

Abstract: Consider a generic one-parameter unfolding of a homoclinic tangency of an area preserving surface diffeomorphism. We show that for many parameters (residual subset in an open set approaching the critical value) the corresponding diffeomorphism has a transitive invariant set Ω of full Hausdorff dimension. The set Ω is a topological limit of hyperbolic sets and is accumulated by elliptic islands. As an application we prove that stochastic sea (i.e. the set of orbits with non-zero Lyapunov exponents) of the Taylor-Chirikov standard map has full Hausdorff dimension for sufficiently large topologically generic parameters.