M. Nassiri

Title: Non-local robust Transitivity

Abstract:

We study the existence and sufficient conditions for non-local and large robustly transitive/mixing sets for symplectic diffeomorphisms. As a consequence of the constructions we show that, arbitrarily \$C^r\$ close to certain (nearly) integrable Hamiltonian systems with more than two degrees of freedom, there exist systems with unbounded robustly transitive sets.

A main ingredient in the proofs is a new tool in symplectic dynamics called symplectic blender, a semi-local source of robust transitivity.

Another main machinery in this approach is the transitivity of certain iterated function systems (i.f.s.). We prove that any \$C^r\$ generic pair of conservative surface diffeomorphisms generates a transitive i.f.s.

These results lead to the existence of large/non-local robustly transitive/mixing sets for an ample class of symplectic diffeomorphisms.

(Joint works with Enrique Pujals and Andres Koropecki.)