Thermodynamics of some non-uniformly hyperbolic attractors

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Abstract

The purpose of my talk is to describe thermodynamical formalism for a certain family of non-uniformly hyperbolic attractors. I am concerned with maps which can be obtained from uniformly hyperbolic examples by so called slow down procedure. Namely, starting with a hyperbolic local diffeomorphism $f : U \to M$ with an attractor $\Lambda$, one slows down trajectories in a small neighborhood of a hyperbolic fixed point $p \in \Lambda$ obtaining a nonuniformly hyperbolic diffeomorphism $g : U \to M$ with a topological attractor $\Lambda_g$. I establish the existence of equilibrium measures for any continuous potential function on $\Lambda_g$, however my main focus is the family of geometric $t$-potentials defined by $\phi_t(x) := -t \log |d f|^{E_u(x)}|$. I will state the results regarding the existence, uniqueness and statistical properties of equilibrium measures for the geometric $t$-potential on a certain interval in $t$. 