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ONE WORLD OPTIMIZATION SEMINAR

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

TING KEI PONG

(The Hong Kong Polytechnic University)

Analysis and Algorithms for Some Compressed Sensing Models Based on the Ratio of l_1 and l_2 Norms

Abstract. Recently, the ratio of l_1 and l_2 norms has been proposed as a sparsity inducing function for noiseless compressed sensing. In this talk, we further discuss properties of this model in the noiseless setting, and propose an algorithm for minimizing the ratio of l_1 and l_2 norms when the measurements are subject to noise. Specifically, we first present conditions that guarantee solution existence for these models. We then derive an explicit Kurdyka-Lojasiewicz exponent for the model in the noiseless setting, which enables us to deduce linear convergence of a recently proposed Dinkelbach type algorithm for the noiseless model. Finally, we extend this algorithm to deal with the noisy scenario by incorporating moving balls approximation techniques, and discuss its convergence.

This is joint work with Peiran Yu and Liaoyuan Zeng.

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>.