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INSTITUTE OF SOLID STATE PHYSICS  
UNIVERSITY OF LATVIA



FUNCTIONAL MATERIALS  
& NANOTECHNOLOGIES

12th International Scientific Conference on  
Functional Materials and Nanotechnologies

**FM&NT-2018**

October 2- 5, 2018,  
Riga, Latvia

**PROGRAM**



## WELCOME MESSAGE TO FM&NT-2018 PARTICIPANTS



DEAR COLLEAGUES,

It is my great pleasure to welcome you at the 12th International Conference Functional Materials and Nanotechnologies (FM&NT), and to Riga.

In 2018, Latvia celebrates a hundred years since it became an independent state. Our neighbours - Estonia and Lithuania – are celebrating their centenaries of statehood as well. With festivities at home and all around the world, the Baltic countries will present the best they can offer in culture, lifestyle, and innovation. The arranged FM&NT-2018 conference on advanced materials and nanotechnologies falls under materials scientist's contribution in this year of the Baltic countries national anniversaries.

This conference is a continuation of annual meetings, first of which was organized in 2006 by the Institute of Solid State Physics, University of Latvia (ISSP UL) in Riga. Since 2013 FM&NT conferences turned over a new page – becoming a common conference of all three Baltic countries. Now it is being organized periodical by the ISSP of University of Latvia, University of Tartu, and Vilnius University. FM&NT is also a tribute to 40ty year jubilee of the ISSP UL and Centenary celebration of the University of Latvia in 2019. The purpose of the conference is to bring together materials scientists, physicists, chemists, research staff, engineers, as well as experts in a wide range of the most demanding application areas, and students from universities, research institutes and related industrial companies. The conference topics include: Optical materials; Nanocomposites and ceramics; Thin films and coatings; Energy harvesting and storage; Electronic and photonic devices and yet more. 6 plenary talks, 19 invited talks, 37 oral presentations and over 130 posters of high scientific quality will be given at the conference. The joint event will also provide a platform for the future collaboration promoting interdisciplinary research.

The FM&NT-2018 conference will take place in Radisson Blu Latvia Conference & Spa Hotel in Riga. The Conference dinner and excursion will be held in Riga Motor Museum. The museum showcases more than a hundred unique antique vehicles and the collection is enriched with several significant acquisitions. Exploration the world of vehicles and their history of development could have some added scientific value for participants, e.g. to rouse new ideas on development of automotive batteries or other accessories, sensors and actuators for diagnostics and for realizing artificial intelligence prospects.

I wish to thank International Organizing and Program Committees, as well as Local Committees members for hard working preparing the Conference.

Thank you all for coming and I wish you most successful and pleasurable conference!

A stylized, handwritten signature in blue ink, consisting of several loops and a long horizontal stroke.

Andris Sternberg,  
Chairman of FM&NT-2018  
Institute of Solid State Physics, University of Latvia, Riga, Latvia



# SCIENTIFIC TOPICS OF THE FM&NT-2018

## THEORY:

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Theory and computational material science by atomistic scale modelling of technologically important materials and devices

## FUNCTIONAL MATERIALS:

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Functional (inorganic, organic and hybrid) materials for electronics and photonics

## NANO:

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Progressive methods, technologies and design for production, investigation of nano - particles, tubes, composites, core-shell structures; 3-D printing, thin films and coatings

## ENERGY:

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Perspective materials and technologies for harvesting and storage of renewable energy: hydrogen, fuel cells, photovoltaics, piezoelectric, thermoelectric, LED and OLEDs, and developing of diverse energy systems.

