12:30PM – 2:00PM    Lunch break**


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**TUESDAY AFTERNOON SESSIONS**


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**ORAL SESSION #3B****THIN FILMS & COATINGS****(CONFERENCE HALL "PARIS" & ZOOM)****2:45PM – 3:15PM    Invited Talk 11**

**Prof. Mathieu Salaün**, *Institut Néel, CNRS, France*  
M. Salaün, B. Boulanger / Elaboration of Epitaxial Rubidium Titanyl Phosphate (RTP) Thin Films (ID #3735)

**3:15PM – 3:45PM    Invited Talk 12**

**Prof. Vladimir Levchenko**, *Taizhou University, China*  
Influence of Synthesis Parameters on Properties of Superhard Tetrahedral Amorphous Carbon (ta-C) Coatings

3:45PM – 4:15PM **Invited Talk 13**

**Prof. Volodymyr Ivashchenko**, *Frantsevich Institute for Problems of Materials Science NASU, Ukraine*

Structure and Properties of Interfaces in the Nanocomposites and Multilayers Based on Transition Metal Compounds

4:15PM – 4:30PM **Contributed Talk 27**

V.M. Beresnev, S.V. Lytovchenko, O.V. Maksakova, A.D. Pogrebnjak,  
**D.V. Horokh**, U.S. Shvets / Microstructure and High-Hardness Effect in TiSiN/NbN Nanomultilayers: Experimental Research (ID #3768)

4:30PM – 5:00PM **Invited Talk 14**

**Dr. Mike Miller**, *Angstrom Engineering Inc., Canada*

Choosing a Power Delivery System for Magnetron Sputtering Applications

4:45AM – 5:15PM **Coffee break** (Conference Hall LAS VEGAS)

6:45PM – 8:45PM **Poster Session #2 (CONFERENCE HALLS LAS VEGAS & CHICAGO)**

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**WEDNESDAY, SEPTEMBER 8, 2019**

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**WEDNESDAY MORNING SESSIONS**

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**ORAL SESSION #1A****NANOMAGNETICS****(CONFERENCE HALL “CHICAGO” & ZOOM)**

- 9:00AM – 9:30AM ***Invited Talk 15***  
**Prof. Denis Sheka**, Taras Shevchenko Kyiv National University, *Ukraine*  
Curvilinear Magnetism (ID #3689)
- 9:30AM – 10:00AM ***Invited Talk 16***  
**Dr. Denys Makarov**, *Helmholtz-Zentrum Dresden-Rossendorf e.V., Germany*  
Nanomagnetism and Spintronics of Cr<sub>2</sub>O<sub>3</sub> Magnetoelectric  
Antiferromagnets (ID #3838)
- 10:00AM – 10:30AM ***Invited Talk 17***  
**Dr. Sebastian Wintz**, *Max Planck Institute for Intelligent Systems, Germany*  
Time-resolved X-ray Imaging of Spin Dynamics in Ferrimagnets
- 10:30AM – 11:00AM ***Coffee break (Conference Hall LAS VEGAS)***
- 11:00AM – 11:30AM ***Invited Talk 18***  
**Dr. Miho Kitamura**, *High Energy Accelerator Research Organization (KEK), Japan*  
Interfacial Ferromagnetism Induced by Asymmetric Charge  
Redistribution at Heterostructures of Perovskite Transition-metal  
Oxides (ID #3719)
- 11:30AM – 11:45AM ***Contributed Talk 28***  
**A. Kosogor**, V.A. L'vov / Magnetocaloric Effect in Antiferromagnet and  
Planar Structure with Weak Antiferromagnetic Coupling (ID #3651)
- 11:45AM – Noon ***Contributed Talk 29***  
**P. Omelchenko**, E.A. Montoya, E. Girt, B. Heinrich / Nonreciprocal Spin  
Transport at the Au/Pt Interface (ID #3690)
- Noon – 12:15PM ***Contributed Talk 30***  
**A.I. Tovstolytkin**, A.F. Kravets, D.M. Polishchuk, V.Yu. Borynskiy, V.  
Korenivski / Exchange Coupling/Decoupling Effects in Composite  
Magnetic Nanostructures (ID #3620)

12:15PM – 12:30PM **Contributed Talk 31**

**A.L. Campana**, N. Joudeh, D. Linke, P. Mikheenko / Magnetic Decoration of Escherichia coli Loaded with Palladium Nanoparticles (ID #3525)

12:30PM – 2:00PM

**Lunch Break**

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**WEDNESDAY AFTERNOON SESSIONS**

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2:00PM – 2:45PM

INVITED **TUTORIAL LECTURE**

**Prof. Tesuya Nakamura**, *Tohoku University, Japan*  
X-ray Imaging with Synchrotrons

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**ORAL SESSION #1B**

**SUPERCONDUCTIVITY & MAGNETISM; NANOSCALE IMAGING**  
**(CONFERENCE HALL “CHICAGO” & ZOOM)**

2:45PM – 3:15PM

**Invited Talk 19**

**Dr. Oleksandr Dobrovolskiy**, *University of Vienna (Austria)*  
Superconductivity and Magnetism in 3D Nano-architectures (ID #3506)

3:15PM – 3:30PM

**Contributed Talk 32**

**M. Mojarrad**, J. Hamid, A.L. Campaña, V.-S. Dang, A. Crisan, P. Mikheenko / Using Magnetic Nanoparticles to Improve Flux Pinning in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> Films (ID #3512)

3:30PM – 3:45PM

**Contributed Talk 33**

**P. Mikheenko** / Magnetic Force Microscopy of Brain Microtubules (ID #3538)

3:45PM – 4:15PM

**Invited Talk 20**

**Prof. Jose Miguel Garcia-Martin**, *Instituto de Micro y Nanotecnología-CSIC, Spain*  
Magnetic Force Microscopy of Advanced Materials and Nanostructures (ID #3658)

4:15AM – 4:45AM

**Invited Talk 21**

**Dr. Andriy Lotnyk**, *Leibniz Institute of Surface Engineering (IOM), Germany*  
A. Lotnyk, I. Hilmi, M. Behrens, B. Rauschenabach, T. Dankwort, L. Kienle / Nanoscale Characterization of Phase-change Memory Thin Films and Heterostructures by Aberration-corrected STEM (ID #3854)

4:45PM – 5:00PM

**Contributed Talk 34**

**P. Xhori**, G. Karapetrov / Probing Charge Density Wave Material  $\text{TiSe}_2$  through Ultrafast Electron Diffraction

**WEDNESDAY MORNING SESSIONS****ORAL SESSION #2A****NANOBIO INTERFACING & NANOMEDICINE****(CONFERENCE HALL “MIAMI” & ZOOM)**

The session is co-organized with H-2020 MSCA-RISE projects  
**NanoSurf 777926 and CanBioSe 778157.**

