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Restricted variational principle of Lyapunov exponents for typical cocycles

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Abstract: The variational principle states that the topological entropy of a compact dynamical system is a supremum of measure-theoretic entropies of invariant measures supported on this system. Therefore, one may ask whether we can get a similar formula for the topological entropy of a dynamical system restricted to the level sets, which are usually not compact. In several cases it was then possible to prove the so-called restricted variational principle formula: For every possible value α of the Lyapunov exponent, the topological entropy of the set of points with the Lyapunov exponent α is equal to the supremum of measure-theoretic entropies of invariant measures with Lyapunov exponent α .

In this talk, I will investigate the structure of the level sets of all Lyapunov exponents for typical cocycles. I will show that the restricted variational principle formula for a vector of Lyapunov exponents holds for typical cocycles. This generalizes the works of Barreira-Gelfert and Feng-Huang.

Keywords: Thermodynamic formalism, dynamical systems, Lyapunov exponents, multifractal formalism

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