## LIST OF PREVIOUS FM&NT CONFERENCES

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Riga (Latvia)	2006	
Riga (Latvia)	2007	
Riga (Latvia)	2008	
Riga (Latvia)	2009	
Riga (Latvia)	2010	
Riga (Latvia)	2011	
Riga (Latvia)	2012	
Tartu (Estonia)	2013	
Riga (Latvia)	2014	Joint RCBJSF and FM&NT Symposium
Vilnius (Lithuania)	2015	
Tartu (Estonia)	2017	

# FM&NT-2018 COMMITTEES

Conference Chairman: Dr.habil. Andris Sternberg

## FM&NT INTERNATIONAL ORGANIZING COMMITTEE

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- Prof. Jūras Banys, Lithuania
- Prof. Antonio Bianconi, Italy
- Prof. emeritus Niels Egede Christensen, Denmark
- Prof. Robert Evarestov, Russia
- Prof. Claes-Göran Granqvist, Sweden
- Prof. Marco Kirm, Estonia
- Dr. Jiri Kulda, France
- Prof. Ergo Nõmmiste, Estonia
- Dr. Toomas Plank, Estonia
- Dr. Martins Rutkis, Latvia

## FM&NT PROGRAM COMMITTEE

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**Chairman:** Dr. Anatolijs Šarakovskis

- Dr. Donats Erts
- Dr. Larisa Grigorjeva
- Dr. Līga Grīnberga
- Prof. Mattias Hammar
- Prof. Eugene Kotomin
- Dr. Alexei Kuzmin
- Dr. Anatoli Popov
- Dr. Juris Purāns
- Dr. Linards Skuja
- Dr. Krisjanis Smits
- Dr. Andris Sternberg
- Dr. Qin Wang

## LOCAL COMMITTEE

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**Chairlady:** Dr. Līga Grīnberga

Anatolijs Šarakovskis, Jurgis Grūbe, Elina Pavlovskā, Līga Klēbaha, Anna Grūbe, Inga Jonāne, Ivita Bite, Arturs Cintiņš, Ingars Lukoševičs, Inese Takere, Raitis Siatkovskis

Committees sincerely hope that the FM&NT-2018 conference will give all the participants new insights into the wide spread development of functional materials and nanotechnologies, will enhance the circulation of information released at the meeting, and will bring new friends, contacts and common projects!

**Thank you all for coming and we wish you successful and enjoyable conference.**

## USEFUL CONTACT PHONES

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Conference chairman: Dr.habil.phys. Andris Sternberg (mobile) +371 26183061

Local committee chairlady: Līga Grīnberga (mobile) +371 26415673

**Hotel:**

Radisson Blu Latvia Conference & Spa Hotel +371 67772222

## ORGANIZERS:

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INSTITUTE OF SOLID STATE PHYSICS  
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## PUBLISHERS OF THE CONFERENCE PAPERS:

