

Thermodynamic Formalism for Random Piecewise Expanding Open Dynamical Systems

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In this talk we discuss recent progress in thermodynamic formalism and its applications in the setting of random piecewise monotone mappings of the interval. In particular we consider open dynamical systems in which a random hole is placed on each fiber. Using random Birkhoff cone techniques, given a contracting potential one can prove the existence of conformal and invariant measures supported on the fractal survivor set of points which never enter the fiberwise holes under forward iteration. Furthermore, random invariant measure satisfies an exponential decay of correlations and the expected pressure function encodes the Hausdorff dimension of the survivor set as well as the rate at which mass escapes through the hole.