

ABSTRACT BOOK - download

FNMA'22 Conference will be held in Zielona Gora (Poland) on **26-28 September 2022**. For the first time a special session on the science towards industrialization will be included.

The aim of the Conference is to provide an opportunity for a meeting of scientists and technologists working on novel functional and nanostructured materials. This year, the meeting will be extended to the mechanical aspects of materials, metamaterials and nanomaterials.

The conference programme will cover experimental investigations, theory and modelling of:

- Photonic and optoelectronic materials
- Photovoltaics
- Catalytic and photocatalytic materials
- Nano- and Micro-sized materials for electronics
- Magnetoelectronics
- Physics and technology of nanostructured semiconductors and superconductors
- Nanoparticle materials and nanolithography
- Physics and technology of carbon nanotubes and carbon-based materials
- Nanobiotechnology
- Nanotechnology Health & Safety
- Ab initio methods for nanospectroscopy
- Micro/Nano Electro Mechanical Systems (MEMS/NEMS): technology and applications
- Industrial applications of nanotechnology
- Mechanical aspects of materials, metamaterials and nanomaterials
- Magnetic materials and diluted magnetic semiconductors
- Organic, hybrid and composite materials
- Auxetics and other mechanical metamaterials
- Theory of liquid and amorphous alloys
- Structure of disordered systems
- Physical properties of melts and amorphous alloys
- Simulation of structure and physical properties

Main Organizers:



In 2022, the conference is hosted by [the University of Zielona Góra](#) and it is partially supported by the project of the Polish Ministry of Education and Science carried out at the University of Zielona Góra: No. 003/RID/2028/19 under the program “Regional Initiative of Excellence” in 2019–2023, funding amount PLN 11 936 596.10.



[Institute of Nanotechnology and Materials Science, Gdansk University of Technology, Poland](#)



[Institute of Physics, Faculty of Mechanical Engineering and Mechatronic, West Pomeranian University of Technology, Szczecin, Poland](#)



[Department of Solid State Physics, Faculty of Physics, University of Athens, Greece](#)



[The Gdansk Branch of the Polish Physical Society](#)



[Institute of Molecular Physics, Poznan, Poland](#)



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In cooperation with:



[TASK - Academic Computer Centre in Gdansk, Poland](#)



[Poznan Supercomputing and Networking Centre, Poland](#)

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Conference programme	
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Monday, 26 September		
09:10-09:30	Coffee	
09:30-09:40	Opening	Prof. Jarosław Rybicki (Gdańsk University of Technology, Poland), Prof. Marcin Mrugalski (Rector for Science and International Cooperation, University of Zielona Góra, Poland)
09:40-11:20	Session 1	Chairman: Prof. Krzysztof W. Wojciechowski
09:40-10:20	plenary lecture	Prof. Joseph N. Grima Title: to be announced
10:20-10:50	invited lecture	Dr. Oliver Duncan Title: Effect of twist on indentation
10:50-11:20	invited lecture	Prof. Konstantin V. Tretiakov Heat conduction of liquid argon in nanochannels and argon nanowires from molecular dynamics simulations
11:20-11:40	Coffee break	
11:40-13:00	Session 2	Chairman: Prof. Konstantin V. Tretiakov
13:40-12:00	invited lecture	Dr. Maciej Sznajder Title: Aging of thin films under interplanetary space conditions
12:00-12:30	invited lecture	Prof. Luke Mizzi Title: SMA-Metamaterial Actuators
12:30-13:00	invited lecture	Prof. Andrzej Sikorski Title: Polymer brushes: new polymeric materials in experiments and simulations
13:00-15:00	Lunch	
15:00-16:15	Session 3	Chairman: Prof. Ruben Gatt
15:00-15:30	invited lecture	Prof. Iwona Pelech CO ₂ sorbents based on spherical carbon and photoactive metal oxides
15:30-16:00	invited lecture	Prof. Ewelina Kusiak-Nejman Cyclic air denoxification utilizing Ag/TiO ₂ -decorated activated carbon fibre-based filtering cloths
16:00-16:15	oral communication	Konrad Sobczuk Title: Structural differences between activated carbon spheres (ACS) obtained in environments with different pH values
16:30-16:45	Coffee break	
16:45-19:05	Session 4	Chairman: Prof. Wiesław Leoński
16:45-17:15	invited lecture	Prof. Zbigniew Ficek Radiative properties of emitters embedded into negative index materials
17:15-17:45	invited lecture	Prof. Nikos Guskos Title: DC Magnetization Hybrid Nanocomposites Containing Nanocrystalline TiO ₂ and Graphene-Related Materials
17:45-18:05	invited lecture	Dr. Jakub Narojczyk Poisson's ratio of hard sphere f.c.c. crystals with selected nanochannel inclusions that preserve cubic symmetry
18:05-18:35	invited lecture	Dr. Tadeusz Miruszewski Title: Electrochemical and thermoelectric properties of mixed-conducting oxides
18:35-19:05	invited lecture	Dr. Sebastian Wachowski Title: Hydration and proton conductivity of ternary transition metal

