Analisys, Algebra & Geometry Meetings

Dipartimento SMFI - Università di Parma

23.05.2024
16:30

Sala Riunioni - Plesso di Matematica

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Hyperbolic 4-manifolds of low volume

There is a natural interest in hyperbolic manifolds of low volume, and this talk addresses dimension four. As opposite to dimension n = 3 where Thurston's hyperbolic Dehn filling holds, for n > 3 the volume spectrum is discrete, and there is at most a finite number of hyperbolic n-manifolds with bounded volume (Wang's finiteness). Computing the number of hyperbolic 4-manifolds of given small (even minimal) volume appears nowadays far from reach. Counting such manifolds up to commensurability seems less unrealistic, at least by restricting the count to arithmetic manifolds. We will give an overview of the known examples of low-volume hyperbolic 4-manifolds, with particular attention to the construction of some cusped manifolds by means of a remarkable family of polytopes discovered in 2010 by Kerckhoff and Storm. This may include some results obtained in joint works with Martelli and Slavich.

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