

CMR@IBR2 2022 Scientific Programme

The conference will be held online via Video conference.

Monday, April 25, 2022

INTRODUCTORY SESSION

Chair: Kozlenko D.

- 10.00 – 10.20 Opening and Welcome (Shvetsov V.)
- 10.20 – 10.50 **Invited: Shvetsov V.** (FLNP JINR, Russian Federation).
Current Status and Upgrade Plans of the IBR-2 Pulsed Reactor.
- 10.50 – 11.20 Kozlenko D. (FLNP JINR, Russian Federation).
Neutron scattering instrumentation for condensed matter research at the IBR-2 pulsed reactor: current state and further developments.
- 11.20 – 11.50 **Invited: Korsunsky A.** (University of Oxford, United Kingdom/Skolkovo Institute of Science and Technology, Russian Federation)
Deep insights into hierarchical material structures with penetrating beams: neutrons, X-rays, and electron microscopies.
- 11.50 – 14.30 Lunch

PLENARY SESSION 1: FUNCTIONAL AND NANOSTRUCTURED MATERIALS

Chair: Balagurov A.

- 14.30 – 15.00 **Invited: Streltsov S.** (IMP UB RAS, Russian Federation)
The spin-orbit coupling and magnetic and structural properties of transition metal compounds: novel effects.
- 15.00 – 15.20 Turchenko V. (FLNP JINR, Russian Federation)
Temperature dependence of spontaneous polarization in barium hexaferrite.
- 15.20 – 15.40 Lushnikov S. (MSU, Russian Federation)
Structure of RNi₃ (R-Ce, Ho)-based intermetallic hydrides with different anisotropy of the lattice at 5 K and 293 K temperatures.
- 15.40 – 16.00 Titova S. (IMET UB RAS, Russian Federation)
Pressure dependence of phase transitions in double manganite PrBaMn₂O₆.
- 16.00 – 16.20 Lis O. (FLNP JINR, Russian Federation)
The pressure effect on the crystal and magnetic structure properties of van der waals material CrBr₃.
- 16.20 – 16.40 Bobrikov I. (FLNP JINR, Russian Federation)
Application of neutron diffraction to study the structural features of materials for Na-ion batteries.

Tuesday, April 26, 2022

PLENARY SESSION 1: FUNCTIONAL AND NANOSTRUCTURED MATERIALS

Chair: Avdeev M.

- 10.00 – 10.30 **Invited: Rogozhkin S.** (NRNU “MEPhI”, Russia)
Complementary analysis of nanostructure in structural materials.

- 10.30 – 11.00 **Invited: Lebedev V.** (PNPI NRC “Kurchatov Institute”, Russian Federation)
Effect of lanthanide atoms squeezing in Ln-endofullerenols and their ordering in solutions.
- 11.00 – 11.20 Kulvelis Yu. (PNPI NRC “Kurchatov Institute”, Russian Federation)
Small-angle scattering on proton-conducting membranes with nanodiamonds.
- 11.20 – 11.40 Yerdauletov M. (INP, Kazakhstan)
Nanoscale structure of positive electrodes for Li-ion batteries with carbon-based additives by SANS.
- 11.40 – 12.00 Zelenyak T. (FLNP JINR, Russian Federation)
The influence of ion implantation with Cs⁺ ion to the multilayer structure of perovskite CH₃NH₃PbI₃ materials.
- 12.00 – 12.20 Break

PLENARY SESSION 2: DEVELOPMENT OF NEUTRON SCATTERING TECHNIQUES AND INSTRUMENTS

Chair: Lychagin E.

- 12.20 – 12.50 **Invited: Grigoriev S.V.** (PNPI NRC “Kurchatov Institute”, Russian Federation)
Project of compact neutron source dedicated for academic research and industrial applications DARIA.
- 12.50 – 13.10 Nikitenko Yu. (FLNP JINR, Russian Federation)
Cold neutrons storage for pulsed source.
- 13.10 – 13.30 Hassan A. (FLNP JINR, Russian Federation, NRNU “MEPhI”, Russian Federation)
Cold moderator optimization for IBR-3.

13.30 – 15.00 Lunch

Chair: Altynbaev E.

