



**Belarusian State University
of Informatics and Radioelectronics**

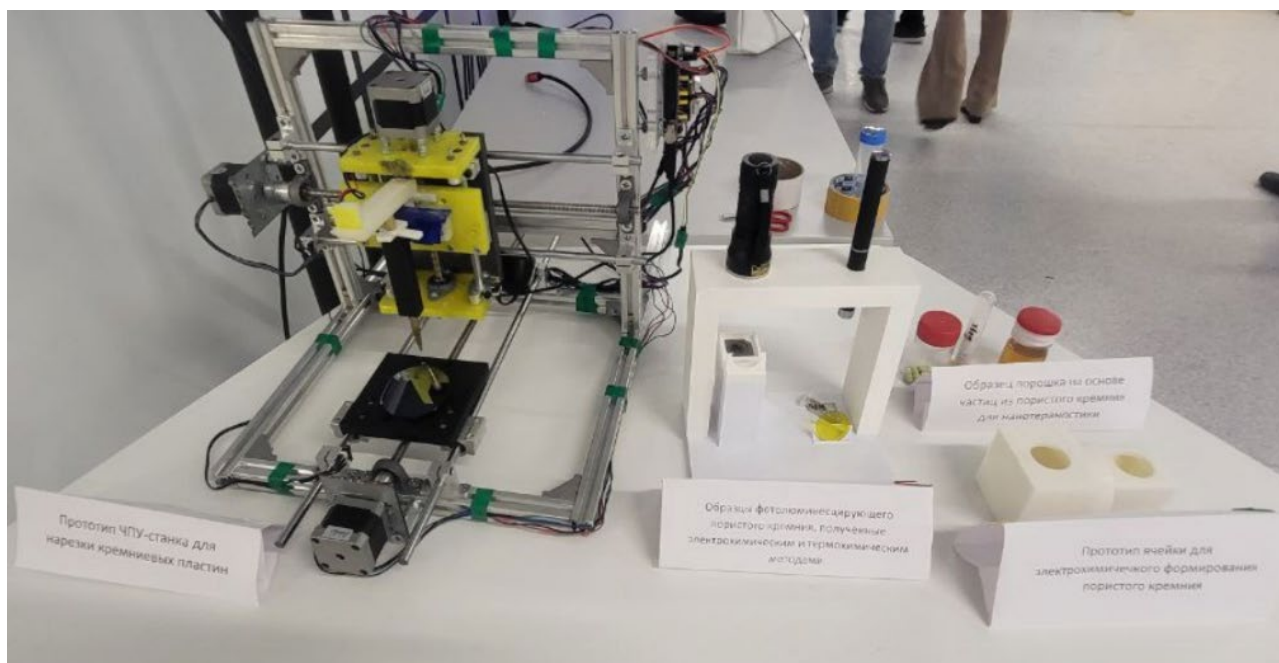
R&D Department

Announcement International Exhibition of Innovations “HI-TECH 2024”

April 24–26, 2024
Exhibition and Convention Center “EXPOFORUM”
(Petersburg highway, 64/1, St. Petersburg, Russia)

At the International Exhibition of Innovations “HI-TECH 2024” the Belarusian State University of Informatics and Radioelectronics will present:

INNOVATIVE BSUIR DEVELOPMENTS IN THE FIELD OF PLASMONICS



Photonic sensors operating on the effect of surface-enhanced Raman scattering (SERS)

A line of photonic sensors has been developed which, depending on the morphology of the sensitive area, allow to detect and study the structure of molecules, including biomarkers of diseases, and with high accuracy analyze biological fluids and sanitary-epidemiological washings using Raman spectroscopy. **This development competed in the “Best Innovative Project and Best Scientific and Technical Development of the Year” competition, held annually in the frames of the exhibition.**

The advantages lie in the technological features of the formation of sensitive micro- and nanostructured areas, which allow to manufacture sensors that are maximally adapted to customer requirements, including flexible ones, and activated immediately before use for visualization of single molecules, analysis of high molecular weight compounds, etc.

Area of application: high-precision molecular analysis of liquid media for solving problems in biomedicine, pharmaceuticals, sanitary and epidemiological control, ecology, forensics, etc.

Powders from nanostructured particles of biogenic silicon and silver for use in nanotheranostics

Biocompatible nanomaterials have been developed in the form of powders that exhibit photoluminescence, dissolve in biological fluids at a controlled rate, and contribute to the SERS effect, allowing simultaneous visualization of cells, study the structure of target molecules in them, and also administer drugs into them.

The advantages lie in the modes of formation of photoluminescent nanomaterials from biogenic silicon based on horsetail, bamboo or rice, which is characterized by world-class novelty, opens up the possibility of their use in nanotheranostics and increases the economic efficiency of manufacturing technology.

A kit for studying quantum size effects in silicon and metal nanostructures for centers for gifted children



It is designed to familiarize talented youth with the effects characteristic of nanomaterials and an introduction to nanotechnology.

Includes samples of nanostructured silicon exhibiting photoluminescence due to quantum size effects; radiation sources for excitation of photoluminescence; optical filters; electrolytes for the formation of metal nanostructures on silicon.

About the developer