9:00AM – 9:30AM

**Invited Talk 22**

**Prof. Arunas Ramanavicius**, Vilnius University, Lithuania

A. Ramanavicius, I. Plikusiene, V. Maciulis, V. Liustrovaite, M. Drobysh,  
 A. Rucinskiene, Z. Balevicius, E. Buzavaite-Verteliene, E. Ciplys, R.  
 Slibinskas, M. Simanavicius, A. Zvirbliene, A. Ramanaviciene /  
 Development of Optical and Electrochemical Sensors for the Diagnosis  
 of COVID-19 (ID #3809)

9:30AM – 9:45AM

**Contributed Talk 35**

**I. Iatsunskyi**, N. Babayevska, V. Myndrul, O. Gogotsi /  
 Photoelectrochemical Enzymatic Biosensors Based on  $\text{ZnO}$   
 Tetrapods/MXene Nanocomposites (ID #3560)

9:45AM – 10:00AM

**Contributed Talk 36**

**V. Hovhannisyan**, A. Nair, Sh.-J. Chen / Magnetic Zeolite Nanoplatform  
 for the Transport and Release of Photosensitizers (ID #3625)

10:00AM – 10:15AM

**Contributed Talk 37**

K. Paliienko, **L. Kalynovska**, N. Pozdnyakova, N. Krisanova, A. Tarasenko,  
 A. Pastukhov, U. Afonina, O. Gnatyuk, G. Dovbeshko, T. Borisova /  
 Carbon-Containing Nanoparticles From Grass: Green Synthesis, Optical,  
 Spectroscopic, Oxidative Properties And Neurotropic Action In Brain  
 Nerve Terminals (ID #3679)

10:15AM – 10:30AM

**Contributed Talk 38**

A. Dutovs, U. Malinovskis, R. Poplauskis, M. Bechelany, **D. Erts**,  
 Ju. Prikulis / Optical Characterization of Hybrid  $\text{ZnO}$ -nanoporous  
 Alumina Substrates (ID #3860)

10:30AM – 11:00AM

**Coffee break** (Conference Hall LAS VEGAS)

11:00AM – 11:30AM **Invited Talk 23**

**Prof. Wojciech Simka**, *Silesian University of Technology, Poland*

Plasma Electrolytic Oxidation in Solutions Containing Nanoparticles (ID #3795)

11:30AM – 11:45AM **Contributed Talk 39**

V. Prokopyuk, A. Onishchenko, S. Yefimova, T. Chumachenko, N. Kavok, P. Maksimchuk, V. Klochkov, **A. Tkachenko** / Cytotoxicity Tests on Cultured Rat Skin Fibroblasts Revealed no Toxicity for Low Concentrations of GdYVO<sub>4</sub>:Eu<sup>3+</sup> Nanoparticles (ID #3664)

11:45AM – Noon **Contributed Talk 40**

M. Razumova, **Yu. Lunha**, V. Lozovski / An Implementation of Gold Nanoparticles with Functionalized Surface in Biosensorics (ID #3543)

Noon – 12:15PM **Contributed Talk 41**

**D. Kytova**, N. Shtemenko, A. Shtemenko / Exchange Rhenium(III) Complexes–Loaded Zirconium Phosphate Nanoparticles (ID #3702)

12:15PM – 12:30PM **Contributed Talk 42**

O. Radchenko, S. Bolshanina, **A. Yanovska** / The Study of Silver Ions Release from AgNP (ID #3842)

12:30PM – 2:00PM

**Lunch break**

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**WEDNESDAY AFTERNOON SESSIONS**

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**ORAL SESSION #2B**

**NANOBIO INTERFACING & NANOMEDICINE**

(CONFERENCE HALL “MIAMI” & ZOOM)

**The session is co-organized with H-2020 MSCA-RISE projects NanoSurf 777926 and CanBioSe 778157.**

2:45PM – 3:15PM **Invited Talk 24**

**Prof. Leonardo Orazi**, *University of Modena & Reggio Emilia, Italy*

Surface Micro- and Nano-Structuring by Ultrafast Laser Processing (ID #3811)

3:15PM – 3:30PM **Contributed Talk 43**

I. Yanko, Ye. Husak, A. Roshchupkin, P. Ekpe, O.Solodovnyk, D. Burduli, I. Baginskyi, O. Gogotsi, V. Zahorodna, M. Pogorielov, **S. Kyrylenko** / Selective Photothermal Effect of a Pulsed Laser in Cultured Cells with Ti<sub>3</sub>C<sub>2</sub>T<sub>x</sub> MXenes (ID #3829)

3:30PM – 3:45PM

**Contributed Talk 44**

**Ł. Janus**, Ju. Radwan-Pragłowska, M. Piątkowski, A. Sierakowska,  
D. Bogdał / Chitosan-Derived Nanosystems for Hemostatic Agents  
Bioactivity Enhancement (ID #3834)

3:45PM – 4:00PM

**Contributed Talk 45**

Ye. Husak, O. Olesenko, J. Michalska, V. Korniienko, O. Solodovnyk,  
**B. Dryhval** / F- and P-Enriched Coatings for Mg Implants by Low Energy  
PEO Process (ID #3843)

4:00PM – 4:15PM

**Contributed Talk 46**

**Ju. Radwan-Pragłowska**, Ł. Janus, M. Piątkowski, A. Sierakowska,  
T. Galek, M. Tupaj, D. Bogdał / Nanostructurized Chitosan-Based  
Hemostatic Agents: Synthesis and Characterization (ID #3835)

4:15PM – 4:30PM

**Contributed Talk 47**

**A. Tkachenko**, A. Onishchenko, V. Prokopyuk, S. Yefimova, V. Klochkov,  
P. Maksimchuk, N. Kavok, Ye. Posokhov / High Concentrations of  
GdYVO<sub>4</sub>:Eu<sup>3+</sup> Nanoparticles Alter the State of White Blood Cell  
Membranes by Increasing Their Microviscosity (ID #3666)

4:30PM – 4:45PM

**Contributed Talk 48**

Yu. Varava, Ye. Samokhin, A. Savchenko, K. Diedkova, A. Mirek,  
R. Banasiuk, S. Kyrylenko, **V. Korniienko** / Antimicrobial Electrospun  
Chitosan Nanofibrous Membranes Functionalized with Silver  
Nanoparticles (ID #3807)

4:45PM – 5:00PM

**Contributed Talk 49**

**Yu. Bondar**, S. Kuzenko, Yu. Olkhovik / Fabrication of Nanocomposite  
Adsorbent Based on MnO<sub>2</sub>-Loaded Polymer Fibers for Strontium Ions  
(ID #3675)

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**WEDNESDAY MORNING SESSIONS**


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**ORAL SESSION #3A****TRANSPORT PROPERTIES****(CONFERENCE HALL PARIS & ZOOM)**

