Seminar/Talk

Chaotic phenomena in generic unfoldings of the Hamilton Hopf bifurcation with emphasis on the restricted planar circular 3-body problem beyond the Gascheau-Routh mass ratio

Martin Pau
UPC - Universitat PolitÃ¨cnica de Catalunya

Host: Kaloshin Group

In this work, we prove that a generic unfolding of an analytic Hamiltonian Hopf singularity (in an open set with codimension 1 boundary) possesses transverse homoclinic orbits for subcritical values of the parameter close to the bifurcation parameter. As a consequence, these systems display chaotic dynamics with arbitrarily large topological entropy.We verify that the Hamiltonian of the restricted planar circular three-body problem (RPC3BP) close to the Lagrangian point L_4 falls within this open set. The generic condition ensuring the presence of transversal homoclinic intersections is subtle and involves the so-called Stokes constant. Thus, in the case of the RPC3BP close to L_4, our result holds conditionally on the value of this constant.

Tuesday, December 16, 2025 04:00pm - 05:00pm
Oberbank Ballroom, Central Building

This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station. Please find a schedule of the ISTA Shuttle on our webpage: https://ista.ac.at/en/campus/how-to-get-here/ The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.