

The large gap problem in Arnold diffusion for non
polynomial perturbations of an a-priori integrable
Hamiltonian system. *

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Abstract

In [1] it is proved the existence of Arnold diffusion in an a-priori unstable Hamiltonian system of $2\frac{1}{2}$ degrees of freedom. The system considered is a periodic in time perturbation of a pendulum and a rotor, although the perturbation is assumed to contain only a finite number of harmonics in the angular variables.

In order to prove the fact that the Arnold diffusion is a generic phenomenon, it is considered a general case of perturbations whose Fourier series in the angular variables do not need to have a finite number of terms.

[1] A. Delshams, R. de la Llave and T.M. Seara. A geometric mechanism for diffusion in Hamiltonian systems overcoming the large gap problem: Heuristics and Rigorous verification on a model. To appear in *Mem. Amer. Math. Soc.* (2005)

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