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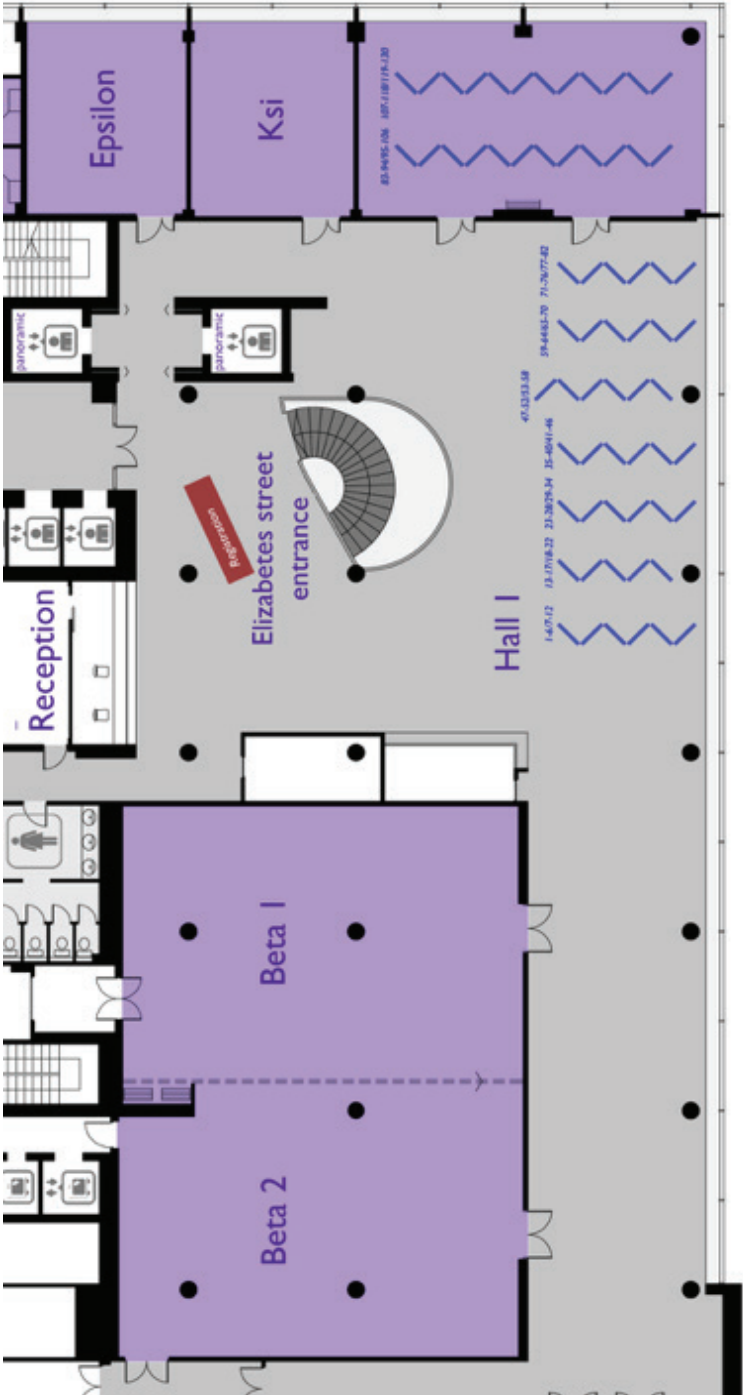
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## FM&NT-2018 AGENDA AT A GLANCE

October 2		
16:00	Registration	<div>Beta hall 2</div>
17:00	Welcome party	
18:30		
<div>Plenary - 50 min</div>		
<div>Invited - 30 min</div>		
<div>Oral - 20 min</div>		
<div>Synchrotron and Neutron facilities</div>		
<div>Radiation effects &amp; Scintillators</div>		
<div>Optical materials</div>		
<div>Thin films</div>		
<div>Ferroelectrics</div>		
<div>Nanocomposites and ceramics</div>		
<div>Electronic, photonic and magnetic materials and devices</div>		
<div>International cooperation projects</div>		
<div>Energy</div>		
<div>Nanomaterials</div>		

October 3		
8:30	Registration	<div>Beta Hall</div>
8:50	Technical information	
9:00	Opening - Conference chairman A.Sternberg, D. Stepanov (Ministry of Education and Science), V. Seglins (University of Latvia), Marco Kirm (University of Tarno), Juras Banys (University of Vilnius)	
9:20	Andreas Schreyer	
10:10	Christina Trautmann	
11:00	Coffee 11:00 - 11:30	
	Beta hall 1	Beta hall 2
11:30	K. Klementiev	11:30 R. Evarestov
12:00	M. Kirm	12:00 Y.Zhydzachevskyy
12:30	A. Frenkel	12:30 V. Nagirnyi
13:00	A. Anspoks	13:00 A. Trukhanov
13:20	M. Klepač	13:20 V. Kuzovkov
13:40	Lunch 13:40 - 14:40	
	Beta hall 1	Beta hall 2
14:40	A. Bagaturyants	14:40 E. Zschech
15:10	M. Popova	15:10 L. Österlund
15:40	I. Norbo	15:40 I. Oja-Aick
16:00	L. Trinkler	16:00 H. Seemen
16:20	J. Spigulis	16:20 M. Zubkins
16:40	Photo & Coffee & Snacks 16:40 - 17:20	
17:20	Poster session 17:20 - 19:00	

