



Seminar/Talk

Symplectic blenders near whiskered tori and persistence of saddle-center homoclinics

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Host: Kaloshin Group

A blender is a hyperbolic basic set such that the projection of its stable/unstable set onto some central subspace has a non-empty interior and thus has a higher topological dimension than the set itself. We show that, for any symplectic C^r -diffeomorphism (where r is sufficiently large and finite, or $r=\infty$) of a $2N$ -dimensional ($N>1$) symplectic manifold, symplectic blenders can be obtained by an arbitrarily small symplectic perturbation near any one-dimensional whiskered KAM-torus that has a homoclinic orbit. Using this result, we prove that non-transverse homoclinic intersections between invariant manifolds of a saddle-center periodic point (i.e., it has exactly one pair of complex multipliers on the unit circle) are persistent in the following sense: the original map is in the C^r closure of a C^1 open set in the space of symplectic C^r -diffeomorphisms, where maps having such saddle-center homoclinic intersections are dense. These results also hold for Hamiltonian flows in the corresponding settings.

Tuesday, February 11, 2025 02:00pm - 03:30pm

Office Bldg West / Ground floor / Heinzl Seminar Room (I21.EG.101)



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