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

12:00 pm, Tuesday, May 1, 2018, 243 Altgeld Hall
Chris Leininger (Illinois)
Polygonal billiards, Liouville currents, and rigidity

Abstract: A particle bouncing around inside a Euclidean polygon gives rise to a biinfinite "bounce sequence" (or "cutting sequence") recording the (labeled) sides encountered by the particle. In this talk, I will describe recent work with Duchin, Erlandsson, and Sadanand, where we prove that the set of all bounce sequences---the "bounce spectrum"---essentially determines the shape of the polygon. This is consequence of a technical result about Liouville currents associated to nonpositively curved Euclidean cone metrics on surfaces. In the talk I will explain the objects mentioned above, how they relate to each other, and give some idea of how one determines the shape of the polygon from its bounce spectrum.

Video (unavailable)