

This is a review submitted to Mathematical Reviews/MathSciNet.

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Title: Metastability of certain intermittent maps.

MR Number: MR2864379

Primary classification: 37A05

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Review text:

This paper studies a piecewise smooth map T of the unit interval possessing two invariant densities, h_ℓ , h_r , supported on the half-intervals $[0, 1/2]$ and $[1/2, 1]$, respectively. These intervals are invariant by the map. A hole a point which is mapped into the common boundary point $1/2$. Physically, there is a “leakage of mass” through the holes. A certain family of perturbations $\{T_\varepsilon\}_{\varepsilon>0}$ of T is defined, in a way that each T_ε has a unique invariant measure with density h_ε . It is shown that, as $\varepsilon \downarrow 0$, the density h_ε converges in L^1 to a certain convex combination of h_ℓ and h_r . The coefficient of the convex combination is identified as function of a quantity called limiting hole ratio, defined in the recent paper by González-Tokhman *et al.* Although proofs are presented for a specific map, the authors argue that their techniques hold more generally.

Bibliography used in this review:

- Cecilia González-Tokman, Brian R. Hunt, and Paul R. Wright (2010). Approximating invariant densities of metastable systems. *Ergodic Theory Dynam. Systems* **31** (2011), no. 5, 1345-1361.