

SEMINARIO

Joan Gimeno

Universitat de Barcelona

Desingularization and Resonant Dynamics in the Spatial Restricted Three-Body Problem

Abstract: The Kustaanheimo–Stiefel transformation regularizes collision singularities in the spatial restricted three-body problem by lifting the dynamics to a higher-dimensional phase space. The resulting system has a constrained physical submanifold and a nontrivial geometry near collision.

I will describe the regularized dynamics and focus on the KS origin, where the linearization undergoes a transition from hyperbolic to elliptic behavior as the Jacobi constant varies. In the elliptic regime, a 1:1:1:1 resonance appears.

This motivates a normal-form analysis of the regularized system, with particular attention to the constraints defining the physical dynamics.

Ongoing work with J. D. Mireles James and Luke Peterson.

Sala de Grados I, Facultad de Ciencias
Martes 22 de Septiembre de 2026 (19:30)

Organiza: GIR ANEODA y Departamento de Matemática Aplicada

