

Institute of Physics
Department of Physics
Master degree program
Physics of Magnetic Phenomena

The program is a good platform for the motivated students who want to become professionals in magnetic resonance and its applications in crystal and nanocrystals physics, quantum liquids and superconductor physics, modern materials science. During the studies, students will get involved in international scientific projects and use high-level equipment.

Academic staff

Most of the professors involved in the program have scientific degrees of Doctor of Science and PhD. There are six laureates of State Prize of the Republic of Tatarstan and most of them have been working in the leading Universities of Japan, France, German, Holland, Finland and UK for a long time.

Career opportunities

FMA is a good opportunity to become skillful scientist and make publications in scientific journals. Our master graduates continue their work in KFU, RAS institutes, European, American and Japanese scientific centers.

Partners

RAS institutes, Ecole Normale Supérieure (Paris, France) and Fourier University (Grenoble, France) are partners of FMA.

The learning outcomes of Master's program are:

- 1) Ability of students to work independently in various fields of Physics of Magnetic Phenomena.
- 2) Deep knowledge in the field of magnetic resonance and its applications in various fields of science and modern production/
- 3) Students' active participating in research projects. By the end of the Master's program graduates are able to design and perform PhD research projects.

General courses

- Foreign Language in professional communication
- Academic Writing
- Philosophical Issues of Natural Science
- History and Methodology of Science
- Physics of Non-linear Phenomena
- Magnetic relaxation mechanism
- Vacuum physics
- Special practice work in the stationary electron paramagnetic resonance field
- Actual methods of micro- and spectroscopy of solid bodies
- Spectres of electron paramagnetic resonance
- Special practice work in the impulse electron paramagnetic resonance field

- Theory of Foreign nucleus in crystals

Special courses

- Radio-wave propagation in the random medium/ Radiophysical methods of natural environment investigation/ Quantum theory of magnetism
- Low temperature physics/ Quantum calculations and coupling/Geodesics appliance aspects. Complex informational systems
- Radio telecommunication networks/ Radiophysical methods of substances and materials investigation
- Diagnostics of microprocessor systems / Condensed state physics / Solar-terrestrial relationships
- Digital television / Acoustic and seismic waves / Electron paramagnetic resonance technique
- Subsurface hydrodynamics / Optical network systems / Nuclear magnetic resonance technique
- Data-processing networks / Scientific experiment automatization / High-frequency electron paramagnetic resonance/Double nuclear magnetic resonance in nanostructures

Requirements

Those graduates already holding a Bachelor's degree can apply for admission to Master's degree programs.

1. Applicants must have a qualification/degree corresponding to a 4-year educational program of higher education.
2. If English is not the student's native language, then his/her TOEFL examination results (or equivalent) will be no less than 80 for an on-line test, or no less than 5,5 for IELTS. Training within the Program will be given in English and Russian.
3. Interview

Credit hours: 120 ECTS(including elective - 124)

Assessment methodologies used: please contact the head of the programme for this information

Duration of the program: 2 years

Deadlines for admission:three months before program start date

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