

## At the intersection of engineering and biotechnology: scientists from SPbPU and Zenjan University received a grant

In the fall of 2023, the Russian Science Foundation together with the Iranian National Science Foundation (INSF) announced a grant competition for joint research by international teams of Russian and Iranian scientists. In total, more than 50 applications were submitted, including three from Polytechnic University. According to the results of expert review by INSF and RNF, 15 projects received funding. Among the winners is the project «Engineering Bioconcrete for Self-Reconstruction: New Biotechnology on an Industrial Scale», submitted by the scientific group of STC «Digital Engineering in Civil Engineering», project leader is Director of STC Nikolay Vatin.



The main idea of the project is to develop engineering bioconcrete for self-repair. This is a new biotechnology that allows building materials to repair damage on their own. To do this, bacteria capable of forming crystals that help heal micro-damage are introduced into building materials.

The problem is relevant for both Iran and Russia. Concrete is the most popular building material nowadays. Increasing its strength and durability has significant benefits even with small improvements in these characteristics.



The project team includes specialists in materials and biotechnologists, which allows us to expect success in solving the task. It is expected to cooperate with companies that produce and develop new building materials, as well as with organizations that have competencies in high-tech areas of biotechnology, including genetic engineering.

Zenjan University (Iran) has become a partner of the project. One of the key areas of research is the search for living microorganisms in samples of construction materials from ancient buildings, so the work on the territory of Iran will be promising. Iranian colleagues, who have extensive experience in researching the «folk technology» of adobe bricks, will also be of great benefit.

Depending on the results of the work, scientists will determine the main ways to implement the research in the real sector of the domestic economy.

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