October 4		
8:30	Registration	<div>Beta Hall</div>
9:00	Technical information	
9:10	Andrei Khoklin	
10:10	Aharon Gedanken	
10:50	Coffee 10:50 - 11:20	
	Beta hall 1	Beta hall 2
11:20	V. Shur	11:20 A. Kareiva
11:50	V. Shvartsman	11:50 S. Kulcova
12:20	E. Poliova	12:10 A. Antuzevics
12:40	P. Czaja	12:30 E. Rykлина
13:00	P. Ščapov	12:50 I. Khmelevskaya
13:20	R. Egītis	13:10 B. Kodatski
		C. Sakaew
13:50	Lunch 13:50 - 14:50	
	Beta hall 1	Beta hall 2
14:50	J. Banys	14:50 A. Sternberg
15:20	A. Salak	15:30 T. Plank
15:50	O. Malyskhina	15:50 V. Kisand
16:10	E. Makagon	16:10 A. Popov
16:40	Excursion & Conference dinner at the Riga Motor Museum 16:40 - 21:30	

October 5		
8:30	Registration	<div>Beta hall 2</div>
9:00	Coffee 9:00 - 9:30	
9:30	J. Pflaum	9:30 A. Lipovski
10:00	L. Vietra	10:00 M. Chou
10:30	G. Niklasson	10:30 L. Valkunas
10:50	E. Kotomin	10:50 A. Bandura
11:10	A. Yaremchenko	11:10 G. Kunakova
11:30	Y. Zhukovskii	11:30 E. Trukhanova
11:50	R. Bartali	11:50 G. Gorokhov
12:10	Lunch 12:10 - 13:00	
	Beta Hall	
13:00	Majia Kuklja	
13:50	Peter Kazansky	
14:40	Closing - Rector of the University of Latvia, I. Muiznieks, Conference chairman A.Sternberg	
15:00	Goodbye refreshments 15:00 - 16:00	

# International Conference Functional Materials and Nanotechnologies

## 'FMNT – 2018' PROGRAM

**Tuesday, October 2**

16:00 – 17:00	REGISTRATION
17:00 – 18:30	WELCOME PARTY

**Wednesday, October 3**

08:00 – 08:50	REGISTRATION
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### BETA HALL

<b>Beta hall</b>	<b>OPENING</b>
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**Chairperson: Andris Sternberg**

09:00 – 09:05	Andris Sternberg	Chairman of the Conference, Institute of Solid State Physics, University of Latvia
09:05 – 09:10	Dmitrijs Stepanovs	Deputy State Secretary and Director of the Higher Education, Science and Innovation Department at Ministry of Education and Science, Latvia
09:10 – 09:13	Valdis Segliņš	Vice Rector – University of Latvia, Latvia
09:13 – 09:16	Marco Kirm	Professor – Institute of Physics, University of Tartu, Estonia
09:16 – 09:19	Jūras Banys	Professor – Faculty of Physics, Vilnius University, Lithuania

<b>Beta hall</b>	<b>PLENARY SESSION</b>
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09:20 – 10:10	Andreas Schreyer	ESS and Its Contributions to Future Functional Materials and Nanotechnology	PL-1
10:10 – 11:00	Christina Trautmann	Material Science and Nanostructures Produced with GeV Heavy Ions	PL-2
11:00 – 11:30	<b>COFFEE</b>		

### BETA HALL 1

<b>Beta hall 1</b>	<b>SYNCHROTRON AND NEUTRON FACILITIES</b>
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**Chairperson: Jiri Kulda**

11:30 – 12:00	Konstantin Klementiev	MAX IV Laboratory in Lund, Sweden: Research Portfolio, Present Status Expected Performance	INV-1
12:00 – 12:30	Marco Kirm	A Role of Large Scale Facilities in the Development of Novel Functional Materials	INV-2
12:30 – 13:00	Anatoly Frenkel	A Neural Network Approach for Structural Characterization of Metal Nanoparticles and Clusters	INV-3
13:00 – 13:20	Andris Anspoks	Temperature Dependent Local Atomic Structure Studies of Bulk and Nanocrystalline CuO Using X-ray Absorption Spectroscopy	OR-1
13:20 – 13:40	Marcin Klepka	Studies of Non-crystalline Metal-organic Ligand Complexes Using Methodology Based on XAFS	OR-2

