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ONE WORLD OPTIMIZATION SEMINAR

March 28th 2022 @ 15:30 CEST (Central European Summer Time)

MINH N. DAO

(Federation University Australia)

A Proximal Subgradient Method for Nonsmooth Sum-of-Ratios Optimization Problems

Abstract. In this work, we consider a class of nonsmooth sum-of-ratios fractional optimization problems with block structure. This model class is ubiquitous and encompasses several important nonsmooth optimization problems in the literature. We first propose an inertial proximal block coordinate method for solving this class of problems by exploiting the underlying structure. The global convergence of our method is guaranteed under the Kurdyka-Łojasiewicz (KL) property and some mild assumptions. We then identify the explicit exponents of the KL property for three important structured fractional optimization problems. In particular, for the sparse generalized eigenvalue problem with either cardinality regularization or sparsity constraint, we show that the KL exponents are 1/2, and hence, the proposed method exhibits linear convergence rate. Our theoretical results are illustrated with both analytic and simulated numerical examples.

This is based on joint work with Radu Ioan Boţ and Guoyin Li.

The link of the zoom-room of the meeting and the corresponding password will be announced the day before the talk on the mailing list of the seminar, to which one can subscribe on https://owos.univie.ac.at.