

Concentration inequalities for iterates of linear cocycles

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Resumo/Abstract:

Given a measure preserving dynamical system, a real-valued observable determines a random process (by composing the observable with the iterates of the transformation). An important topic in ergodic theory is the study of the statistical properties of the corresponding sum process. The iterates of a linear cocycle (i.e. a matrix-valued observable) over a base dynamical system determine a multiplicative random process. The statistical properties of such systems are much less understood, and their study has so far been limited only to a few underlying base dynamics. We are especially interested in large deviations type estimates that are uniform in the cocycle. Our motivation for studying this topic is related to problems on the regularity of the corresponding Lyapunov exponents and on the spectral properties of certain operators in mathematical physics.

The goal of this talk is to popularize this topic and to describe a method for obtaining such estimates.