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## Drift of slow variables in slow-fast Hamiltonian systems

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### **Abstract**

We study the drift of slow variables in a slow-fast Hamiltonian system with several fast and slow degrees of freedom. For any periodic trajectory of the fast subsystem with the frozen slow variables we define an action. For a family of periodic orbits, the action is a scalar function of the slow variables and can be considered as a Hamiltonian function which generates some slow dynamics. These dynamics depend on the family of periodic orbits.

Assuming the fast system with the frozen slow variables has a pair of hyperbolic periodic orbits connected by two transversal heteroclinic trajectories, we prove that for any path composed of a finite sequence of slow trajectories generated by action Hamiltonians, there is a trajectory of the full system whose slow component shadows the path.

*The talk is based on joint works with D. Turaev and N. Brannstrom.*