**BETA HALL 2**

**Beta hall 2 RADIATION EFFECTS & SCINTILLATORS**

**Chairperson: Eugene Kotomin**

11:30 – 12:00	Robert Evarestov	Theoretical Modeling of Point Defects in Crystals	INV-4
12:00 – 12:30	Yaroslav Zhydashkevskyy	Photoluminescence Quantum Yield as a Test of Quantum Cutting Processes in Down-Converting Phosphors	INV-5
12:30 – 13:00	Vitali Nagirnyi	New Features of Hot Intraband Luminescence for Fast Timing	INV-6
13:00 – 13:20	Alex Trukhanov	New Functional Material for Semiconductor Devices Protection against Electron Radiation	OR-3
13:20 – 13:40	Vladimir Kuzovkov	Understanding of the Kinetics of Defect Annealing in Heavily Irradiated Binary and Complex Oxides – Disorder Effects	OR-4
13:40 – 14:40	<b>LUNCH</b>		

**BETA HALL 1**

**Beta hall 1 OPTICAL MATERIALS**

**Chairperson: Vitali Nagirnyi**

14:40 – 15:10	Alexander Bagatyrants	Theoretical Modelling in Nanophotonics	INV-7
15:10 – 15:40	Marina Popova	Crystals for Optical Quantum Memory	INV-8
15:40 – 16:00	Isabella Norrbo	Luminescence in Synthetic Hackmanites	OR-5
16:00 – 16:20	Laima Trinkler	280 nm Emission Band in LiGaO <sub>2</sub>	OR-6
16:20 – 16:40	Janis Spigulis	Human Skin as an Optical Material	OR-7

**BETA HALL 2**

**Beta hall 2 THIN FILMS**

**Chairperson: Juris Purans**

14:40 – 15:10	Ehrenfried Zschech	Application of X-ray Microcopy in Materials Science and Nanotechnology	INV-9
15:10 – 15:40	Lars Österlund	Novel Self-Cleaning, Air Cleaning and Thermochromic Films for the Built Environment	INV-10
15:40 – 16:00	Ilona Oja Acik	Photocatalytic TiO <sub>2</sub> Thin Films for Air Cleaning Applications	OR-8
16:00 – 16:20	Helina Seemen	The Properties of Atomic Layer Deposited Zirconium and Cobalt Oxide Nanolaminates	OR-9
16:20 – 16:40	Martins Zubkins	Thin Film Deposition by Magnetron Sputtering at Cryogenic Substrate Temperatures	OR-10
16:50 – 17:20	<b>PHOTO &amp; COFFEE &amp; SNACKS</b>		
17:20 – 19:00	<b>POSTER SESSION</b>		

08:30 – 09:00	REGISTRATION		
BETA HALL			
09:00 – 09:10	TECHNICAL INFORMATION		
Beta hall	PLENARY SESSION		
Chairperson: Andris Sternberg			
09:10 – 10:00	Andrei Kholkin	Nanoscale Piezoelectric Materials: Structure, Properties, Applications	PL-3
10:00 – 10:50	Aharon Gedanken	Making the Hospital a Safer Place by the Sonochemical coating of all its Textiles and Medical Devices with Antibacterial Nanoparticles	PL-4
10:50 – 11:20	COFFEE		
BETA HALL 1			
Beta hall 1	FERROELECTRICS		
Chairperson: Juras Banys			
11:20 – 11:50	Vladimir Shur	Shapes of Isolated Domains in Uniaxial Ferroelectrics	INV-11
11:50 – 12:20	Vladimir Shvartsman	Electrocaloric Effect in Barium Titanate Based Ceramics and Single Crystals	INV-12
12:20 – 12:40	Ekaterina Politova	Lead-free Ceramics on the Base of Sodium-Bismuth Titanate and Sodium-Potassium Niobate	OR-11
12:40 – 13:00	Piotr Czaja	Influence of Powder Grinding Time on the Microstructure of the Lead-free $K_{0.5}Bi_{0.5}TiO_3$ Ceramics	OR-12
13:00 – 13:20	Patrik Ščajev	Dispersion Carrier Recombination and Diffusion in $MAPbI_3$ and $MAPbBr_3$ Perovskite Crystals in Wide Excitation Range	OR-13
13:20 – 13:40	Roberts Eglitis	Ab initio Calculations of $ABO_3$ Perovskite (001), (011) and (111) Surfaces, Interfaces and Defects Therein	OR-14
BETA HALL 2			
Beta hall 2	NANOCOMPOSITES AND CERAMICS		
Chairperson: Anatoly Frenkel			
11:20 – 11:50	Aivaras Kareiva	Multicomponent Metal Oxide Systems for Optical and Magnetic Applications	INV-13
11:50 – 12:10	Svetlana Kulkova	Oxygen Diffusion in Ti-Al Alloys	OR-15
12:10 – 12:30	Andris Antuzevics	Electron Paramagnetic Resonance in Glass Ceramics	OR-16
12:30 – 12:50	Elena Ryklina	Effect of Grain Size on Microstructure, Transformation Behavior and Functional Properties of Ti-Ni Shape Memory Alloy	OR-17