- 15.00 – 15.20 Churakov A. (FLNP JINR, Russian Federation)
Recent developments of linear position-sensitive neutron detectors in DSC FLNP.
- 15.20 – 15.40 Buchny D. (INR RAS, NRNU “MEPhI”, Russian Federation)
Monte Carlo simulation of a scintillator neutron counter for ring detector array.
- 15.40 – 16.00 Chernikov A.N. (FLNP JINR, Russian Federation)
Refrigerator ³He based on closed cycle cryocooler cooling.
- 16.00 – 16.20 Podlesnyy M.M. (FLNP JINR, Russian Federation)
Prototype of two-dimensional scintillator detector based on ZnS(Ag)/⁶LiF with wavelength-shifting fibers.
- 16.20 – 16.40 Petrova M. (FLNP JINR, Russian Federation)
Status report of developing plate chamber detector with B-10 for thermal neutrons.
- 16.40 – 17.00 Golubev M.A. (PNPI NRC “Kurchatov Institute”, Russian Federation)
4-channel data acquisition device with user web interface for 2D multi-wire proportional chambers with a delay line readout.

- 17.00 – 17.10 Break
17.10 – 19.00 *Poster Session I*

Wednesday, April 27, 2022

PLENARY SESSION 3: SOFT CONDENSED MATTER (BIOLOGICAL NANOSYSTEMS, LIPID MEMBRANES, POLYMERS)

Chair: Kucerka N.

- 10.00 – 10.30 **Invited: Angelova A.** (UPS, France)
Lipid nanocarriers for delivery of natural neuroprotective compounds.
- 10.30 – 10.50 Gorshkova Yu. (FLNP JINR, Russian Federation)
Biohybrid nanocomplexes and their potential application in biomedicine.
- 10.50 – 11.10 Lebedev D. (PNPI NRC “Kurchatov Institute”, Russian Federation)
Supromolecular protein structure formation in animal and human skin investigated by SANS.
- 11.10 – 11.30 Ryzhykau Yu. (MIPT, Russian Federation)
Study of oligomerization polydispersity of methionine gamma-lyase.
- 11.30 – 11.50 Anghel L. (IC, Moldova)
Small-angle scattering structural study of pH effect in beta-lactoglobulin - alginate complexes.
- 11.50 – 12.10 Break

Chair: Gorshkova Yu.

- 12.10 – 12.30 Almasy L. (CER, Hungary)
Structure of aqueous solutions of heterocyclic amines.
- 12.30 – 12.50 Shibaev A. (MSU, Russian Federation)
Responsiveness to hydrocarbons of mixed anionic/cationic wormlike surfactant micelles.
- 12.50 – 13.10 Molchanov V. (MSU, Russian Federation)
Gel-like structures of long mixed wormlike micelles.
- 13.10 – 13.30 Krakovsky I. (Charles University, Czech Republic)
Surfactant-polymer interactions in polymer hydrogels investigated by SANS.
- 13.30 – 15.00 Lunch

Chair: Kuklin A.

- 15.00 – 15.20 Kwiatkowski A. (MSU, Russian Federation)
Structure of beads-on-string complexes formed by ionic surfactant and hydrophobic polymer at low salt content.
- 15.20 – 15.40 Ivanova L. (PNPI NRC “Kurchatov Institute”, Russian Federation)
Evolution of the structure of calcium carbonate precipitates formed in the process of biomineralization.
- 15.40 – 16.00 Skoi V. (FLNP JINR, Russian Federation)
DMPC multi- and unilamellar vesicles under pressure.

16.00 – 16.20	Kruglyak A. (FLNP JINR, Russian Federation) <i>Application of the accelerator mass spectrometry method to study the mechanisms of radiation mutagenesis of rice crops: the current state of the issue.</i>
16.20 – 16.40	Pakhnevich A. (PIN RAS, Russian Federation) <i>Crystallographic texture of the gryphaea dilatata bivalve shells.</i>
16.40 – 17.00	Break
17.00 – 19.00	<i>Poster Session II</i>

Thursday, April 28, 2022

PLENARY SESSION 4: MAGNETIC NANOMATERIALS

Chair: Lebedev V.

