

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY MISIS  
(NUST MISIS)

Division of International Affairs  
E-mail: [mp@misis.ru](mailto:mp@misis.ru)  
Tel.: +7 (499) 230 27 97  
6 Leninsky Prospect,  
Moscow, Russia, 119049

<http://en.misis.ru/academics/programs/>

Quantum phenomena in novel  
electronic materials

Advanced materials manufacturing  
and characterization

Forecasting properties of emerging  
materials

Single-electron devices – physics  
and applications

Advanced Materials Science

Advanced Metallic Materials and  
Engineering

Communications and  
International  
Public Relations

Computer Vision

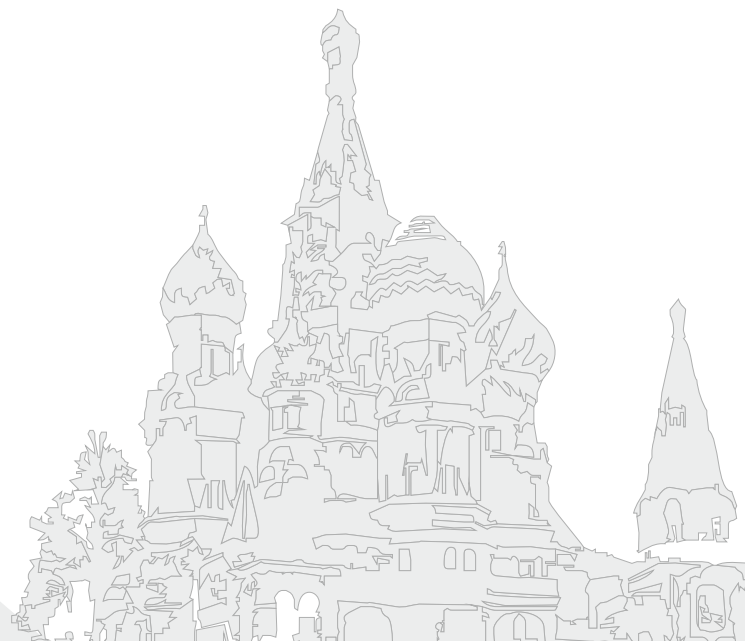
Inorganic Nanomaterials

Multicomponent nanostructured  
coatings. Nanofilms

Nanotechnology and Materials  
for Micro- and Nanosystems

## QUANTUM PHYSICS FOR ADVANCED MATERIALS ENGINEERING

Science and Materials of Solar  
Energy



# Welcome!



## Welcome to the National University of Science and Technology MISiS!

Here you will receive a highly competitive education and practical skills as well as enjoy the friendly and enthusiastic atmosphere of students and a young researcher community. In addition to your studies, you can participate in the numerous exciting extra-curricular activities we offer: sports, theater, music, and more.

We are located in the very heart of Moscow – close to all of its wonders and cultural treasures, granting you convenient access to the historic places of Tolstoy and Dostoyevsky. Plus, intensive Russian language courses are included in our master's programs to help you get the most from your stay and studies in Russia.

# Faculty



Prof. **Sergey I. Mukhin**, Ph.D & D.Sc.

*Consultant at Los Alamos National Laboratory, USA. Guest professor at the Lorentz Institute for Theoretical Physics of Leiden University, Netherlands. Invited research scholar in NASA Projects in Basic Research, University of Maryland at College Park, USA. Former appointments: postdoctoral fellow at Kamerlingh Onnes Laboratory, Netherlands.*

Prof. **Mikhail A. Chernikov**, Ph.D & D.Sc.

*Member of the International Advisory Board of the 12th International Conference on Quasicrystals. Lecturer at the 5th European School in Materials Science. Former appointments: Swiss Federal Institute of Technology, Zurich – research scientist, Texas Center for Superconductivity at the University of Houston, USA – research scholar, Max-Planck Institute of Chemical Physics of Solids, Dresden, Germany – guest scientist.*



Associate Prof. **Natalia E. Kaputkina**, Ph.D & D.Sc.



*Laureate of Associated Professor nomination in Grant of Moscow Competition in Science and Technologies in Education; Laureate of Umberto Grassano's Prize; Member of the Mediterranean Institute of Fundamental Physics.*

# Program

Inspired by the works of Professor A. A. Abrikosov, the Nobel Prize winner, who held the Chair of the Department of Theoretical Physics from 1975 to 1990, we provide a competitive training program in modern Condensed Matter Physics and Materials Science, which includes:

- Electron Theory of Metals
- Modern Quantum Physics of Solids
- Spectroscopic Methods of Materials Characterization
- Technology and Materials of Quantum Electronics
- Physics of Low-Dimensional Systems
- Quantum Confined Semiconductor Heterostructures
- Path Integral Methods in Condensed Matter Physics
- Quantum Electronic Properties of Nanosystems
- Physics of Liquid Crystal Membranes

The new physical phenomena studied in our courses include the effects of size quantization in low-dimensional structures, in particular, the quantum Hall effect, quantum charge fluctuations, the Coulomb blockade, the Landauer quantum conductance of the contacts of atomic size, the Wigner-Dyson statistics of electronic energy levels in nanoclusters, the Rabi oscillations in two-level systems, the spectra of quantum dots, wells and wires in an external magnetic field, and phonons in structurally complex solids.

## Skills and career opportunities

Our graduates pursue challenging career opportunities in Solid State Physics and Materials Science, Soft Condensed Matter Physics, Biophysics and Nanometrology in Russia, European countries, USA and Canada.