

### 11.03.04 Electronics and Nanoelectronics

"Photonic technologies for nanosystems"

Department of Physics of Micro- and Nanosystems (No.81)

Terms of study at the full-time department: - 4 years

**Purpose of the program:** to train bachelors to work successfully and creatively in scientific, design and production activities related to the fundamental and applied aspects of nanostructures physics, nanoelectronics and nanophotonics, organic electronics and sensor nanohybrid systems, special nanomaterials, development of technologies and tools to solve environmental, biological, medical and safety problems, design and construction of components, elements, instruments.

**Area of professional activity:** means, methods, researches, technologies in the field of condensed state of matter, nanosized structures and systems, aimed at modeling and creation of perspective and special materials of micro- and nanoelectronics, nanophotonics, organic electronics for their application in development of devices, sensors and sensor systems of high-sensitive analysis in the field of biology, medicine, safety and non-destructive control, project management, management of science-intensive innovations.

**Professional activity objects:** materials, components, devices, units, methods of their research, designing and constructing, technological processes, diagnostic and technological equipment, mathematical models, algorithms of solving typical problems, modern software and informational support of the processes of modeling and designing products of electronics and nanoelectronics

**Technologies:** information technologies, science-intensive computer technologies on the basis of application of advanced CAD/CAE-technologies and computer technologies of life cycle of products and products, rapid prototyping technologies, nanotechnologies.

#### **Practice and Employment:**

Graduates of the Department of Physics of Micro- and Nanosystems work in the leading scientific centers of our country and abroad (USA, Canada, Germany, France) and are in demand at the enterprises of high-tech sector of industry in Russia. These are enterprises of Rostec State Corporation, Rosnano group of companies, enterprises of Shvabe holding, JSC Federal Center of Science and High Technologies "SNPO Eleron" of Rosatom State Corporation, Research Institutes of RAS, various commercial manufacturers of analytical equipment.