Thursday, October 4			
BETA HALL 2			
12:50 – 13:10	Irina Khmelevskaya	Features of Nanostructure and Functional Properties Formation in Ti-Ni SMA by ECAP Method Under Quasi-continuous Mode	OR-18
13:10 – 13:30	Bogdan Kodatski	Nematic Mesomorphous Systems Based on Dispersions of Carbon Nanotubes and Mineral Particles	OR-19
13:30 – 13:50	Charnnarong Saikaew	Influences of Sputtering Process Factors on Wear Resistance of TiN Coated on a Machine Component	OR-20
13:50 – 14:50	LUNCH		
BETA HALL 1			
Beta hall 1	ELECTRONIC, PHOTONIC AND MAGNETIC MATERIALS AND DEVICES		
Chairperson: Andrei Kholkin			
14:50 – 15:20	Jūras Banys	Dielectric Response of the Methylammonium Lead Halide Solar Cell Absorbers	INV-14
15:20 – 15:50	Andrei Salak	Tuneable Magnetic Co(II)-Containing Layered Double Hydroxides	INV-15
15:50 – 16:10	Olga Malyshkina	Determination of the Electron Effective Mass for n-type Germanium by the Low-frequency Impedance	OR-21
16:10 – 16:30	Evgeniy Makagon	Ceria-based electro-chemo-mechanical actuator with Ti/Ce <sub>1-x</sub> Gd <sub>x</sub> O <sub>2-x/2</sub> composite contacts	OR-22
BETA HALL 2			
Beta hall 2	INTERNATIONAL COOPERATION PROJECTS		
Chairperson: Marco Kirm			
14:50 – 15:10	Andris Sternberg	CAMART <sup>2</sup> - Regional Development Opportunity	OR-23
15:10 – 15:30	Toomas Plank	Solar Energy with New Generation Power Electronics Solutions	OR-24
15:30 – 15:50	Kisand Vambola	Baltic TRAM – a Network of Industrial Research Centers Providing Analytical Services for Business Innovation in the Baltic Sea Region	OR-25
15:50 – 16:10	Anatoli Popov	Advanced Materials and Technologies in Fusion Research: An Overview and Some Recent Results from Latvian EUROfusion Laboratory	OR-26
16:40 – 21:30	EXCURSION AND CONFERENCE BANQUET AT THE RIGA MOTOR MUSEUM		

