Ergodic theory of generic continuous maps

ABSTRACT: We show that both generic endomorphisms of manifolds of any dimension and generic homeomorphisms of manifolds of dimension greater than one exhibit highly pathological ergodic properties with respect to Lebesgue measure: they are *weird* in the sense that they are totally singular and support no physical measures but at the same time the orbit of Lebesgue almost-every point of M does converge in the Birkhoff sense. We also study the ergodic properties of homeomorphisms f which are generic within the conjugacy class of expanding maps of the circle. We show that the Birkhoff-averaged iterated push-forwards of Lebesgue measure by f accumulate on every borel invariant probability on M; this implies in particular that the dynamics is *wicked*: the orbit of Lebesgue-a.e. point of M does *not* converge in the Birkhoff sense. This is a joint work with M. Andersson.