Preface for “Irreversible Processes in Nature and Technics”

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Since 2001 Bauman Moscow State Technical University has regularly hosted the All-Russian Conference “Irreversible Processes in Nature and Technology”. The coming conference will be the tenth anniversary.

In 2019, the conference focused on discussing new diverse experimental and theoretical findings recently obtained in the field of irreversible processes. At that conference researchers presented their latest achievements, results of their studies in various scientific fields and made their proposals for making new practical devices based on the implementation of irreversible processes.

The conference participants had an opportunity to meet and talk to colleagues from different countries, and establish business and technical contacts. The conference focused on discussing the results in the field of space technology, aircraft, vehicles and energy devices, as well as the problems of creating new materials which give the possibility of converting the energy of solar radiation into electrical energy with a high conversion coefficient. The participants also covered the issues of changes in external conditions in a condensed medium, which form new phase states of matter, characterized by the manifestation of properties: spontaneous polarization, magnetization, "swirling" of the medium in the form of stopped vortices, superconductivity, superfluidity, etc. Nonlinear-optical processes were studied: multi-frequency forced combination scattering, multiple generation of optical harmonics, etc.

In recent years, the scientific community has become interested in the problems related to the properties of gravitational waves, whose detection was possible in ground conditions using the Fabry–Pérot laser interferometer.

Chairman of the Organizing Committee A.N. Morozov
Chairman of the Program Committee V.S. Gorelik