Mathematics, Statistics, and Computer Science **@ UIC**

Dynamics Seminar

Jordan and Cartan spectra in higher rank with applications to correlations

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Abstract: The celebrated prime geodesic theorem for a closed hyperbolic surface says that the number of closed geodesics of length at most t is asymptotically e^t/t. For a closed surface equipped with two different hyperbolic structures, Schwartz and Sharp ('93) showed that the number of free homotopy classes of length about t in both hyperbolic structures is asymptotically a constant multiple of e^{ct} /t^{3/2} for some 0<c<1.

We will discuss the asymptotic correlations of the length spectra of convex cocompact manifolds, generalizing Schwartz-Sharp's results. Surprisingly, it is helpful for us to relate this problem with understanding the Jordan spectrum of a discrete subgroup in higher rank. In particular, we will explain the source of the exponential and polynomial factors in Schwartz-Sharp's asymptotic from a higher rank viewpoint.

We will also discuss the asymptotic correlations of the displacement spectra and the ratio law between the asymptotic correlations of the length and displacement spectra.

This is joint work with Hee Oh.

Wednesday, October 25 at 4:00 PM in 427 SEO