

Dynamical Systems

Linear response for intermittent maps

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We consider the one-parameter family T_t of Pomeau–Manneville type interval maps, with the associated absolutely continuous invariant probability measure m_t . For t in $(0, 1)$, Sarig and Gouëzel proved that the system mixes only polynomially (in particular, there is no spectral gap). We show that for any L^q observable g , the integral of g with respect to m_t is differentiable (as a function of t) for $0 \leq t < 1 - 1/q$, and we give a (linear response) formula for the value of the derivative. For t above 0.5, we need the faster decorrelation obtained by Gouëzel for some zero-average observables. We will also mention related work of A. Korepanov.

This is joint work with Mike Todd.