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l1-Based Optimization Methods in Array Imaging and Synthetic Aperture Radar (SAR)

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ABSTRACT

In this talk, we discuss l1 based optimization methods and their applications to some inverse problems such as the ones arising from array imaging and SAR. These inverse problems are formulated as a sparsity promoting l1 optimization problem. We discuss the conditions where the solution of these optimization problems are close to the exact solution and therefore useful. We present estimates that quantify the resolution of the images reconstructed by these methods. We then discuss the multiple data case and the resolution improvements brought by it. We present numerical simulations of the discussed results.

BIO:

Ilker Kocyigit received his Ph. D. degree in Mathematics from the University of Washington, Seattle in 2013. Since then he is a postdoctoral Assistant Professor at the University of Michigan, Ann Arbor in the department of Mathematics. His research interests include theoretical and computational aspects of inverse problems.