

Information about the department

Department: Accelerated Particles Laboratory (APL) – “LUCh”

Head: Prof A.M. Korsunsky, DPhil DSc

<https://misis.ru/university/struktura-universiteta/centers/k3/xmas/15/>

Field of Science: X-ray studies (diffraction, spectroscopy, radiography and tomography);
Electron and ion microscopy; hydrogen energy materials; carbon materials; porous materials;
catalysis; micromechanics of materials

Topic and Content of Research Project No. 1

Title: Biomaterials and biomedical engineering

Head of Research Project: A.M. Korsunsky

Field of Science: Biomimetic materials, Intelligent Materials, Biomaterials, Polymeric materials,
Bioprinting, Tissue engineering

Working Languages: Russian, English

Goals and Objectives of Research Project: scientific support for the national industry of alternative energy through systematic analysis of the microstructure and micromechanics of materials, including for the storage and conversion of hydrogen.

An arsenal of advanced equipment at the LUCH laboratory includes devices for 2D and 3D visualization of the structure of materials on a scale from millimeters to nanometers, X-ray spectroscopic and diffraction analysis, as well as synthesis and determination of the functional properties of materials. The laboratory infrastructure allows for comprehensive studies of materials and objects, their interactions and effects upon each other.

Job description:

Tasks and objectives in the Research Project: The development of materials for hydrogen storage and conversion (zeolites, metallorganic frameworks, nanoporous polymers, nanoporous carbon architectures). Development of components for proton exchange membrane fuel cells (PEMFC) and electrolyzers.

Salary, position, contract term: lead expert, 3 years

Salary: 250 thousand. rub. per month

Postdoc requirements:

- a) To have a candidate's degree or PhD degree obtained not at NUST MISIS no earlier than 2 (two) years prior to participation in the program;
- b) To have no previous record of studying in the PhD program at NUST MISIS;
- c) To have no an employment relationship with NUST MISIS during the year preceding the program;

d) Age – up to 39 (thirty-nine) years (inclusive) on the date of termination of fixed-term employment with NUST MISIS;

d) Be the author of at least 8 (eight) different publications on the subject of his/her scientific specialization in leading peer-reviewed Russian and foreign scientific journals, published over the past 5 (five) years;

e) To not belong to the category of scientists who are deprived of the right to participate in RSF competitions for a certain period due to their refusal to manage a previously supported project of the RSF and/or due to the early termination of a previously supported project of the RSF by decision of the Board of the Foundation;

To participate in the Program, the candidate must submit 2 (two) recommendations from 2 (two) different leading researchers in the field of his/her scientific specialization. To participate in the program as a postdoc, the candidate must propose a topic that expands the scientific agenda of NUST MISIS; present a research program for the entire period of the planned employment contract, agreed upon by the scientific curator, the head of the program and approved by the head of the strategic project in NUST MISIS.

A postdoc with whom an employment contract has been concluded is required to submit an annual report on the implementation of his/her research program to the NUST MISIS Scientific and Technical Council.

Based on the review of the report, the Scientific and Technical Council makes recommendations on:

- a) continuing the implementation of the research program,
- b) adjusting the research program,
- c) the inexpediency of further implementation of the research program.

Decisions made on the basis of the review of the postdoc's report are formalized in the minutes of the Scientific and Technical Council meeting, and the corresponding extracts from the minutes of the Scientific and Technical Council meetings are transferred by the scientific secretary to the HR department for storage in the employee's personal file in accordance with the established procedure.

In the case specified in subparagraph "c", NUST MISIS may terminate the employment contract with the postdoc in accordance with the procedure established by the Labor Code.

The performance indicators for the implementation of the postdoc's research program are established in the corresponding application of the head of the program

Expected results for the postdoc:

- To publish at least 5 scientific articles in highly rated journals over 3 years
- To contribute to the ongoing development of materials for energy storage and conversion
- To participate in the implementation of English-language training modules in the MISIS educational program