9:00AM – 9:30AM

**Invited Talk 25**

**Dr. Sergei Sharapov**, *Bogolyubov Institute for Theoretical Physics,  
National Academy of Science of Ukraine, Ukraine*  
S. Sharapov, A. Varlamov, Ch. Goupil, A. Kavokin / Brief History of  
Thermoelectric and Thermomagnetic Phenomena and the Nernst Effect  
in the Laughlin and Corbino Geometries (ID #3559)

9:30AM – 10:00AM **Invited Talk 26**

**Dr. Yuriy Khalavka**, *Yuriy Fedkovych Chernivtsi National University, Ukraine*

Yu. Khalavka, N. Doshaliuk, G. Okrepka, Yu. Andriichuk, O. Tynkevych, O. Pyptiuk / Quantum Dots as Sensors and Light Conversion Materials (ID #3545)

10:00AM – 10:15AM **Contributed Talk 50**

D. Kaynts, D. Manakina, **V. Petrovsky** / Modeling the Concentration Behavior of the Resistance and Thermopower of Percolation Composites (Conductor –HfC) Obtained in the Presence of a Binder (ID #3724)

10:15AM – 10:30AM **Contributed Talk 51**

**P. Decler**, D.V. Ginste / Uncertainty Quantification of Charge Transfer through a Nanowire Resonant-Tunneling Diode with an ADHIE-FDTD Method (ID #3505)

10:30AM – 11:00AM **Coffee break** (Conference Hall LAS VEGAS)

11:00AM – 11:30AM **Invited Talk 27**

**Prof. Maksym Strikha**, *Taras Shevchenko Kyiv National University, Ukraine*

Fundamental Constraints for the Length of the Silicon and 2D MoS<sub>2</sub> MOSFET Conduction Channel Based on the Realistic Form of the Potential Barrier (ID #3656)

11:30AM – 11:45AM **Contributed Talk 52**

**O.S. Bauzha**, B.B. Sus, S.P. Zagorodnyuk, Yu.A. Len / Magnetic Properties of GaSb Quantum Dots Include Spin-Orbit Interaction (ID #3527)

11:45AM – Noon **Contributed Talk 53**

V. Zhelezny, **O. Khliyeva**, A. Nikulin, N. Lapardin, D. Ivchenko, E.P. del Barrio / Paraffin Wax Enhanced with Carbon Nanostructures as Phase Change Materials: Preparation and Thermal Conductivity Measurement (ID #3571)

Noon – 12:15PM **Contributed Talk 54**

P. Kostrobij, B. Markovych, **V. Polovyi** / Study of SSPs Waves Frequency Spectrum in Atomically-Thin Films: Case of Electron-Electron Interaction (ID #3678)



12:15PM – 12:30PM **Contributed Talk 55**

**Yu.A. Oleksii**, E.I. Get'man, S.V. Radio, L.I. Ardanova, E.E. Zubov /  
Isomorphous Substitutions and Stability of Solid Solutions in La<sub>1-x</sub>LnxF<sub>3</sub>, Ln = Ce–Ho Systems (ID #3813)

12:30PM – 2:00PM

**Lunch break**

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### WEDNESDAY AFTERNOON SESSIONS

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#### ORAL SESSION #3B

#### NANO- & MICRO MANUFACTURING; NANOMATERIALS FOR ENERGY APPLICATION (CONFERENCE HALL PARIS & ZOOM)

2:45PM – 3:15PM **Invited Talk 28**

**Dr. Rafal Sliz**, *University of Oulu, Finland*

R. Sliz, M. Karzarjeddi, H. Liimatainen, T. Fabritius / Nanocellulose as Sustainable Replacement for Plastic Substrates in Printed Electronics Applications (ID #3720)

3:15PM – 3:45PM **Invited Talk 29**

**Dr. Maksym Plakhotnyuk**, *Atlant 3D Nanosystems, Denmark*

*Atomic Layer Additive Manufacturing – the Future of Advanced Materials and Microdevices*

3:45PM – 4:00PM **Contributed Talk 56**

**A.R. Nallayagari**, E. Sgreccia, P. Knauth, M.L. Di Vona / Configured Carbon Quantum Dots for Oxygen Reduction Electrode in Anion Exchange Membrane Fuel Cells (ID #3500)

4:00PM – 4:15PM **Contributed Talk 57**

**V. Shvalagin**, S. Kuchmiy / Acid Treated Crystalline Graphitic Carbon Nitride - New Material with Improved Visible Light Photocatalytic Activity (ID #3716)

4:15PM – 4:30PM **Contributed Talk 58**

**M. Wala**, K. Leśniak – Ziółkowska, A. Kazek – Kęsik, A. Blacha – Grzechnik, A. Stolarczyk, W. Simka / Influence of Carbon Nanocompounds on Catalytic Activity of NiCu Catalyst Towards Urea Oxidation (ID #3864)

4:30PM – 5:00PM **Invited Talk 30**

**Dr. Dieter Suess**, *University of Vienna, Austria*

M. Suppan, C. Huber, K. Sonnleitner, S. Cano, S. Schuschnigg, M. Groenefeld, I. Teliban, S. Kobe, B. Saje, D. Suess / 3D Printing of Isotropic and Anisotropic Hard Magnets (ID #3868)

6:00PM – 8:00PM

**e-POSTERS SESSION (ZOOM ONLY)**

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8:00PM – 10:00PM

**CONFERENCE DINNER**

Restaurant & Bar Assol', Arkadiya Plyazh 5, Odessa 65009

<https://www.facebook.com/Assol.taverna.odessa>

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**THURSDAY, SEPTEMBER 9, 2019**

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**THURSDAY MORNING SESSIONS**

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**POSTER SESSION #3**

9:00AM – 11:00AM

**MISCELLANEOUS TOPICS****CONFERENCE HALLS LAS VEGAS & CHICAGO****ORAL SESSION #1A****MAGNETIC NANOPARTICLES****CONFERENCE HALL MIAMI & ZOOM**11:00AM – 11:30AM ***Invited Talk 31*****Prof. Marek Przybylski**, *AGH University of Science and Technology, Poland*

Ferrite Micro- and Nano-particles for Magnetic Resonance Imaging Thermometry

11:30AM – Noon ***Invited Talk 32*****Dr. Yuko Ichiyanagi**, *Yokohama National University, Japan*

Keita Kodama, Yuko Ichiyanagi / Magnetic Relaxation of PEG Modified Ni-ferrite Nanoparticles (ID #3858)

