ERGODIC OPTIMIZATION AND MULTIFRACTAL FORMALISM OF LYAPUNOV EXPONENTS

Reza Mohammadpour
Université de Bordeaux

In this talk we discuss ergodic optimization and multifractal behavior of Lyapunov exponents for matrix cocycles. We show that the restricted variational principle holds for generic cocycles over mixing subshifts of finite type and that the Lyapunov spectrum is equal to the closure of the set where the entropy spectrum is positive for such cocycles. Moreover, we show the continuity of the lower joint spectral radius for linear cocycles under the assumption that linear cocycles satisfy a cone condition.

We consider a subadditive potential Φ. We obtain that for $t \to \infty$ any accumulation point of a family of equilibrium states of $t\Phi$ is a maximizing measure and that the Lyapunov exponent and entropy of equilibrium states for $t\Phi$ converge in the limit $t \to \infty$ to the maximal Lyapunov exponent and entropy of maximizing measures. Moreover, we show that if a 2×2 one-step cocycle satisfies pinching and twisting conditions and there exist strictly invariant cones whose images do not overlap on the Mather set then the Lyapunov-maximizing measures have zero entropy.