



**Belarusian State University
of Informatics and Radioelectronics**
R&D Department

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BSUIR scientists: joint projects with international partners

In continuation of the #BSUIR_ONScience rubric about projects implemented with the participation of BSUIR scientists and their foreign colleagues.

Project No. 19: "Promising ceramic films, perovskite quantum dots and their nanocomposites for electronics and optics devices."



Project partner: Xi'an Jiaotong University, Xi'an, China.

Project duration: December 1, 2022 – October 31, 2024.

Scientific supervisor of the project from BSUIR: Nikolai Gaponenko, head of the Research and Development Laboratory "Nanophotonics", Doctor of Physical and Mathematical Sciences, Professor.

The project is sponsored by the State Committee for Science and Technology of the Republic of Belarus and the Ministry of Science and Technology of the People's Republic of China.

The project goal is to study the physicochemical laws of synthesis, as well as spectral and luminescent properties of film structures of organic and inorganic perovskites, demonstrating Stokes and anti-Stokes luminescence, study of dependence on the concentration of detected metal ions with effects of controlling porosity and radiation scattering, passivation of phosphors and enhancement of luminescence in optically anisotropic media, and study of the influence on photonics device structures.

As a result of this research, methods will be developed for the formation of light-emitting quantum dots of organic perovskites in meso- and macroporous layers of inorganic perovskites and in porous anodic aluminum oxide to enhance the influence of the quality characteristics of materials in electronics and optics devices.

The scientific novelty of the project is in the use of sol-gel technology for the synthesis of scattering porous and optically anisotropic structures based on inorganic perovskites that contain phosphors.

To contact the scientific supervisor of the project - e-mail: nik@nano.bsuir.edu.by.

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