		oxides
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Tuesday, 27 September		
University-to-Industry knowledge transfer		
09:10-09:30	Coffee	
09:30-09:35	Opening	Prof. Mirosław R. Dudek, Prof. Justyna Patalas-Maliszewska
09:35-11:40	Session 5	Chairman: Prof. Justyna Patalas-Maliszewska
09:35-10:00	invited lecture	Prof. Jarosław Rybicki Title: Polish Bridges
10:00-10:20	oral communication	Prof. Radosław Maruda, MSc. Natalia Szczotkarz Title: Analysis and improvement of production processes
10:20-10:40	invited lecture	Dr. Duc Tran Title: Conception of a big data architecture to optimize and make automobile production more flexible
10:40-11:00	oral communication	Dr. Remigiusz Romankiewicz, Dr. Paweł Schlafka Title: Mechanical properties of silumin AlSi11 in relation to structure changes after modification
11:00-11:20	oral communication	Prof. Piotr Kuryło, Dr. Edward Tretel Title: 3D printing laboratory
11:20-11:40	oral communication	Prof. Sławomir Kłos Title: Material Research Engineering Laboratory
11:40-12:00	Break	
12:00-13:00	Lunch	
13:00-14:00	Transfer to "Winny Dworek" Górzynkowo near Zielona Góra	
14:00-14:30	Opening	Prof. Wojciech Strzyżewski (Rector of the University of Zielona Góra, Poland), Prof. Michał Banaszak (Rector for Digitization and Business Cooperation, Adam Mickiewicz University, Poznań), Prof. Grzegorz Królczyk (Rector for Science and Development, Opole University of Technology, Opole), Prof. Marcin Mrugalski (Rector for Science and International Cooperation, University of Zielona Góra, Zielona Góra)
14:30-17:00	Session 6	Chairman: Prof. Andrzej Drzewiński
14:30-14:50	lecture	Prof. Justyna Patalas-Maliszewska Title: The needs of manufacturing enterprises in the Lubuskie - RID project results
14:50-15:20	invited lecture	Dr.-Ing. Holger Schlegel, Dr.-Ing. Matthias Rehm Title: Good examples cooperation TU Chemnitz with the industry the field mechanical engineering
15:20-15:40	invited lecture	Włodzimierz Fleischer, Prof. Katarzyna Cheba Title: Activities of the metal cluster
15:40-16:00	lecture	Dr. Wojciech Babirecki Title: Good examples of cooperation with the industry University of Zielona Góra in the field mechanical engineering
16:00-17:00	invited lecture	Prof. Andrzej Sikorski Title: Fryderyk Chopin and his family
18:00-20:30	Gala dinner	

Wednesday, 28 September		
09:10-09:30	Coffee	
09:30-11:20	Session 7	Chairman: Prof. Luke Mizzi

