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

1:00 pm Thursday, August 27, 2015 in 243 Altgeld Hall
Nathan Dunfield (Illinois)
A tale of two norms

Abstract: The first cohomology of a hyperbolic 3-manifold has two natural norms: the Thurston norm, which measure topological complexity of surfaces representing the dual homology class, and the harmonic norm, which is just the L^2 norm on the corresponding space of harmonic 1-forms. Bergeron-Sengun-Venkatesh recently showed that these two norms are closely related, at least when the injectivity radius is bounded below. Their work was motivated by the connection of the harmonic norm to the Ray-Singer analytic torsion and issues of torsion growth in homology of towers of finite covers. After carefully introducing both norms, I will discuss new results that refine and clarify the precise relationship between them; a key tool here will be a third norm based on least-area surfaces. This is joint work with Jeff Brock and will feature some pretty pictures that are joint work with Anil Hirani.

View talk