

THEMATIC SESSION: Dynamical Systems

Inverse problems in analytic KAM theory

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According to classical KAM theory, a sufficiently small perturbation of a non-degenerate integrable Hamiltonian system admits a collection of invariant tori, whose restricted dynamics is conjugated to that of a translation by a Diophantine vector.

In this talk we will discuss the following inverse problem: To what extent are perturbed systems determined by their associated collections of invariant tori?

We'll prove that this collection completely characterizes the perturbed Hamiltonian and show some of the dynamical implications for systems whose collections of invariant tori share certain common features.