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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.