Monday, February 9, 2026
from 4:45 p.m. to 6:20 p.m. (Moscow time)
room 16-10 and ZOOM translation

Victoria V. Vedyushkina
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Discovery of Generalized Billiards and Topological Modeling of Hamiltonian Systems

The topological approach to systems with symmetries, motivated by the work of S. Smale and M. P. Kharlamov, was developed in the case of completely Liouville integrable Hamiltonian systems to the level of a topological and trajectory classification in the papers of A. T. Fomenko and his scientific school, based on his construction of an analogue of Morse theory for such systems. This approach has found numerous applications to integrable problems in geometry, mechanics, and mathematical physics.

In recent years, A. T. Fomenko's topological approach has been further developed to address new classes of systems: integrable billiards (systems with impacts) and geodesic flows associated with confocal quadrics, systems with non-compact fibers, and analogues of classical mechanical systems. The results obtained by the authors in these areas were awarded the 2025 Russian President Award for Young Scientists in Science and Innovation. This talk will provide an overview of these results.

SCIENTIFIC SEMINAR
“DIFFERENTIAL GEOMETRY AND APPLICATIONS”

headed by Academician of RAS Anatoly T. Fomenko

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