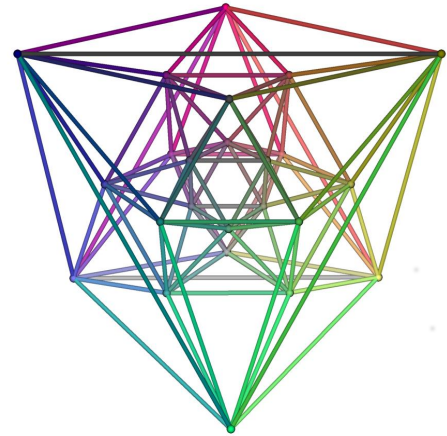


Oberseminar Geometrie
Department of Mathematics
University of Fribourg
Seminar room, Lonza dependence
Wednesday November 19, 2014, 10:20-12:00



Alexander Kolpakov (University of Toronto):

Symmetries of hyperbolic four-manifolds

We show that for any finite group G there are a (complete, finite-volume) hyperbolic four-manifold M with $\text{Isom}M \cong G$ and a (complete, finite-volume) hyperbolic four-manifold N with $\text{Isom}^+N \cong G$. Our method uses the geometry of Coxeter polytopes on the one hand, and the combinatorics of simplicial complexes on the other. In contrast to the probabilistic method by M. Belolipetsky and A. Lubotzky who found hyperbolic manifolds with given isometry group in any dimension, we provide an explicit construction with highly controllable geometry and combinatorics. We also find a volume bound for M in terms of the order of G , answering a question by Belolipetsky and Lubotzky. This is a joint work with Leone Slavich (Università di Pisa).