1056-37-977 **Cecilia Gonzalez Tokman*** (cecilia@math.umd.edu), Department of Mathematics, Mathematics Building, University of Maryland, College Park, MD 20742-4015. *Approximating invariant densities of metastable systems.*

We consider a piecewise smooth expanding map of the interval possessing two invariant subsets of positive Lebesgue measure, and hence two ergodic absolutely continuous invariant probability measures (ACIMs). When this system is perturbed slightly to make the invariant sets merge, we describe how the ACIM of the perturbed maps can be approximated in terms of the initial ergodic ACIMs, by finding their limit as the size of the perturbation approaches zero. (This is a joint work with B. Hunt and P. Wright) (Received September 19, 2009)