

Barcodes and Hamiltonian homeomorphisms

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Hamiltonian homeomorphisms are those homeomorphisms of a symplectic manifold which can be written as uniform limits of Hamiltonian diffeomorphisms. One difficulty in studying Hamiltonian homeomorphisms (particularly in dimensions greater than two) has been that we possess fewer tools for studying them. For example, (filtered) Floer homology, which has been a very effective tool for studying Hamiltonian diffeomorphisms, is not well-defined for homeomorphisms. We will show in this talk that using barcodes and persistence homology one can indirectly define (filtered) Floer homology for Hamiltonian homeomorphisms. This talk is based on joint projects with Buhovsky-Humilière and Le Roux-Viterbo.