Analysis/Dynamical Systems Seminar

Thursday, November 5th, 2015
4:00-4:50 pm in Hume 331

Existence of noncontractible periodic orbits of Hamiltonian system separating two Lagrangian tori on $T^*\mathbb{T}^n$

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In this talk, we show the existence of non contractible periodic orbits in Hamiltonian systems defined on $T^*\mathbb{T}^n$ separating two Lagrangian tori under certain cone assumption. Our result answers a question of Polterovich (Symplectic intersections and invariant measures, Annales mathematiques du Quebec (2014)). As an application, we find periodic orbits of almost all the homotopy types on a dense set of energy level in Lorentzian type mechanical Hamiltonian system. This solves a problem of Arnold (Mathematical problems in classical physics. Trends and perspectives in applied mathematics, Appl. Math. Sci., vol. 100, Springer, New York, (1994)).