Friday, October 5			
09:00 – 09:30	REGISTRATION & COFFEE		
BETA HALL 1			
Beta hall 1	ENERGY		
Chairperson: Martins Rutkis			
09:30 – 10:00	Jens Pflaum	Low-Dimensional Organic Conductors for Thermoelectric Applications	INV-16
10:00 – 10:30	Luciana Vieira	Functional Materials for the CO <sub>2</sub> -based Electrosynthesis of Ethylene Oxide	INV-17
10:30 – 10:50	Gunnar A. Niklasson	Impedance Spectroscopy of Water Splitting Reactions on Nanostructured Metal-based Catalysts	OR-27
10:50 – 11:10	Eugene Kotomin	First Principles Calculations of Perovskite Solid Solutions for Fuel Cells	OR-28
11:10 – 11:30	Aleksey Yaremchenko	LaNiO <sub>3</sub> -based Oxygen Electrodes for Solid Oxide Electrolysis Cells	OR-29
11:30 – 11:50	Yuri Zhukovskii	First Principles Evaluation of Photocatalytic Suitability of 2H Structured and [0001] Oriented Graphene-like WS <sub>2</sub> Nanosheets and Nanotubes	OR-30
11:50 – 12:10	Ruben Bartali	Hydrogen Production by Water-Hydrolysis using Graphene Powder Coated with Magnesium	OR-31
12:10 – 13:00	LUNCH		
BETA HALL 2			
Beta hall 2	NANOMATERIALS		
Chairperson: Konstantin Klementiev			
09:30 – 10:00	Andrey Lipovskii	Plasmonic Nanoislands on Glass: Formation and Properties	INV-18
10:00 – 10:30	Mitch Chou	Preparation and Characterization of Heteroepitaxial Cu <sub>2</sub> O Thin Film and Devices on Metallic Substrates	INV-19
10:30 – 10:50	Leonas Valkunas	Relaxation Pathways in Semiconducting Carbon Nanotubes	OR-32
10:50 – 11:10	Andrei Bandura	New Three-body Force-field for Calculation of the Thermodynamic Properties of MoS <sub>2</sub> Nanolayers and Nanotubes	OR-33
11:10 – 11:30	Gunta Kunakova	Studies of Magnetotransport and Josephson Supercurrent in Topological Insulator Nanoribbons	OR-34
11:30 – 11:50	Ekaterina Trukhanova	Synthesis and Magnetotransport Properties of the Multilayered Quasi-one-dimensional Nanostructures	OR-35
11:50 – 12:10	Gleb Gorokhov	Carbon Nanotubes vs Graphene Nanoplatelets for 3D-printable Composites	OR-36
12:10 – 13:00	LUNCH		

**BETA HALL**

Beta hall	PLENARY SESSION		
Chairperson: Andris Sternberg			
13:00 – 13:50	Maija Kuklja	Understanding Chemical Reactions Triggered by Defects on Energetic Materials and Interfaces. Insight from Quantum Chemistry	PL-5
13:50 – 14:40	Peter Kazansky	Advancing the art of femtosecond laser writing	PL-6
Beta hall	CLOSING OF THE CONFERENCE		
14:40 – 14:50	Indrikis Muiznieks	Rector of the University of Latvia	
14:50 – 15:00	Andris Sternberg	Chairman of the Conference, Institute of Solid State Physics, University of Latvia	
15:00 – 17:00	GOODBYE REFRESHMENTS		