**ORAL SESSION #2A****CATALYSIS & NANOMATERIALS****CONFERENCE HALL CHICAGO & ZOOM**10:45AM – 11:00AM ***Contributed Talk 59*****H. Krüger**, H. Cavers, O. Gronenberg, U. Schürmann, Y.K. Mishra, J. Jacobsen, J. Carstensen, N. Stock, L. Kienle, F. Schütt, R. Adelung, S. Hansen / Double Hierarchical 3D Carbon Nanotube Network with Tailored Structure as a Lithium Sulfur Cathode (ID #3764)11:00AM – 11:15AM ***Contributed Talk 60***S. Nakandala, **C.J. Thambiliyagodage**, B. Siriwardana, B. Lansakara / Efficient Photocatalysis of Catalytically Graphitized Sucrose by Incorporation of Iron (ID #3572)11:15AM – 11:30AM ***Contributed Talk 61*****C.J. Thambiliyagodage**, L. Usgodaarachchi, Sh. Mirihana, R. Wijesekera, B. Lansakara / Photocatalytic Activity of the Binary and Ternary Nanocomposites Synthesized from Natural Ilmenite Under Visible Light (ID #3578)11:30AM – 11:45AM ***Contributed Talk 62***

**V. Shrivastav**, S. Sundriyal, U.K. Tiwari, A. Deep / ZIF-67 Derived  
Co<sub>3</sub>S<sub>4</sub>/WO<sub>3</sub> Composites as a Negative Electrode for Hybrid  
Supercapacitor Application (ID #3784)

11:45AM – Noon      ***Contributed Talk 63***

**Ye.R. Kim**, N.B. Bakranov / Investigation of the Photocatalytic Activity of  
the ZnO / Ag Heteronanostructures (ID #3624)

Noon – 12:45PM      INVITED ***TUTORIAL LECTURE***

**Prof. Eugene Katz**, *Ben-Gurion University of the Negev, Israel*  
Perovskite Solar Cells: Progress and Challenges in Photovoltaic  
Performance & Stability (ID #3840)

12:45PM – 2:00PM      ***Lunch break***

2:00PM -      ***EXCURSIONS (city of Odesa)***

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**FRIDAY, SEPTEMBER 10, 2019**

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**FRIDAY MORNING SESSION**

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**ORAL SESSION #1A**  
**INTERDISCIPLINARY & MISCELLANEOUS TOPICS**  
**CONFERENCE HALL CHICAGO & ZOOM****9:00AM – 9:15AM      *Contributed Talk 64***

**G.I. Borbeyiyong**, Yu. Lypko, Yu. Prysiashnyi, S. Pyshyev /  
Some Aspects of the Process of Obtaining Coumarone-Indene-  
Carbazole Modifier for Wear-Resistant Bituminous Road Materials  
(ID #3519)

**9:15AM – 9:30AM      *Contributed Talk 65***

B. Borts, **A. Parkhomenko**, I. Vorobyov, I. Patochkin, A. Lopata / General  
Patterns of Materials Interface Structures Formation Bonded at High  
Temperatures by Vacuum Roll Bonding (ID #3521)

**9:30AM – 9:45AM      *Contributed Talk 66***

**Sh. Singh**, A. Deep / Water-Soluble MoS<sub>2</sub> Quantum Dots Labeled  
DNAzyme Based Heavy Metals Biosensor (ID #3789)

**9:45AM – 10:00AM      *Contributed Talk 67***

**A. Tereshchenko**, R. Karpicz / Protein Adsorption Influence on the  
Optical Properties of ZnO-Based Thin Films (ID #3688)

**10:00AM – 10:15AM      *Contributed Talk 68***

**N. Andrushchak**, V. Adamiv, V. Haiduchok, I. Teslyuk, Ye. Yashchyshyn,  
A. Andrushchak / Transmission Spectra Investigation of Nanoporous  
Al<sub>2</sub>O<sub>3</sub> Matrices Filled with KDP, ADP and TGS Crystals at Visible, NIR,  
and SubTerahertz Ranges (ID #3821)

**10:15AM – 10:30AM      *Contributed Talk 69***

**K.G. Ayvazyan**, M.V. Katkov, M.S. Lebedev, G.Y. Ayvazyan / Enhanced  
Light-Trapping with Conformal ALD Coating of Black Silicon by High-k  
Metal Oxides (ID #3542)

**10:30AM – 11:00AM      *Coffee break* (Conference Hall LAS VEGAS)****11:00AM – 11:15AM      *Contributed Talk 70***

**O. Ola**, Yu Chen, Ya. Zhu, D. Grant / Pseudocapacitive Performance of  
WO<sub>3</sub>/g-C<sub>3</sub>N<sub>4</sub> Nanocomposites (ID #3806)

11:15AM – 11:30AM **Contributed Talk 71**

**K. Khanchych**, V. Zhelezny, O. Khliyeva, I. Diachenko, Yu. Semenyuk, Ya. Hlek / On Modelling the Viscosity of Fullerene-Containing Nanofluids (ID #3539)

11:30AM – 11:45AM **Contributed Talk 72**

V. Moraru, **D. Komysh**, M. Sydorenko, O. Kozhan / Nanofluids for Energetics: Emergency Cooling of Overheated Massive Bodies by Nanofluids (ID #3623)

11:45AM – Noon **Contributed Talk 73**

**O. Cardozo**, S. Farooq, R.E. de Araujo / Perspectives of Exploring ZnO Nanoparticles on the Active Layer Surface of Organic Solar Cells (ID #3513)

Noon – 12:15PM **Contributed Talk 74**

**I. Virt**, A. Lozynsky, B. Cieniek / Pulsed Laser Growth of ZnO-Carbon Nanocomposite Thin Films (ID #3659)

12:15PM – 12:30PM **Contributed Talk 75**

**O. Yeshchenko**, P. Khort, N. Kutsevol, O. Kapush, V. Dzhagan / Plexcitons in Thermoresponsive Dextran-Graft-PNIPAM / Au Nanoparticles / CdTe Quantum Dots Nanosystem: Temperature Effects (ID #3523)

12:30PM – 12:45PM **Contributed Talk 76**

**B. Postolnyi**, V. Buranich, J.P. Araújo, A. Pogrebnjak, V. Rogoz / Compositional Screening of Refractory High-entropy Alloys and Coatings for Extreme Applications

1:00PM – 1:30PM **IEEE NAP-2021 AWARDS & CONFERENCE CLOSING CEREMONY  
IEEE NAP-2022 ANNOUNCEMENT**

**MONDAY, SEPT. 6<sup>TH</sup>, 2021****POSTER SESSION # 1****THIS FILMS & COATINGS - SYNTHESIS OF NANOMATERIALS****CONFERENCE HALLS LAS VEGAS & CHICAGO****10:30AM - 12:30PM**

