

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

12:00 pm, Thursday, September 21, 2017, 243 Altgeld Hal

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Pair correlation in Apollonian circle packings

Abstract: Consider four mutually tangent circles, one containing the other three. An Apollonian circle packing is formed when the remaining curvilinear triangular regions are recursively filled with tangent circles. The extensive study of this object in the last fifteen years has led to many beautiful theorems in number theory, graph theory, and homogeneous dynamics. In this talk I will discuss a new type of problems, which concern the fine scale structure of Apollonian circle packings. In particular, I will show that the limiting pair correlation of circles exists. A critical tool we use is an extended version of a theorem of Mohammadi-Oh on the equidistribution of expanding horospheres in infinite volume hyperbolic spaces. This work is motivated by an IGL project that I mentored in Spring 2017.