09:30-10:10	plenary lecture	Prof. Krzysztof W. Wojciechowski Extremely non-trivial effects in some almost trivial models
10:10-10:40	plenary lecture	Prof. Ruben Gatt Title: Auxetic metamaterials: Negative Poisson's ratio in high pressure crystals
10:40-11:00	lecture	Dr. Krzysztof K. Dudek Title: Microscopic Auxetic Hierarchical Mechanical Metamaterials showcasing tunable Mechanical Properties and Shape Morphing
11:00-11:20	invited lecture	Dr. Szymon Winczewski Title: A new approach to simulating the deposition of thin films realistically by combining Molecular Dynamics and time-stamped force-bias Monte Carlo methods
11:20-11:30	Coffee break	
11:30-13:00	Session 8	Chairman: Prof. Zbigniew Ficek
11:30-12:00	plenary lecture	Prof. Jan Perina Jr. Title: Randomly poled nonlinear crystals as a source of photon pairs
12:00-12:20	invited lecture	Prof. Wiesław Leoński Title: Transfer of quantum steering along two non-interacting oscillatory chains
12:20-12:40	lecture	Dr. Joanna Kalaga Title: Entanglement generation via a series of external pulses in a system of nonlinear coupler
12:40-13:00	invited lecture	Prof. Maria Przybylska Dynamics of electric dipole in non-homogeneous electromagnetic fields
13:00-15:00	Lunch	
15:00-16:35	Session 9	Chairman: Prof. Maria Przybylska
15:00-15:30	invited lecture	Prof. Michał Banaszak Title: to be announced
15:30-16:00	invited lecture	Prof. Bohdan Padlyak Title: Spectroscopic and luminescent properties of the Pr-doped and Pr-Ag co-doped glasses with Li ₂ B ₄ O ₇ basic composition
16:00-16:20	invited lecture	Dr. Marcin Łapiński Title: Thermal dewetting as a method for the manufacture of nanoalloys and nanocomposites
16:20-16:35	oral communication	MSc. Dunc Trong Title: A comprehensive study on the mechanical properties of 2D epoxy materials by the Monte Carlo simulation method
16:35-16:50	Coffee break	
16:50-18:30	Session 10	Chairman: Prof. Nikos Guskos
16:50-17:10	lecture	Prof. Mirosław R. Dudek Title: Magnetic nanoparticles in a thin elastic film for detecting mechanical deformation
17:10-17:30	lecture	Prof. Andrzej Drzewiński Effect of sonication treatment on the distribution of the nanoparticle agglomerates dispersed in an aqueous suspension
17:30-17:50	lecture	Dr. Maciej Marć Thin layer of Fe ₃ O ₄ magnetic nanoparticles
17:50-18:10	lecture	Dr. Wiktor Wolak Modeling the interactions of magnetic nanoparticles in an aqueous solution
18:10-18:30	lecture	Dr. Yulia Nykyruy Self-organization in amorphous-nanocrystalline Fe-based alloys induced by pulsed laser heating and Joule heating

Important Deadlines

Important Deadlines

- registration and abstract submission: **10 August 2022**
- abstract acceptance: **12 August 2022**

Fees and payment	
The conference is supported by the project of the Polish Ministry of Education and Science carried out at the University of Zielona Góra: No. 003/RID/2028/19 under the program “Regional Initiative of Excellence” in 2019–2023, funding amount PLN 11 936 596.10.	
No conference fee!	

Accommodation during the conference	
The accommodation during the Conference will be: GRAPE TOWN HOTEL al. Wojska Polskiego 79 65-762 Zielona Góra The address of the Conference Center where the conference will take place is the following: Biblioteka Uniwersytetu Zielonogórskiego al. Wojska Polskiego 71 65-762 Zielona Góra	

[FNMA'21, 4-11 September 2021, Paralia Katerinis, Greece](#)

[FNMA'19, 31 August - 7 September 2019, Athens and Agi Teodori, Greece](#)

[FNMA'18, 1-8 September 2018, Paralia Katerinis, Greece](#)

[FNMA'17, 25-29 September 2017, Lviv and Yaremche, Ukraine](#)

[FNMA'16, 26-30 September 2016, Swornegacie, Poland](#)

[FNMA'15, 6-10 September 2015, Zakynthos Island, Greece](#)

[FNMA'14, 1-5 September 2014, Camerino, Italy](#)

[FNMA'13, 8-12 September 2013, Poros Island, Greece](#)

[FNMA'12, 23-27 September 2012, Aegina Island, Greece](#)

[FNMA'11, 6-9 September 2011, Szczecin, Poland](#)

[FNMA'10, 16-20 July 2010, Malta](#)

[FNMA'09, 27-30 September 2009, Sulmona-L'Aquila, Italy](#)

[FNMA'08, 1-6 September 2008, Lviv, Ukraine](#)

[FNMA'07, 1-6 September 2007, Gdansk, Poland](#)