Universidade Federal de São Carlos
Departamento de Matemática

Seminários de Geometria de São Carlos

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(UNICAM - Italy)

Falará sobre

On the multiplicity of the brake orbits

This seminar will show some recent developments on the study of the brake orbits of Hamiltonian systems. Roughly speaking, a brake orbit is a periodic solution that oscillates back and forth between two rest points, as a pendulum-like motion. In 1948, H. Seifert conjectured, under some hypotheses on the Hamiltonian function, that the number of geometrically distinct brake orbits is always greater or equal than the degrees of freedom of the system. We show that if the Hamiltonian function is even and strictly convex with respect to the generalized momenta then the brake orbits are in one-to-one correspondence with orthogonal geodesic chords in a strongly concave Finsler manifold with boundary. Thus, the multiplicity of the brake-orbits can be obtained by appropriate refinements of mini-max methods and Ljusternik and Schnirelmann category. The seminar is completed with a historical perspective and further developments of the subject.

Data: 26 de maio de 2023
Horário: 16h
Local: Auditório do DM