<b>ID</b>	<b>No</b>	<b>Title</b>	<b>Authors</b>
3705	P1-1	Challenges of Coating Deposition on Polymer Substrate by Magnetron Sputtering	S. Yakovin, S. Dudin, A. Zykov, N. Yefimenko, O. Dakhov
3672	P1-2	Structure and Surface Properties of Magnetron Sputtered Tantalum Oxynitride Coatings for Biomedical Applications	S. Yakovin, S. Dudin, A. Zykova, V. Safonov, T. Kuznetsova, G. Melnikova, A. Petrovskaya, S. Chizhik, N. Donkov
	P1-3	The Effect of Bias Voltage on Structure and Mechanical Properties of WN/NbN Multilayers	K. Smyrnova, M. Sahul, M. Haršáni, A. Pogrebniak, V. Beresnev, Ľ. Čaplovič
3494	P1-4	CVD Method of Carbon Nanotubes Obtaining on Catalytic Substrate and Device for Its Implementation	A.I. Khovavko, A.M. Sviatenko, V.G. Kotov, A.A. Nebesny, D.S. Filonenko
3774	P1-5	Effect of Oxygen Partial Pressure on the Properties ZnO Film Grown on Macroporous Si by HF Magnetron Sputtering	V. Kidalov, A. Dyadenchuk, V. Baturin, O. Karpenko, I. Rogozin, Yu. Bacherikov, N. Sosnytska, A. Zhuk, V. Kidalov
3492	P1-6	Deposition and Characterization of Ti-Nb-C Coatings by DC Magnetron Sputtering	V. Ivashchenko, A. Onoprienko, P. Skrynsky, A. Kozak, E. Olifan, A. Kovalchenko, A. Sinelnitchenko, A. Marchuk, V. Granko
3493	P1-7	Structure and Properties of Ti-B-C Films Deposited by DC Magnetron Sputtering of TiB <sub>2</sub> and B <sub>4</sub> C Targets	V. Ivashchenko, A. Onoprienko, P. Skrynsky, A. Kozak, E. Olifan, A. Kovalchenko, A. Sinelnitchenko, A. Marchuk
3682	P1-8	The Energy and Ion Flux Control in MISSS for Nanostructure Coating Synthesis	S. Yakovin, A. Zykov, N. Yefymenko, V. Korneenkov, S. Dudin

ID	No	Title	Authors
3826	P1-9	Microstructure and Properties Development During Thermal Treatments of Ti <sub>3</sub> SiC <sub>2</sub> /TiC Coating Produced by Denotation Spraying onto Carbon Steel Grade U9	B.K. Rakhadilov, A.D. Pogrebnyak, O.V. Maksakova, D.B. Buitkenov, M.K. Kylyshkanov, A.A. Bagdasaryan
3851	P1-10	Raman Characterization of MXene Films	H. Maltanova, S. Poznyak, E. Ovodok, I. Svito, N. Brezhneva, O. Gogotsi
3743	P1-11	Coatings for Improving Adhesion Between Metal Mesh Heating Element and Polymer in Electrofusion Welding of Thermoplastics	R. Kolisnyk, M. Iurzhenko, M. Korab, O. Masiuchok, S. Voynarovich, O. Kyslytsia
3694	P3-12	Functional Properties of Fe-Ni-Co-Ti Nanocomposite Under the Influence of Temperature and Mechanical Stress	A. Titenko, L. Demchenko, M. Babanli, T. Bykanov, O. Titenko, S. Huseynov
3634	P1-13	Low Temperature Environmentally Friendly Synthesis of ZnO-Based Nanocomposites	G. Rudko, E. Gule, V. Fediv, O. Olar, O. Isaieva
3684	P1-14	Nickel and Zinc Hydroxycarbonates are Precursors of Nanoscale Oxides	O. Denysov, O. Korchuganova, E. Tantsiura, K. Abuzarova
3693	P1-15	Formation of Nanoparticles and Polymer Films in RF Gas-discharge Plasma in Acetylene	V. Lisovskiy, S. Dudin, A. Minenkov, S. Bogatyrenko, P. Platonov
3586	P1-16	About Possibility Application a Hollow Cathode Discharge for Evaporation and Filtration Micro-Droplets from Erosion Plasma Source	A. Ryabtsev, V. Bazhenov, A. Goncharov, V. Maslov, V. Tsiolko
3700	P1-17	Research on the Characterization of Ag+Cu+B83 Composite Coatings on the Surface of Tin Bronze by Electro-spark Deposition	Zh. Zhang, V. Tarelnyk, Ie. Konoplianchenko, G. Liu, X. Du, H. Yu
3857	P1-18	Necklace-shaped Ag Nanoparticles on Niobate Plates: Photochemical Synthesis and Optical Properties	V. Shvalagin, S. Kuchmiy, G. Grodzyuk
3725	P1-19	Morphology Study of the Porosity of the GaP Surface Layer Formed on the Surface of a Single Crystal by Electrochemical Etching	Ya. Suchikova, A. Lazarenko, I. Bohdanov, A. Dauletbekova, A. Usseinov, A.I. Popov
3707	P1-20	Influence of Graphene Oxide on Absorption Spectra and Structure of Poly-Ortho-Anisidine Films	O. Konopelnyk, O. Aksimentyeva, V. Glazunova



ID	No	Title	Authors
3595	P1-21	Synthesis, Morphology and Luminescence Properties of Pr <sup>3+</sup> -Containing Phosphate-Molybdate Glass-Ceramics	V.P. Chornii, V.V. Boyko, S.G. Nedilko, K.V. Terebilenko, M.S. Slobodyanyk
3709	P1-22	Electrodeposition of Binary and Ternary Rhenium Alloys	Yu. Yapontseva, T. Maltseva, V. Kublanovsky
3508	P1-23	Dissolution-Precipitation Synthesis of Nanoscale Ion-Substituted Calcium Phosphates with Whitlockite Structure	A. Zarkov, L. Sinusaite, A. Kizalaite, I. Grigoraviciute-Puroniene, D. Griesiute, A. Kareiva
3552	P1-24	Structural and Luminescent Properties of Cr Substituted Mg <sub>3</sub> Al <sub>1-x</sub> Cr <sub>x</sub> Layered Double Hydroxides Synthesized through the Conversion of Sol-Gel-Derived Mixed Metal Oxides	L. Valeikiene, A. Zarkov, I. Grigoraviciute-Puroniene, A. Kareiva, A. Katelnikovas
3668	P1-25	Numerical Determination of the Strength of Nanomodified Ceramics	A. Gondlyakh, A. Sokolskiy, T.B. Shylovych, Ya.I. Shylovych, A. Chemeris, S.I. Antonyuk

**TUESDAY, SEPT. 7<sup>TH</sup>, 2021****POSTER SESSION # 2****PHYSICAL PROPERTIES – ELECTROCHEMISTRY - NANODEVICES****CONFERENCE HALLS LAS VEGAS & CHICAGO****6:00PM – 8:00PM**

