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Optimization and Equilibrium Seminar

Speaker: Karla Cortez (Universidad Técnica Federico Santa María)

Title: Optimal Control of Sweeping Processes: Addressing the Challenge of Mixed Constraint.

Abstract:

In the quest to model elastoplastic mechanical systems, J.J. Moreau introduced the concept of a 'sweeping process' in the 1970s. These systems are characterized by their dynamics, described by a discontinuous differential inclusion that can be expressed in terms of a cone, posing a unique challenge. This presentation delves into the complexities of establishing necessary optimality conditions for optimal control problems involving such dynamics, particularly when subject to mixed constraints on state and control variables.

We will explore two distinct approaches to tackle these challenges. The first approach enables the derivation of necessary conditions in the form of a Pontryagin principle with integrable functions serving as multipliers associated with the mixed constraints. This method imposes specific regularity conditions on these functions. The second approach, while accommodating non-regular constraints, introduces purely finitely additive functions as multipliers.

Miércoles 1 de octubre a las 16:15hrs.

Sala de Seminarios John Von Neumann del Centro de Modelamiento Matemático (Beauchef 851, Edificio Norte, Piso 7).