Math 211 - Group Actions Seminar

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Expanding measures: Random walks and rigidity on homogeneous spaces

Abstract:

We will start by reviewing recent developments in random walks on homogeneous spaces. In a second part, we will discuss the notion of a $H$-expanding probability measure on a connected semisimple Lie group $H$. As we shall see, for a $H$-expanding $\mu$ with $H < G$, on the one hand, one can obtain a description of $\mu$-stationary probability measures on the homogeneous space $G/\Lambda$ ($G$ Lie group, $\Lambda$ lattice) using the measure classification results of Eskin-Lindenstrauss, and on the other hand, the recurrence techniques of Benoist-Quint and Eskin-Mirzakhani-Mohammadi can be adapted to this setting. With some further work, these allow us to deduce equidistribution and orbit closure description results simultaneously for a class of subgroups which contains Zariski-dense subgroups and further epimorphic subgroups of $H$. If time allows, we will see how, utilizing an idea of Simmons-Weiss, these also allow us to deduce Birkhoff genericity of a class of fractal measures with respect to certain diagonal flows, which, in turn, has applications in diophantine approximation problems.

Joint work with Roland Prohaska and Ronggang Shi.

Host: Brandon Seward

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10:00 AM
Zoom ID 967 4109 3409 (email Nattalie Tamam or Brandon Seward for the password)