THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON APPLIED MATHEMATICS

Optimal Order for Phase Retrieval Problem Based on Fourier Measurements

By

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Abstract

The classical phase retrieval problem is to recover original signals from Fourier measurements. However, the analyses of many effective algorithms are based on random Gaussian measurements. This leads to a wide gap between theory and practical applications. In this talk, we mainly focus on the phase retrieval problem under masked Fourier measurements which occurs in many applications such as diffraction imaging. To solve such problem, we intend to discuss two types of models for dealing with different types of noise. Namely, L_2-norm loss function for bounded noise and L_1-norm loss function for outliers. Then we use the gradient-based algorithms (TWF and TAF) and prox-linear algorithm to handle different models, respectively. Further, for such algorithms mentioned above, we have reduced the sampling complexity to the optimal level $O(n \log n)$, which implies that we have thoroughly resolved an essential question proposed by E. J. Candès et al.

Date : **27 August 2024 (Tuesday)**
Time : **10:00am**
Venue : **Room 2304 (Lifts 17/18)**

All are Welcome!