ID	No	Title	Authors
3619	P2-1	Optical Properties of MagnetoBiexciton in Ellipsoidal Quantum Dot	Yu. Bleyan
3721	P2-2	Study of Structure of Defect Centers in Europium Vanadate Nanoparticles with Heterovalent Dopants	O. Chukova, T. Voitenko, H.S.R. Mosafer, S.G. Nedilko, A. Papadopoulos, W. Paszkowicz, S.A. Nedilko, E. Stratakis, M. Etter
3503	P2-3	Nanoscale Origin of Conductance Dips in Point-Contact Spectra of Superconductors	E. Zhitlukhina, V. Tarenkov, V. Dmitrenko, M. Belogolovskii
3510	P2-4	Percolation Effects in the Nanocomposites with Conducting Polymer Fillers	O.I. Aksimentyeva, G.V. Martyniuk
3565	P2-5	Electrical Properties of p-Cu <sub>2</sub> O/CdS/n-Si Heterojunction	I.P. Kozarskyi, D.P. Kozarskyi, E.V. Maistruk, T.T. Kovaliuk
3537	P2-6	Fractional Synchronization of an Antiferromagnetic Spin Hall Oscillator to an External AC Signal	D. Slobodianiuk, O. Prokopenko
3553	P2-7	Giant Fourfold Magnetic Anisotropy in Nanotwinned NiMnGa Epitaxial Film	Yu. Kharlan, V. Golub, P. Bondarenko
3585	P2-8	Isotropic FMR Frequency Enhancement in Py/FeMn Bilayers Under Strong Magnetic Proximity Effect	A.F. Kravets, D.M. Polishchuk, T.I. Polek, V.Yu. Borynskyi, A.I. Tovstolytkin, V. Korenivski
3589	P2-9	Antiferromagnetic Tunnel Junction as a Detector of Electromagnetic Signals With Frequencies Over 1 THz	V. Prokopenko, O. Prokopenko
3637	P2-10	The Evolution of the Microstructure, Transformation Behavior and Magnetic Resonance Properties of the Epitaxial Ni(Co)MnSn Films	D. Popadiuk, J.M. Barandiaran, V. Chernenko, V. Golub
3701	P2-11	Magnetic Anisotropy and Magnetoelastic Properties of Co <sub>2</sub> Fe <sub>x</sub> Mn <sub>1-x</sub> Si Heusler Alloy Thin Films	O.M. Chumak, A. Nabiatek, T. Seki, K. Takanashi, L.T. Baczewski, H. Szymczak
3742	P2-12	Terahertz-Frequency Signal Source Based on an Array of Synchronized Antiferromagnetic Spin Hall Oscillators	O. Shtanko, O. Prokopenko
3873	P2-13	Giant Magnetoresistive Effect in Fe <sub>20</sub> Ni <sub>80</sub> /Cu/Co Asymmetric Sandwiches	O.V. Bezdidko, L.V. Dekhtyaruk, Yu.M. Shabelnyk, Yu.O. Shkurdoda, A.M. Chornous

ID	No	Title	Authors
3779	P2-15	Laser Scanning Microscopy of RF-SQUID Based Metasurfaces	Yu. Oboznyi, A. Zhurave, A. Ustinov, S. Anlage
3780	P2-16	Phase Sensitive Imaging of Microwave Signal Propagation in Superconducting Metamaterials	A.A. Leha, A.P. Zhuravel, A. Karpov, A.V. Ustinov
3787	P2-17	Flux Qubit Spectrum Modelling to Build a Single Photon Counter	A. Boichenko, O. Turutanov, V. Lyakhno, A. Soroka, V. Shnyrkov
3635	P2-18	Spin-1 Nematic near the SU(3)-Symmetric Antiferromagnetic Point	A. Kolezhuk, T. Zavertanyi
3660	P2-19	Engineering the Topological Insulator Structures for Terahertz Detectors	M. Marchewka, P. Śliż
3606	P2-20	Neutron Reflectometry for Structural Studies of Transformer Oil-Based Ferrofluid in Electric Field	M. Karpets, M. Rajnak, V. Petrenko, M. Avdeev, M. Timko, P. Kopčanský
3576	P2-21	Optical Absorption in Core-Shell Quantum Antidot with Donor Impurity Under Applied Magnetic Field	V. Holovatsky, M. Chubrei, V. Ivanko
3744	P2-22	Influence of Fluorination on the Impedance of Carbon Fibers	Yu.S. Milovanov, I.V. Gavrilchenko, A.N. Zaderko, I.I. Ivanov, V.A. Skryshevsky
3792	P2-23	Development of Highly Active and Selective Nanoscale Metal-Oxide Catalysts for Production of 1,3-Butadiene and 1-Butanol from Bioethanol	P.I. Kyriienko, O.V. Larina, K.V. Valihura, S.S. Soloviev, S.M. Orlyk
3815	P2-24	Nanocomposite TiO <sub>2</sub> -ZnO for Dyes Photocatalytic Degradation	I. Ivanenko, Kh. Hutsul
3823	P2-25	Promising Cathode Material Based on Inorganic Nanocomposites for Li <sup>+</sup> -Intercalation Current Generation	O. Balaban, N. Mitina, A. Zaichenko, O. Izhyk, B. Venhryn, A. Andrushchak
3839	P2-26	Nickel Ferrites Nanopowders as Catalysts for Hydrogen Production through NaBH <sub>4</sub> Hydrolysis	I. Ivanenko, S. Lesik
3504	P3-27	Self-organization of (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> and NH <sub>4</sub> HSO <sub>4</sub> Ferroelectric Domain Structure under Pressure at Phase Transition	O.Yu. Mazur, L.I. Stefanovich
3526	P3-28	Molecular Dynamics Simulation of the Uniaxial Tensile Test of Hollow-Core Silicon Nanowires	S. Semchuk, V. Kuryliuk, D. Vernygora, A. Kuryliuk, T. Tsaregradskaya
3633	P2-29	Atomic Structure, Vibrational Spectrum and Mechanical Properties of Amorphous AIBN	R. Shevchenko, V. Ivashchenko, V. Shevchenko

