

Geometrization, integrability and knots

Veselov Aleksandr Petrovich

Abstract

I will discuss the coexistence of the chaos and Liouville integrability in relation with Thurston's geometrization programme, using as the main example the geodesic flows on the 3-folds with $SL(2, \mathbb{R})$ -geometry.

A particular case of such manifold $SL(2, \mathbb{R})/SL(2, \mathbb{Z})$ is known after Milnor and Quillen to be topologically equivalent to the complement of the trefoil knot in 3-sphere. I will explain that the remarkable results of Ghys about modular and Lorenz knots can be naturally extended to the integrable region, where in the limit we have only the cable knots of trefoil.

The talk is based on a joint work with Alexey Bolsinov and Yiru Ye.