Center for Computational Mathematics Seminar

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Fast Phase Retrieval for High-Dimensions

Abstract:

Certain imaging applications such as x-ray crystallography require the recovery of an underlying signal from intensity (or magnitude) measurements - a problem commonly referred to as Phase Retrieval. In this talk, we discuss a framework for solving the discrete phase retrieval problem using block circulant measurement constructions and angular synchronization. We develop an algorithm which is near-linear time, making it computationally feasible for large dimensional signals. Theoretical and experimental results demonstrating the method’s speed, accuracy and robustness will be presented. We also present an extension of the framework to sparse phase retrieval, including the first known sublinear-time compressive phase retrieval algorithm.

Host: Rayan Saab

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