ID	No	Title	Authors
3711	P2-30	Criteria for the Selection of Ligands in the Development of Complex Electrolytes for the Electrochemical Formation of Functional Tin Films as Effective Anode Materials for Lithium-Ion Batteries	V. Kublanovsky, V. Nikitenko, N. Globa, Ju. Shmatok, Eu. Babenkov, O. Bersirova
3517	P2-31	EPR Study of Copper-Related Defect in Cu <sub>2</sub> ZnSnS <sub>4</sub> Nanocrystals	V. Nosenko, I. Vorona, V. Dzhagan, O. Selyshchev, O. Raievska, O. Stroyuk
3605	P2-32	Boron-Doped g-C <sub>3</sub> N <sub>4</sub> for Photocatalytic Application	H. Starukh, P. Praus
3616	P2-33	Vanadium-Doped Mo <sub>2</sub> C on Reduced Graphene Oxide as pH-Universal Electrocatalyst for the Hydrogen Evolution	D. Mazur, Ya. Kurys, V. Koshechko, V. Pokhodenko
3621	P2-34	Poly-5-Aminoindole Derived Co-N-C Nanocomposites as Multifunctional Catalysts	O. Pariiska, D. Mazur, Ya. Kurys, V. Asaula, S. Kolotilov
3653	P2-35	Zeolite Supported Ni and Co Catalysts for Hydrogen Generation via Hydrolysis of NaBH <sub>4</sub>	A. Kytsya, V. Berezovets, Yu. Verbovytskyy, L. Bazyllyak, I. Zavaliy, V. Yartys
3850	P2-36	Photocatalytically Active Titania-based Structures Obtained by Hydrolysis of Titanyl Sulfate	E. Bondarenko, N. Brezhneva, H. Maltanova, P. Chulkin, T. Gaevskaia, S. Poznyak
	P2-37	Quantization Conductivity of Surface Electrons over Superfluid Helium at the Charged Substrate Channels	V. A. Nikolaenko, A.V. Smorodin, S.S. Sokolov
	P2-38	Thermo-Effect at Transition Surface Electron - Surface Polaron over Helium Film Covering Structured Substrate	V.A. Nikolaenko, A.V. Smorodin, E.Ya. Rudavskii

**THURSDAY, SEPT. 9<sup>TH</sup>, 2021****POSTER SESSION # 3****NANOBIOMEDICINE – NANOSENSORS - MISCELLANEOUS TOPICS****CONFERENCE HALLS LAS VEGAS & CHICAGO****9:00 AM - 11:00 AM**

ID	No	Title	Authors
3498	P3-1	The Evaluation of Antibody Immobilization on Surface of Nanoparticles	A. Popov, V. Lisyte, E. Bucmys, A. Kausaite-Minkstimiene, A. Ramanaviciene
3574	P3-2	Free Radical Scavenging Properties of the Novel Graphene-Based Nano-Antioxidants	K. Voitko, S. Zhuravskiy, A. Grinko
3597	P3-3	Cardioprotective Effect of Graphene Oxide Pretreatment Against Reperfusion Injury in Rats	Yu.V. Goshovska, K.V. Voitko, V.F. Sagach
3622	P3-4	Anti-Inflammatory and Anti-Anemic Properties of Nanocomplex Based on C60 Fullerenes and Pyrrole Core Under Acute Ulcerative Colitis in Rats	I. Byelinska, H. Kuznietsova, N. Dziubenko, Yu. Savych, D. Milokhov, O. Khilya, T. Rybalchenko
3869	P3-5	Combination of silver nanoparticles and chlorhexidine for infected wound treatment	M. Vielikov, M.-T. Christova
3766	P3-6	Morphology of Nanocrystalline Calcifications of Ovarian Tumors	R. Chyzhma, A. Piddubnyi, A. Stepanenko, S. Danilchenko, R. Moskalenko
3824	P3-7	Composition and Structure of Meningioma Psammoma Bodies	A. Denysenko, A. Piddubnyi, Ye. Kuzenko, O. Pylypenko, R. Moskalenko
3729	P3-8	Insect Chitin Nanofibers for Medical Application: Obtaining and Characterization	O. Kalinkevich, Ye. Zinchenko, D. Sofronov, T. Markina, A. Sklyar, A. Kalinkevich, V. Chivanov, M. Pakhucha, A. Gudakov, S. Danilchenko, V. Starikov
3844	P3-9	The Kinetic of Silver Ions Release from Nanoparticles and Influence of Ultrasound Treatment	S. Bolshanina, O. Radchenko, A. Yanovska, Yu. Varava, K. Diedkova, K. Zaitseva
3862	P3-10	Nanocrystalline Graphite-based pH-sensitive Stretch Electrodes	F. Ortenzi, D. Zappi, M.T. Giardi, M.M. Ramma, I. Iatsunskiy
3863	P3-11	Safety and Antibacterial Effectiveness of Gold/Selenium Core-shell Nanoparticles	D. Maksymov, O. Mishchenko

ID	No	Title	Authors
3865	P3-12	Titanium Suboxide Based Self-heating Gas Sensor for Detection of VOC's	S. Ramanavicius, A. Tereshchenko, R. Karpicz, V. Ratautaite, U. Bubniene, A. Maneikis, A. Ramanavicius, A. Jagminas
3861	P3-13	Design of Immunosensors for Sensitive Detection of Biomarkers	A. Ramanaviciene, A. Kausaite-Minkstimiene, A. Popov, B. Brasiunas, I. Plikusiene, A. Ramanavicius
3710	P3-14	Development of Arginine Deiminase Based Conductometric Biosensor for Arginine Determination	O. Soldatkin, I. Kucherenko, O. Sayapina, S. Marchenko, A. Soldatkin, S. Dzyadevych
3750	P3-15	Semiconducting Oxide - Based Micro- and Nano-Sensors for Environmental and Biomedical Monitoring	O. Lupan, N. Magariu, N. Ababii, T. Zadorojneac, H. Krüger, M.T. Bodduluri, T. Pauporté, R. Adelung, S. Hansen
3783	P3-16	Conductometric Biosensor Based on Butyrylcholinesterase for Determination of Toxic Substances in Water Samples	V. Pyeshkova, O. Soldatkin, T. Velychko, V. Arkhypova, S. Dzyadevych, A. Soldatkin
	P3-17	Recent Progress in the Development of Microorganism-based Biofuel Cells	A. Ramanavicius, K. Blazevic, E. Andriukonis, S. Ramanavicius, R. Celiesiute-Germaniene, A. Kisieliute, U. Samukaite-Bubniene, A. Ramanaviciene
3570	P3-18	Physico-Geometric Approach to the Processes of Thermal Decomposition of the Guinea Fowl (Numida meleagris) Eggshell's Bionanocomposites	O.G. Bordunova, Ye.A. Samokhina, R.V. Dolbanosova, L.S. Patryeva, N.V. Cherniy, O.O. Chekh, V.B. Loboda, S.M. Danilchenko, V.D. Chivanov
3698	P3-19	New Process for Nitriding Steel Parts	V. Tarelnyk, O. Gaponova, V. Martsynkovskyy, Ie. Konoplianchenko, V. Melnyk, V. Vlasovets, M. Mikulina, S. Bondarev, O. Vasilenko, S. Hudkov, A. Kutakh, G. Golovchenko
3699	P3-20	New Method for Nitrocarburizing Steel Parts	V. Tarelnyk, O. Gaponova, B. Antoszewski, Cz. Kundera, V. Martsynkovskyy, Ie. Konoplianchenko, V. Melnyk, V. Vlasovets, M. Dovzhyk, M. Zenkin, A. Zahorulko, N. Tarelnyk, A. Polyvanyi

