1164-57-134 **Moon Duchin** (moon.duchin@tufts.edu), **Viveka Erlandsson** (v.erlandsson@bristol.ac.uk), **Christopher Leininger*** (cjl12@rice.edu) and **Chandrika Sadanand** (sadanand@illinois.edu). *Geometry and symbolic dynamics of Euclidean and hyperbolic billiards.*

Given a polygon in the Euclidean or hyperbolic plane every billiard trajectory determines a symbolic coding of the sides encountered. In this talk I will describe the extent to which the set of all coding sequences–the **bounce spectrum**–determines the shape of the polygon. There are similarties and differences between the Euclidean case (w/ Duchin, Erlandsson, and Sadanad) and the hyperbolic case (w/ Erlandsson and Sadanand). We prove that generically a polygon is **rigid**, meaning its shape is determined up to similarity by the bounce spectrum. When rigidity fails, we parameterize the space of polygons all of which share the same bounce spectrum. These are applications of theorems about the support of Liouville currents for metrics on cone surfaces in the Euclidean and hyperbolic case, respectively. (Received January 16, 2021)