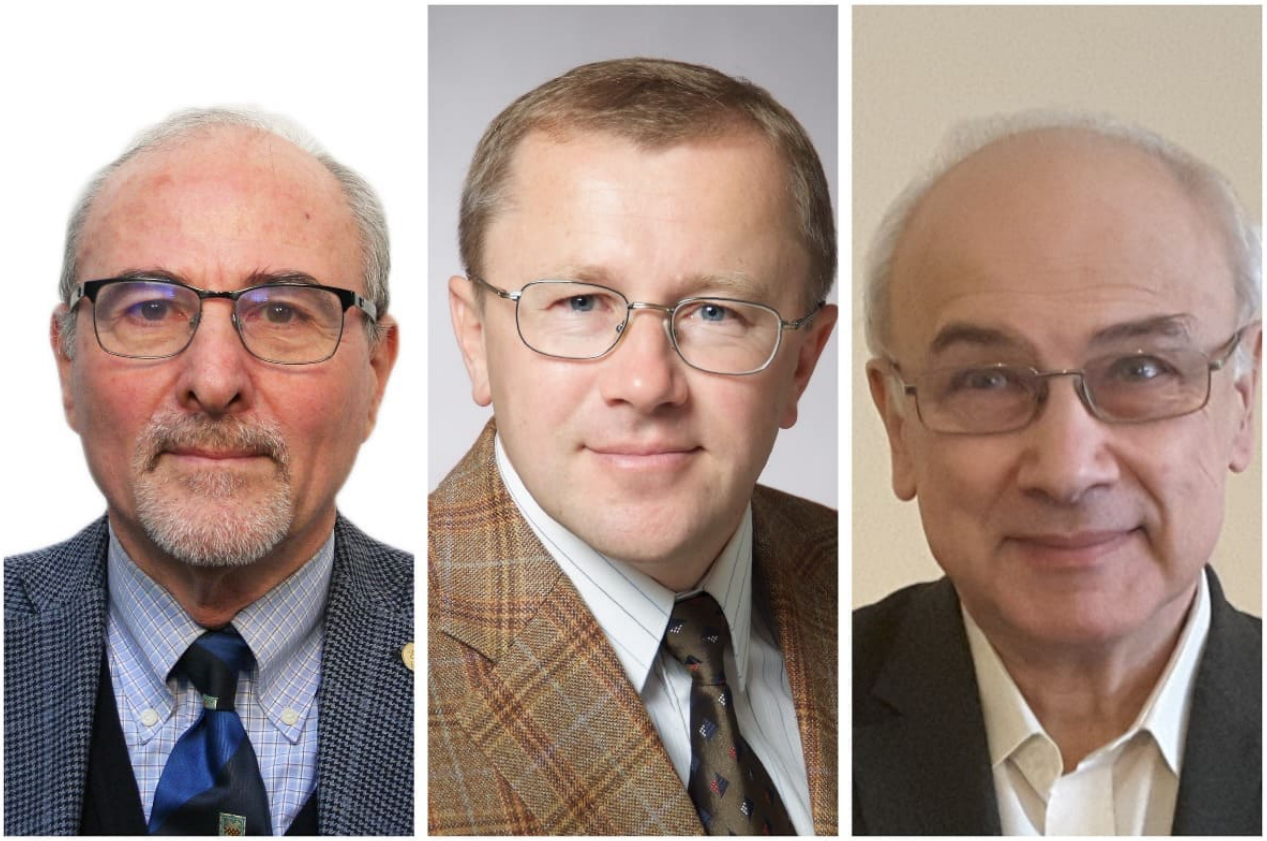
http://eng.unn.ru/news2/three-scientists-awarded-honorary-doctorates-of-lobachevsky-university

Three scientists awarded Honorary Doctorates of Lobachevsky University



Three scientists: **Bernardo Spagnolo** (Faculty of Radiophysics), **Alexander Gorban** (Institute of Information Technology, Mathematics and Mechanics) and **Alexander Pukhov** (Faculty of Radiophysics) have been awarded the titles of UNN Honorary Doctors for their outstanding contributions to science.

Bernardo Spagnolo is a world-class scientist who has won acclaim for his work in statistical physics, non-equilibrium statistical mechanics, stochastic multistable systems; his major contribution to the theory of noise-induced phenomena is also internationally recognised. He has published more than 260 articles in Scopus- and Web of Science-indexed publications (citation index 11774, Hirsch index 81), he is among the top 2% of the world's scientists in the world ranking of researchers with high

level of scientific productivity, compiled by Stanford University from 2019. He is in charge of the Joint PhD Programme of UNN and the University of Palermo. Prof. Spagnolo is also the head of the Research Laboratory for Stochastic Multistable Systems at Lobachevsky University, established under the mega-grant program by decree of the Government of the Russian Federation. The laboratory conducts research on the topic "Comprehensive study of fluctuation phenomena in multistable systems to advance the development of next-generation electronic devices and neuromorphic artificial intelligence technologies based on memristive materials".

Alexander Pukhov is a world-class scientist recognised for his work in computational physics, plasma physics, nonlinear optics, laser physics, who has made an outstanding contribution to the development of laser-plasma methods of charged particle acceleration. He has published more than 380 articles in Scopus-indexed publications (citation index about 19100, Hirsch index 66).

Dr. Pukhov is the winner of a number of prestigious international scientific prizes: the Heinz Billing Prize for achievements in scientific computation, the Mannheim Supercup in parallel programming, the Sofia Kovalevskaya Prize of the Alexander von Humboldt Foundation. He also leads the research and education laboratory of supercomputing technologies for nonlinear optics, plasma physics and astrophysics at the UNN Faculty of Radiophysics. The laboratory's ongoing projects are aimed at solving fundamental and applied problems related to the development of laser-plasma methods of charged particle acceleration and generation of electromagnetic radiation with unique parameters in hard-to-access and poorly studied spectral ranges.

Alexander Gorban is a world-leading scientist who is recognised for his work in machine learning, artificial intelligence, and multivariate data analysis methods. During his scientific career, Prof. Gorban has published more than 260 articles in Scopus-indexed publications, with a citation index of more than 5600 and a Hirsch index of 44. He has made a fundamental contribution to organise and develop research at Lobachevsky University in the field of artificial intelligence. He leads the Megagrant "Scalable Networks of Artificial Intelligence Systems for Analyzing Data of Increasing Dimensionality" at UNN. Within the Megagrant, he created the Laboratory for Advanced Methods of Multidimensional Data Analysis. A major research project "Reliable and logically transparent artificial intelligence: technology, verification and application in socially significant and infectious diseases" was implemented in 2020-2022 under his leadership. Some of the research results obtained at Lobachevsky University include new methods of machine learning (method of topological grammars and main graphs), theoretical foundations of a new technology of error correction "on the fly" without massive retraining, fast learning on small samples, ensuring the security of artificial intelligence algorithms from a new class of stealth attacks. Prof. Gorban is also the research supervisor of the project "Systems of trusted artificial intelligence in preventive professional medicine" at the UNN Research Centre for Artificial Intelligence.