Special Colloquium

Arithmetic hyperbolic manifold groups contain nonseparable subgroups

Hongbin Sun (University of California, Berkeley)

Abstract: Given a group, whether all finitely generated subgroups are separable is an interesting group theoretical property, and it is closely related with low-dimensional topology, e.g. the virtual Haken conjecture (solved by Agol). I will show that, for almost all arithmetic hyperbolic manifolds with dimension at least 4, their fundamental groups contain nonseparable subgroups. The main ingredient is a study of certain graph of groups with hyperbolic 3-manifold groups as vertices, and the fact that hyperbolic 3-manifolds have a lot of virtual fibering structures. The proof also implies that, for a compact irreducible 3-manifold with empty or tori boundary, it supports one of eight Thurston's geometries if and only if its fundamental group is subgroup separable.

Friday, December 2 at 4:00 PM in SEO 636