

Seminar in Nonlinear Systems

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Equilibrium States for Interval Maps

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4:00 pm

Pierce 116

Abstract: Consider a map f from a compact interval I to itself and a real valued function ϕ on I . An Equilibrium State is an invariant measure which maximizes the sum of the metrical entropy of f and the integral of ϕ . In the 1970's Bowen, Ruelle and Sinai developed a "thermodynamical formalism" to prove the existence, unicity and stochastic properties of equilibrium states for certain homeomorphisms f and certain functions ϕ . We will review this result. However, many other important maps, like quadratic maps, and important functions, like $\phi(x) = -t \log |df(x)|$ cannot fit into this framework, due to the presence of the critical point. We will explain how, under certain conditions, the existence, the unicity and some stochastic properties of equilibrium states can be proved for such systems.

This is joint work with Yakov Pesin.

Refreshments at 3:50pm