

Geometry, Topology and Dynamics Seminar

Hausdorff dimension in graph matchbox manifolds

Olga Lukina (UIC)

Abstract: A lamination is a compact connected metric space, where each point has a neighborhood homeomorphic to the product of a Euclidean disc and a totally disconnected space. Given a lamination, one can ask if this lamination can be realised as a subset of a smooth foliated finite-dimensional manifold, so that the leaves of the lamination are contained in the leaves of the foliation of the manifold. More precisely, one asks if there exists a foliated embedding of a given lamination into a smooth foliated manifold by a bi-Lipschitz homeomorphism.

Hausdorff dimension provides an obstruction to the existence of such an embedding. In the talk, we study a specific class of laminations, called graph matchbox manifolds, obtained as suspensions of pseudogroup actions on the space of pointed trees. We give examples of such laminations which have infinite Hausdorff dimension of their transversals, and, therefore, cannot be embedded as a subset of a smooth foliation of a finite-dimensional manifold by a bi-Lipschitz homeomorphism.

Monday, October 6 at 3:00 PM in SEO 636
