

## SEMINARIO

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### ***Jacobi Hamiltonian Integrators: from construction to examples***

**Abstract:** Jacobi manifolds provide a unified geometric framework generalising both Poisson and contact manifolds and arise naturally in a wide range of physical systems - from damped oscillators to rigid body dynamics. This talk presents a systematic construction of structure-preserving numerical integrators for Hamiltonian systems on Jacobi manifolds, built upon the theory of homogeneous symplectic groupoids, poissonization, and a Hamilton-Jacobi generating function approach. The resulting Jacobi Hamiltonian Integrators (JHI) achieve high convergence orders while respecting the underlying geometric structure over long time horizons, a property that standard methods such as Runge-Kutta fail to guarantee. We illustrate the theory through several concrete examples, including the damped harmonic oscillator, Lotka-Volterra systems, and rigid body rotation, supported by numerical experiments demonstrating the superiority of the method.

**Sala de Grados I, Facultad de Ciencias**  
**Lunes 11 de Mayo de 2026 (16:00)**  
**Organiza: G.I.R. MTANPOEE**

