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ONE WORLD OPTIMIZATION SEMINAR

November 8th 2021 @ 15:30 CEST (Central European Summer Time)

MATTHEW TAM

(The University of Melbourne)

Resolvent Splitting with Minimal Lifting

Abstract. In this talk, we examine some fundamental limitations of fixed point algorithms for finding a zero in the sum of $n \geq 2$ maximally monotone operators using their resolvents. A common approach to this problem involves reformulating as an equivalent two operator inclusion within an n - fold Cartesian product space and applying the Douglas--Rachford algorithm. In the setting where each resolvent may only be evaluated once per iteration, we show that any fixed point algorithm is necessarily defined on a d - fold Cartesian product space with $d \geq n - 1$. Further, we show this is unimprovable by providing a new family of methods which attain the lower bound. Applications in decentralised operator splitting will be discussed.

This talk is based on recent joint work with Yura Malitsky: https://arxiv.org/abs/2108.02897

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.