03 сентября 2021 г (пятница)
в 17:00

На семинаре выступит

Николай Богачев
(Skoltech & MIPT)

с докладом:

Arithmeticity and totally geodesic subspaces of hyperbolic manifolds

Abstract:
The topic that we will discuss is a fascinating blend of many beautiful ideas and methods from discrete subgroups of Lie groups, geometric group theory, hyperbolic geometry, geometric topology, and number theory. (It has some deep connections with algebraic geometry, including hyperkähler manifolds and K3 surfaces, but we will not cover them here.)

In this talk I will give a survey of this beautiful domain (with all required definitions) and will present our recent results with Misha Belolipetsky (IMPA, Brazil), Sasha Kolpakov (Univ. Neuchatel, Switzerland) and Leone Slavich (Univ. Pavia, Italy). Our main result is the following arithmeticity criterion: a hyperbolic manifold or an orbifold M is arithmetic if and only if it has infinitely many totally geodesic immersed subspaces and they are so-called fc-subspaces, i.e. correspond to finite subgroups of the commensurator of a fundamental group $\Gamma = \pi_1(M)$. And M is non-arithmetic if and only if it has only finitely many such fc-subspaces. We also provide interesting examples from reflection groups (Vinberg's theory), hyperbolic knot theory, and non-arithmetic hybrids, constructed by Gromov and Piatetski-Shapiro.

Good references for this talk are our recent papers https://arxiv.org/abs/2002.11445 (Bogachev, Kolpakov, IMRN 2021) and https://arxiv.org/abs/2105.06897.

Приглашаются все желающие!