**CMM**
**Center for Mathematical Modeling**

**SIPo (Seminario de Investigadores Postdoctorales)**

**Speaker:** Raúl Tintaya (CMM)

**Title:** Second-order dynamical systems associated with a class of quasiconvex functions.

**Abstract:**
In this talk, we examine second-order gradient dynamical systems for smooth strongly quasiconvex functions, without assuming the usual Lipschitz continuity of the gradient. We establish that these systems exhibit exponential convergence of the trajectories towards an optimal solution. Furthermore, we extend our analysis to the broader quasiconvex setting by incorporating Hessian-driven damping into the second-order dynamics. Finally, we demonstrate that explicit discretizations of these dynamical systems result in gradient-based methods, and we prove the linear convergence of these methods under appropriate parameter choices. This presentation is based on [1].

[1] F. Lara, R.T. Marcavillaca, P.T. Vuong (2024). Characterizations, Dynamical Systems, and Algorithms for Strongly Quasiconvex Functions (Submitted).

**Date and Time:** 23rd September, Monday at 2.30 PM
**Venue:** John Von Neumann Seminar Room, CMM, Beauchef 851, North Tower, 7th Floor