Annotation of Ph.D. undergraduate study

Ph.D. program 2.2.2 Electronic component base for micro- and nanoelectronics, quantum device (microwave photonics, heterostructure electronics, organic semiconductors)

Department: Condenced Matter Physics (67)
Terms of study at the full-time department: - 4 years
Supervisor: Professor Ivan Vasil'evskii, e-mail: ISVasilyevskij@mephi.ru , phone (495)7885699 add 8170

Purpose of the program:

The goal of Ph.D. is to train high-qualified investigators and engineers in the area of modelling and construction of prospective materials, technology, system design of electronic components and microwave systems. PhD. Graduates finish the Program with Ph.D. dissertation defense either on Physic-Mathematic Science or on Technical Science in the area of material science, nanofabrication of novel components and modules for electronic electronic, microwave photonics, quantum effect devices, including that based on A3B5 heterostructures, and also in microwave circuit design. The study based on the modern infrastructure of MEPhI Nanofabrication center. Ph.D. undergraduates regularly participate R&D projects in the specified areas.

Study and research topics:

- A3B5 electronics – Modelling, technology and material research of novel materials and heterostructure design, and also SiC, graphene and emerging materials;
- Research and development in the area of prospective components for Microwave electronics and photonics, power electronics, sensor applications.
- System and circuit design in Microwave electronics and photonics, power electronics, sensor applications.
- Radiation protective electronics and components – design techniques and radiation testing and simulation.

Program Partners:

- V.G. Mokerov Institute of Ultra High Frequency Semiconductor Electronics RAS, M.F. Stel'makh NII "POLUS".

Research groups, centers and laboratories for Ph.D. study:

- MEPhI Center of Microwave photonics and electronics (full R&D line for A3B5 materials and components fabrication and material research);
- MEPhI Center for extremal applied electronics;
- MEPhI Engineering Center.

Ph.D. Council:

MEPhI Council МИФИ.05.03 for Ph.D. Profile «Solid state electronics, radioelectronic components, micro- and nanoelectronics, quantum effect devices (on Physic-Mathematic Science or on Technical Science)»