

## Seminário de Sistemas Dinâmicos - 2023

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### Título/Title:

Arnold Diffusion via Scattering maps: A geometrical mechanism to detect global instability

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**Data:** 17/11

**Hora:** 14h30

**Local:** Sala 407 - Bloco H - Campus Gragoatá

### Resumo/Abstract

We proved, in [Delshams2017,Delshams2018], that for any non-trivial perturbation depending on any two independent harmonics of a pendulum and a rotor, there is global instability, also called Arnold diffusion. The proof is based on a geometrical method that relies on the concrete computation of several scattering maps. A complete description of the different kinds of scattering maps taking place and the existence of piecewise smooth global scattering maps is also provided. Similar results apply for a non-trivial perturbation depending on three independent harmonics of a pendulum and a 2 d.o.f rotor [Delshams2023].

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[Delshams2017] A. Delshams, R.G. Schaefer, **Arnold diffusion for a complete family of perturbations**, Reg. and Cha. Dyn., **22(1)** (2017), 78--108.

[Delshams2018] A. Delshams, R.G. Schaefer, **Arnold diffusion for a complete family of perturbations with two independent harmonics**, Discrete Contin. Dyn. Syst., **38(12)** (2018), 78--108.

[Delshams2023] A. Delshams, A. Granados, R.G. Schaefer, **Arnold diffusion for an a priori unstable Hamiltonian system with  $3+1/2$  degrees of freedom**, Arxiv, (2023).