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

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Integrable Geodesic Flows on Two-Dimensional Polyhedral Surfaces

Continuation of the talk given on October 19, 2026

Usually, geodesic flows on polyhedra are not considered from the point of view of integrability because of problems in extending of the trajectory of a material particle at vertices. However, there exist several classes of polyhedral surfaces at whose vertices geodesics can be defined as billiard trajectories by means of a planar tiling. This talk will present a complete analysis of the Liouville foliations of such systems.

The main tool for obtaining the list of polyhedra admitting a (billiard) extension of the material point trajectory at a vertex is the discrete analogue of the Gauss–Bonnet theorem. It turns out that this theorem implies a polyhedral analogue of Kozlov's theorem on integrable geodesic flows on closed smooth two-dimensional surfaces.

It also turns out that integrable geodesic flows on polyhedral surfaces are closely related to crystallographic groups of the plane.

SCIENTIFIC SEMINAR
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