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Optimization and Equilibrium Seminar

Speaker: Felipe Atenas, Universidade Estadual de Campinas, Brazil.

Title: Convergence Rate of Nonconvex Douglas-Rachford splitting via merit functions, with applications to weakly convex constrained optimization.

Abstract: We analyze Douglas-Rachford splitting techniques applied to solving weakly convex optimization problems. Under mild regularity assumptions, and by the token of a suitable merit function, we show convergence to critical points and local linear rates of convergence. The merit function, comparable to the Moreau envelope in Variational Analysis, generates a descent sequence, a feature that allows us to extend to the non-convex setting arguments employed in convex optimization. A by-product of our approach is an ADMM-like method for constrained problems with weakly convex objective functions. When specialized to multistage stochastic programming, the proposal yields a nonconvex version of the Progressive Hedging algorithm that converges with linear speed. The numerical assessment on a battery of phase retrieval problems shows promising numerical performance of our method, when compared to existing algorithms in the literature.

Link de zoom:
https://reuna.zoom.us/j/5185702306?pwd=cEtaeGVqUk1ZY0lkQ2Z0WU4yNlFmUT09

Miércoles 12 de Abril de 2023, 16:15 Hrs.
Sala de Seminarios John Von Neumann del Centro de Modelamiento Matemático (Beauchef 851, Edificio Norte, Piso 7).