## POSTER PRESENTATIONS

PO-1	Comparative First-Principles Calculations of ZrS <sub>2</sub> and HfS <sub>2</sub> -based Nanotubes	Anton Domnin
PO-2	Comparative Study of Phonons and Thermodynamic Properties of MoS <sub>2</sub> and WS <sub>2</sub> Nanotubes	Robert Evarestov; Andrei Bandura
PO-3	Atomistic Scale Modelling of Modern Materials using ACELAN Package	Roman Gruzdev
PO-4	The Influence of Impurities on the Formation Energies of Point Defects in Ti-Al Alloys	Alexander Bakulin
PO-5	Influence of Fluorine and Oxygen Adsorption on Electronic Structure of InSb(111) Surface	Artem Fuks
PO-6	CO <sub>2</sub> Adsorption on Mixed Ionic-Electronic Conducting Membranes	Denis Gryaznov
PO-7	Negative Thermal Expansion of ScF <sub>3</sub> : First Principles vs Empirical Molecular Dynamics	Dmitry Bocharov
PO-8	Simulation of the Band Structure and Density of States of the Nanocrystal NaCl	Lyudmila Myasnikova
PO-9	First Principles Calculations for Polar YAlO <sub>3</sub> (001) Surfaces	Roberts Eglitis
PO-10	Quantum Paraelectric State in (Pb <sub>y</sub> Sn <sub>1-y</sub> ) <sub>2</sub> P <sub>2</sub> S <sub>6</sub> Crystals	Ilona Zamaraite
PO-11	Modeling of F-type Centers Thermal Annealing in Neutron Irradiated and Thermochemically Reduced BeO	Vladimir Kuzovkov
PO-12	Lattice Dynamics of White Phosphorus	Janis Brokans
PO-13	Structural and Electronic Properties of pure and Ce <sup>3+</sup> doped $\beta$ -NaYF <sub>4</sub>	Aleksandrs Platonenko
PO-14	Stability and Mechanical Properties of Al <sub>2</sub> O <sub>3</sub> /Ti <sub>3</sub> Al Interface	Sergey S. Kulkov
PO-15	Ab Initio Simulation of (Ba,Sr/Ca)TiO <sub>3</sub> Composite Perovskites	Guntars Zvejnieks
PO-16	Magnetic Properties of Solid Solutions LaGa <sub>1-x</sub> Fe <sub>x</sub> O <sub>3</sub> and LaAl <sub>1-x</sub> Fe <sub>x</sub> O <sub>3</sub> : First-Principles Study	Mariia Sapova
PO-17	Revealing Conduction Pathways in Solid Lithium Electrolytes by Total Scattering X-ray and Neutron Diffraction Measurements Using Molecular Dynamics Simulation and RMCPOW Methods	László Temleitner
PO-18	Dipole-induced Disorder in Quasi-Equilibrium Assemblies	Eugene Kotomin
PO-19	Computer Simulation of Cu <sub>n</sub> @graphene (0001) Nanostructures for the Electrocatalytic Production of C <sub>2</sub> H <sub>4</sub> O	Sergei Piskunov
PO-20	Improved Electrochemical Performances Derived From Synergistic Effect of Reduced Graphene Oxide and TiO <sub>2</sub> /Fe <sub>2</sub> O <sub>3</sub> in Various Proportions Served as Lithium-Ion Battery Anode	Kaspars Kaprans
PO-21	Characteristics of Polymer Electrolyte Membrane Impedance Analysis	Deniss Fedorenko



PO-22	Photo-catalytic and Electro-catalytic CO <sub>2</sub> Reforming – Reactions and Efficiencies in Separate and Combined Processes (Review)	Ainars Knoks
PO-23	Ternary Nafion®-Graphene-Cu Composite for Electrochemical Reduction of CO <sub>2</sub> to Ethylene	Julija Hodakovska
PO-24	1,3-Dimethylimidazolium Dimethyl Phosphate and SPEEK based Composite Proton Conducting Membranes	Marta Kāne
PO-25	Nanostructured Nitrogenated Carbon Materials as Promoters in Hydrogen Energy Technologies	Janis Kleperis
PO-26	Gas Separation Using WO <sub>3</sub> /NiOOH Red-Ox Mediator Pair in Four Electrode, Dual Chamber Electrolysis Cell	Martins Vanags
PO-27	Nanomaterials and Key Technologies for Bio-H <sub>2</sub> Separation	Ilze Dimanta
PO-28	The Impact of Zirconium Phosphate Content on Proton Conductivity of Composite Polymer Electrolyte	Einars Sprugis
PO-29	Preparation of ZnO Modified TiO <sub>2</sub> Nanoporous Coatings and Their Photocatalytic Properties	Reinis Drunka
PO-30	Photonic Sensor for Distinguishing Dead and Alive Bacteria Content for Monitoring of Decontamination Efficiency	Ott Rebane
PO-31	Defects Creation in Undoped and Ce-doped Gd <sub>3</sub> (Ga,Al) <sub>5</sub> O <sub>12</sub> Crystals under Irradiation in the Gd <sup>3+</sup> related Absorption Bands	Svetlana Zazubovich
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