ID	No	Title	Authors
3777	P3-21	Innovative Way of Joining of Dissimilar Materials	M. Kovalchuk, M. Iurzhenko, O. Masiuchok
3800	P3-22	Influence of Shell's Organic Components on the Structure and Characteristics of Nanopores in Organic-Mineral Fertilizers	A. Yanovska, S. Vakal, V. Vakal, V. Shkola, T. Dychenko, A. Artyukhov
3592	P3-23	Hierarchical Zeolites as Catalyst for Gewald Process	M. Kurmach, K. Konysheva, O. Shvets
3726	P2-24	Nanostructure Formation on ZnSe Crystal Surface by Electrochemical Etching	I. Bohdanov, Ya. Suchikova, S. Kovachov, A. Dauletbekova, A. Usseinov, A.I. Popov
3782	P2-25	Influence of Hydrogen on Polyethylene	M. Kovalchuk, M. Iurzhenko, V. Kondratenko
3581	P3-26	A New Method for Determining the Quality of Bionanocomposite Layers of Chicken Eggshells	O. Bordunova, Ye. Samokhina, R. Dolbanosova, V. Opara, V. Chivanov, V. Loboda, Yu. Shchepetilnikov, T. Chernyavska, O. Chernenko
3533	P3-27	Nanostructured Surface Modification of AISI 304 Stainless Steel by Laser Shock Peening Followed by Ultrasonic Impact Peening	D. Lesyk, H. Soyama, V. Dzhemelinskyi, S. Voloshko, B. Mordyuk, O. Lymar
3590	P3-28	Enhancing Properties of TiZrHfNbTa Alloy by Surface Layers Nanostructuring Using Cryogenic Ultrasonic Impact Treatment	B. Mordyuk, N. Khripta, V. Odnosum, S. Kedrovsky, L. Zhao, D. Lesyk
	P3-29	Anodic Oxide Coatings on TiZrNb Alloy for Medical Application	O. Ovchynnykov, O. Kapustian, O. Mishchenko
3603	P3-30	Structure Features of Surface Layers in Structural Steel after Laser-Plasma Alloying with 48(WC-W2C) + 48Cr + 4Al Powder	O. Berdnikova, O. Kushnarova, A. Bernatskyi, Ye. Polovetskyi, V. Kostin, M. Khokhlov
3686	P3-31	Investigation of Transient Boiling Regime of Water and Nanofluids Heated to Saturation Temperature Using CFD Simulation (ANSYS Fluent)	E. Strativnov, G. Nie
3765	P3-32	Chemical Welding of Novel Epoxy Nanocomposites	A. Vashchuk, S. Motrunich, M. Iurzhenko

**E-POSTERS SESSIONS****Monday - Wednesday – Thursday****6:00 PM – 8:00 PM****(in Zoom)**

ID	No	Title	Authors
3487	eP-Th1	Deposition of a Nanostructured Au-Pt Binary System by Pulse Electrolysis in DMSO Medium	O. Dobrovetska, O. Kuntiy, S. Korniy
3489	eP-Th2	Features of the Formation Processes of Three-Dimensional Cross-Linked Hybrid Organic-Inorganic Polymers Based on Oligophenolates of Vanadium, Iron, and Copper	E. Pashchenko, D. Savchenko, S. Kukharenko, O. Kaidash, Yu. Romanenko, Ye. Potipaka
3496	eP-M1	Anti-corrosion Properties of Ions Modified Zeolite	M.-O. Danyliak, O. Khlopyk, I. Zin, S. Korniy, M. Holovchuk
3501	eP-W1	Hexaphenanthrenyl-Terminated Iron, Ruthenium, and Cobalt(II) Clathrochelates Designed for Efficient Electrocatalytic Hydrogen Production	N. Chornenka, A. Pushkarev, S. Grigoriev, V. Kalinichenko, A. Belov, Ya. Voloshin
3507	eP-M2	Effect of Ion Bombardment and Deposition Temperature on Intrinsic Stress and Growth Rate of Diamond Like Coatings	A. Kalinichenko, V. Strel'nitskij
3516	eP-Th3	Regularities of Obtaining Silver Nanoparticles in the Presence of Polyvinylpyrrolidone and their Use in Osteoplastic Composites	G.D. Dudok, N.B. Semenyuk, K.V. Kysil, I. Ilkiv, V.Y. Skorokhoda
3518	eP-Th4	Influence of $\text{Cu}^{+2}/\text{Ag}^{+}$ Cationic Substitution on Electrical Properties of Ceramics Based on $(\text{Cu}_{1-x}\text{Ag}_x)_7\text{GeSe}_5\text{I}$ Nanopowders	I. Shender, V. Studenyak, A. Pogodin, M. Filep, T. Malakhovska, O. Kokhan, I. Studenyak
3520	eP-Th5	Lightweight Flexible Biodegradable Thin-Film Thermoelectric Module Based on Thin Films of CuI and Nanocellulose	V.A. Barbash, O.V. Yashchenko, N.P. Klocho, K.S. Klepikova, V.R. Kopach, D.O. Zhadan, A.L. Khrypunova, S.I. Petrushenko, S.V. Dukarov, V.M. Sukhov
3522	eP-W2	Transport of Suspended Nanoparticles in an Alternating Gradient Magnetic Field	A.T. Liutyi, V.O. Moskalenko, T.V. Lyuty, S.I. Denisov
3528	eP-Th6	Biodegradable Nanostructured Nerve Conductors: Electrical Properties And Adsorption Kinetic Models	M. Kumeda, L. Sukhodub, L. Sukhodub, O. Potapov, O. Tsyndrenko, O. Kmyta



ID	No	Title	Authors
3532	eP-M3	Copper Nanostructures at their Thermal Deposition on the Silicon Single Crystal Surfaces	V. Karbivskyy, S. Smolyak, L. Karbivska, A. Romansky
3540	eP-M4	Effect of Lead and Bismuth on the de-Wetting of Continuous Argentum Films	V. Sukhov, R. Sukhov, A. Nevgasimov, Z. Bloshenko, S. Dukarov, S. Petrushenko
3544	eP-W3	Influence of Temperature Annealing on Structural and Substructural Properties of Heterojunction ZnO / Cu <sub>2</sub> ZnSnS <sub>4</sub> Obtained by Spraying Nanoinks	M. Yermakov, O. Dobrozhan, S. Kakherskyi, R. Pshenychnyi, A. Opanasyuk
3546	eP-W4	Formation of Meso- and Nano-scale Patterns on Films Surface of the Ge-Se System by Electron Beam	V.S. Bilanych, A. Feher, O. Shylenko, V.V. Bilanych, V. Komanicky, V.M. Rizak
3554	eP-W5	Magnetoresistance of Carbon Nanotubes Filled by Iron	I.V. Ovsiienko, G.V. Saenko, L.Yu. Matzui, Yu.I. Prylutskyi, T.A. Len, D.O. Shpylka, T.L. Tsaregradskaya, U. Ritter
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