10.00 – 10.30	Invited: Kantorovich S. (Vienna University, Austria) <i>Soft magnetic materials: current state and new trends.</i>
10.30 – 10.50	Balasoiu M. (FLNP JINR, Russian Federation) <i>Small-angle neutron scattering investigation of a ferrofluid with anisometric CuFe₂O₄ nanoparticles.</i>
10.50 – 11.10	Chilom C. (University of Bucharest, Romania) <i>Biogenic ferrihydrite nanoparticles - serum proteins complexes as biocompatible systems for medical applications.</i>
11.10 – 11.30	Mistonov A. (SPbU, Russian Federation) <i>Magnetic properties of ordered arrays of iron nanowires: the impact of the length.</i>
11.30 – 11.50	Azarova L. (PNPI NRC “Kurchatov Institute”, Russian Federation) <i>Measurement of the spin-wave stiffness and the energy gap in the magnon spectrum of amorphous ferromagnets by small-angle scattering of polarized neutrons.</i>
11.50 – 12.10	M.V.Avdeev (FLNP JINR, Russian Federation) <i>Structural and magnetic properties of magnetoferritin in various conditions.</i>
12.10 – 12.30	Break

Chair: Bodnarchuk V.

12.30 – 12.50	Zhaketov V. (FLNP JINR, Russian Federation) <i>Reflectometry with nuclear reactions and neutron spin flip in neutron wave.</i>
12.50 – 13.10	Devyaterikov D. (IMET UB RAS, Russian Federation) <i>Observation of helimagnetism in Dy/Ho superlattice via neutron reflectivity measurements.</i>
13.10 – 14.30	Lunch

PLENARY SESSION 5: STRESS AND TEXTURE INVESTIGATIONS OF MATERIALS

Chair: Bokuchava G.

- 14.30 – 15.00 **Invited: Em V.** (NRC “Kurchatov Institute”, Russian Federation)
Stress diffractometry and development prospects.
- 15.00 – 15.20 Vasin R. (FLNP JINR, Russian Federation)
Intrinsic elastic anisotropy of Westerly granite and its evolution due to thermal treatment.
- 15.20 – 15.40 Valkov S. (IE BAS, Bulgaria)
Synthesis, structure and tensile properties of AlMg₅Cr and Al₅Si components produced by wire-arc additive manufacturing.
- 15.40 -16.00 Break

Chair: Ivankina T.

- 16.00 – 16.20 Markova G. (TSU, Russian Federation)
Effect of thermomechanical treatment on the texture and functional properties of powder TiNi.
- 16.20 – 16.40 Zel I. (FLNP JINR, Russian Federation)
Approximation of elastic velocity-pressure relation in rocks.

Friday, April 29, 2022

PLENARY SESSIONS 6: NEUTRON IMAGING AND CULTURAL HERITAGE

Chair: Belushkin A.

- 10.00 – 10.30 **Invited: Sitdikov A.** (A. Kh. Khalikov Institute of Archeology, Tatarstan Academy of Sciences, Russian Federation)
Actual problems of the archaeology of Volga region.
- 10.30 – 10.50 Kichanov S. (FLNP JINR, Russian Federation)
Neutron radiography and tomography at the IBR-2 reactor: the main scientific directions.
- 10.50 – 11.10 Saprykina I. (IA RAS, Russian Federation)
Neutron diffraction as a method of analysis of Samanid silver dirchams from the ancient muroma burial ground Podbolot`ie.
- 11.10 – 11.30 Bakirov B. (KFU, Russian Federation / FLNP JINR, Russian Federation)
A study of antique and medieval coins by non-destructive methods of neutron tomography and diffraction.
- 11.30 – 11.50 Break

PLENARY SESSION 7: APPLICATION OF COMPLEMENTARY TECHNIQUES

Chair: Kichanov S.

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| 11.50 – 12.10 | Doroshkevich A. (FLNP JINR, Russian Federation)
<i>Condensed matter research at the EG-5 accelerator.</i> |
| 12.10 – 12.30 | Savin A. (NIRDTP, Iasi, Romania)
<i>Evaluation of flaw severity in cylindrical products by an electromagnetic method.</i> |
| 12.30 – 12.50 | Steigmann R. (NIRDTP, Iasi, Romania)
<i>Microwave measurements for biological tissues.</i> |
| 12.50 – 13.10 | Workshop closing |