

Monday, October 12, 2026,
starting at 4:45 p.m. (Moscow time), room 16-10 and
ZOOM translation

**Extended meeting of the Chair
of Differential Geometry and Applications,
dedicated to the memory of Yuri P. Solovyov**

Vladimir M. Manuilov

On the K -theory of Roe algebras

Roe algebras are natural noncommutative C^* -algebras associated with metric spaces in the spirit of Connes' noncommutative geometry. The K -theory of these algebras contains the indices of elliptic operators on noncompact manifolds. However, computations in it are difficult; they are easier to carry out in the so-called uniform Roe algebras. By studying the relationship between the K -theories of these two versions of Roe algebras, we show that the class of the Vannier projector in the K -theory of the Roe algebra is zero. The proof uses graphs whose vertices lie in a discrete subset. Along the way, one can define natural maps from the homology of the graph to the K -theory of the uniform Roe algebra.

Alexander G. Kuznetsov

Hyperkähler manifolds and algebraic geometry

Complex projective manifolds admitting a hyperkähler metric have remarkable properties and occur extremely rarely. I will try to describe the known ways of constructing such manifolds.

Dmitry V. Bykov

Sigma models as Gaudin models

It will be shown how the relationship between the sigma model of the full flag manifold $U(3)/U(1)^3$ and the Gaudin model with three nodes makes it possible to explicitly solve the classical and quantum problem for the sigma model, i.e., to find the geodesics and compute the spectrum of the Laplace operator on the flag manifold with an arbitrary invariant metric. This technique is also applicable to homogeneous spaces of higher-rank groups, and the integrable case corresponds to the Manakov–Mishchenko–Fomenko metrics.

**SCIENTIFIC SEMINAR
“DIFFERENTIAL GEOMETRY AND APPLICATIONS”**

headed by Academician of RAS Anatoly T. Fomenko

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<http://dfgm.math.msu.su/chairsem.php>