

Geometry, Groups and Dynamics/GEAR Seminar
(held at the Illinois hub of GEAR)

Thursday, September 25, 2014, 1:00 pm, 243 Altgeld Hall

Balazs Strenner (Wisconsin Math)

Pseudo-Anosov maps arising from Penner's construction

Abstract: By the Nielsen-Thurston classification theorem, a generic surface homeomorphism is a pseudo-Anosov map, which, roughly speaking, stretches the surface in one direction by a factor and shrinks it in another direction by the same factor. Other than their importance in studying mapping class groups, pseudo-Anosov maps also have rich connections with 3-manifolds and Teichmüller spaces. Unlike their simpler analogues on the torus, which can easily be classified using matrix actions on the plane, pseudo-Anosov maps on higher genus surfaces are much harder to construct. Penner gave a very general construction for pseudo-Anosov maps, and he conjectured that virtually all pseudo-Anosov maps arise this way. This conjecture was known to be true on some simple surfaces, including the torus. Recently, a new approach to the conjecture was suggested by Shin, by connecting this topological question to a linear algebra problem. We discuss progress on the conjecture following this approach.

[Video](#)