Birth and persistence of secondary tori in nearly-integrable Hamiltonian systems

Abstract:

Classical KAM theory guarantees that most Diophantine unperturbed Lagrangian tori for a non-degenerate integrable Hamiltonian system persist under small perturbation. In this talk I will discuss (in the particular case of natural Hamiltonian systems), how secondary tori (non existing in the integrable limit) arise near simple resonances due to the effect of a generic analytic perturbation and discuss their persistence.