

*Global instability for ‘complete’ families of perturbations with two or three independent harmonics*

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We prove, in [1, 2], 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 the geometrical method and relies on the concrete computation of several scattering maps. A complete description of the different kinds of scattering maps taking place as well as the existence of piecewise smooth global scattering maps is also provided. Similar results apply for any non-trivial perturbation depending on any three independent harmonics of a pendulum and two rotors.

This is a joint work with Amadeu Delshams.

REFERENCES

- [1] A. Delshams and R.G. Schaefer, Arnold diffusion for a complete family of perturbations. *Regular and Chaotic Dynamics* 22 (2017), no. 1, 78–108. doi:10.1134/S1560354717010051, <https://doi.org/10.1134/S1560354717010051>.
- [2] A. Delshams and R.G. Schaefer, Arnold diffusion for a complete family of perturbations with two independent harmonics. To appear in *Discrete and Continuous Dynamical Systems*. arXiv:1710.00029.