

## **16.06.01 Research and Technologies of Physics and Engineering**

### **Fluid Mechanics (Hydro-, Gas- and Plasma)**

#### **Program objectives**

- solve problems requiring the application of fundamental knowledge in physics related to the identification, research and modeling of new physical phenomena and laws;
- create and implement software systems for conducting numerical experiments in modeling gas, liquid and plasma dynamics;
- create and implement new technologies, devices and materials for various purposes engineering and technology.

#### **Research tasks**

- research of new physical phenomena, development and implementation of new devices, mechanisms and technologies;
- creation of theoretical models of plasma, interaction of laser and ionizing radiation with matter, kinetic phenomena;
- development of facilities for plasma generation with a wide range of parameters for various areas of practical application;
- creation of mathematical models of processes in a moving plasma of a gas discharge;
- study of physical phenomena in plasma arising in the boundary layer of spacecraft entering the atmospheres of the Earth and planets;
- creation of theoretical models describing the dynamics of ionospheric and space plasma;
- analysis of technical and theoretical developments, taking into account their compliance with legal industrial, ecological requirements and safety regulations.