Программа Международной школы для аспирантов и молодых ученых «Установки Мега-класса: синхротронные исследования интеллектуальных материалов» (The International School for Young Researchers «Synchrotron Radiation and Smart Nanomaterials» - IWSN 2023)

In situ diagnostics

Smart materials: Current trends and future prospectives in synthesis

Artificial intelligence, machine learning and supercomputer modelling

(14 сентября 2023, четверг, 09:30-19.00)

Центр наукоемкого приборостроения

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(ведут Солдатов А.В., Муханова Е.А., Турищев С.Ю., Карташов О.О.)

Smart materials: Current trends and future prospectives in synthesis		
Alexander Soldatov, chairman	09:30-10:00	Time, energy and reagents effective synthesis of advanced nanomaterials
Анна Пневская	10:00-10:15	MOFs as ethylene and 1-MCP absorbers for food preservation technologies
Zhengyou Li	10:15-10:30	Physical properties of nanostructured Yb3Fe5O12, YbFeO3 and YbMn1-xFexO3
Vera Butova	10:30-10:45	In situ FTIR spectroscopy as a tool for UiO-66 active sites tracing
Vladimir Polyakov	10:45-11:00	Implementation of microfluidic synthesis technologies to obtain composite based on BaGdF5
Md Hosne Mobarak	11:00-11:15	Alocasia Indica Assisted Green Synthesis of ZnO Nanoparticles for Improved Anti-Microbial Performance
Положенцев Олег	11:15-11:30	Size and Shape-tunable synthesis of doped rare-earth trifluoride nanoparticles

Break 45 minutes		
Smart materials: Current trends and future prospectives in synthesis		
Elizaveta Mukhanova, chairman	12:15-12:45	Biomicrofluidics: current trends and future prospects
Sakthipandi K	12:45-13:00	200 MeV Ag16+ Swift heavy ion irradiation: Effect on structural and magnetic properties of M-type barium hexaferrite
Sergei Chapek	13:00-13:15	3D printed lab-on-a-chip for metal nanoparticles synthesis
Priyadarshani Rajput	13:15-13:30	Advanced silica templated nano spherical particles for photocatalytic hydrogen generation
Lantsova Elizaveta	13:30-13:45	Formation of porous organosilicon matrices using microorganisms as templates
Lunch break 1 hour 30 minutes		
In situ diagnostics		
Sergey Turishchev, chairman	15:15-15:45	Electronic structure and phase composition of Ni rod arrays formed in silicon dioxide matrix by synchrotron spectromicroscopy studies
Sofiia Titova	15:45-16:00	XANES investigation of the effect of the drying method on the composition and structure of porous silicon nanoparticles
Maxim Manyakin	16:00-16:15	TiO2, MnO2 and MoO2 oxides electronic structure: theory and experiment
Iuliia Kakuliia	16:15-16:30	Copper nanocrystals immobilization in porous SiO2 matrix by electron microscopy and synchrotron XANES studies
Victor Roldugin	16:30-16:45	Photo-electrochemical cells for in situ and operando X-ray absorption spectroscopy studies
Polina Rud	16:45-17:00	XANES Investigation of Oxaliplatin Loaded Zr-MOFs
Break 1 hour		
Artificial intelligence, machine learning and supercomputer modelling		
Sergey Abrosimov	18:00-18:15	Quantitative analysis of the local atomic structure of binuclear molecules based on XANES and

		EXAFS domain by machine learning methods
Sergey Soldatov	18:15-18:30	Application of the neural networks for the task of classification of the 2D colored images
Bogdan Protsenko	18:30-18:45	Good Practice In XAS: Experimental Libraries, Interpretable Machine Learning And User-Friendly Frontend Of The Spectroscopy Ultimate Tool,
19:00 – 20:00 dinner		

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(15 сентября 2023, пятница, 09:30-17:00)

Центр наукоемкого приборостроения

(ведут Бухтияров А.В., Томилин Ф.Н., Турищев С.Ю., Поляков В.А.)

In situ diagnostics

Smart materials: Current trends and future prospectives in synthesis

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In situ diagnostics		
Andrey Bukhtiyarov, chairman	09:30 – 10:00	Current progress of the SRF «SKIF» project
Mikhail Soldatov	10:00-10:15	Local atomic and electronic structure of magnetic nanoparticles revealed by synchrotron methods
Alexander Guda	10:15-10:30	Investigation of Rh/NR3 catalytic systems in sequential stages of reductive hydroformylation engaging in situ X-ray absorption spectroscopy
Alexander Zagrebaev	10:30-10:45	Synthesis and diagnostic analysis of NBF-substituted dihydroberberine derivatives using microfluidic techniques
Maksim Gritsai	10:45-11:00	Microfluidic synthesis of magnetic nanoparticles
Break 45 minutes		
In situ diagnostics		
Felix Tomilin, chairman	11:45-12:15	Synergy of SAXS and Molecular Modeling for DNA Aptamer Bioapplications
Anna Kichkailo	12:15-12:30	Three-dimensional structure determination of DNA

		oligonucleotides by Small-angle X-ray scattering
Shapovalov Viktor	12:30-12:45	In situ UV-Vis and SAXS screening of Ag nanoparticles synthesis parameters using 3d-printed microfluidics and machine learning
Andrei Tereshchenko	12:45-13:00	Monitoring of 1-octene and bis(trimethylsiloxy)methylsilane conversion in the hydrosilylation reaction in the flow mode by in situ Raman spectroscopy
Lunch break 1 hour 30 minutes		
Стендовая сессия Vladimir Polyakov, chairman		
Carol Yazbleydy Cárdenas Rodriguez	Controllable modular growth of Quantum Dot on metal organic framework Disposition	
Polina Kuznetsova	New routes of synthesis for tungsten-unithiol complex	
Nikolay Boykov	Epitaxial Sn-Si ultrathin nanolayers structure by synchrotron study	
Maria Muratidi	Loading of D,L-cysteine into biocompatible Zr-MOFs	
Evgeniy Belikov	X-ray and electron spectroscopy and microscopy studies of the biohybrid material based on E.coli cells	
Kirill Volik	Local structure in Eu-doped CaWO4	
Valeria Shevchenko	Phytotoxocity of nanomaterials	
Olga Burachevskaya	Nanocomposite core-shell structures of the UiO-66 family for biomedical applications	
17:00 – 18:30 dinner		