Matthew Wiersma

Title:

Entropies and Poisson Boundaries of Random Walks on Groups with Rapid Decay

Abstract

Let G be a countable group and μ a probability measure on G. The Avez entropy of μ provides a measure of how random the random walk on G described by μ is. We show that, under mild conditions, the Avez entropy can be computed in terms of the asymptotic behavior of the spectral radius of a family of Banach algebras. Subsequently, we apply our results to stationary dynamical systems consisting of an action of a group with the property of rapid decay on a probability space. We prove that whenever the associated Koopman representation is weakly contained in the left-regular representation of the group, then the Avez entropy coincides with the Furstenberg entropy of the stationary space. This gives a characterization of (Zimmer) amenability for actions of rapid decay groups on stationary spaces.

This talk is based on joint work with B. Anderson-Sackaney, T. de Laat and E. Samei.