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Mark Freidlin* (mif@math.umd.edu), Mark Freidlin, Department of Mathematics, University of Maryland, College Park, MD 20742. *Perturbation Theory for Multiattractor Dynamical Systems*.

We consider long time influence of deterministic and stochastic perturbations on dynamical systems with many attractors. Our main goal is to describe some non-trivial deterministic effects caused by small noise as well as stochasticity caused by pure deterministic perturbations. In particular, we consider metastability and its modifications, stochastic resonance, phantom dynamics and histerasis as the results of stochastic perturbations. We also show how deterministic perturbations of a system with instabilities and ergodic components may lead to stochasticity. (Received August 28, 2009)