数学与系统科学研究院

计算数学所学术报告

报告人：Prof. Yonina Eldar

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报告题目：

Sub-Nyquist Sampling without Sparsity and Phase Retrieval

邀请人： 许志强 研究员

报告时间：2016 年 10 月 27 日（周四）

下午 14:30-15:30

报告地点： 科技综合楼三层

311 报告厅

Abstract:

In recent years there has been an explosion of work on exploiting sparsity in order to reduce sampling rates in a wide-range of applications. In this talk, we consider several examples in which sub-Nyquist sampling is possible without assuming any structure on the signal being sampled. This is possible by careful design of the measurement scheme, together with nonlinear recovery methods. We then show how these concepts of measurement design and optimization-based recovery can be used to tackle a very different set of problems: phase retrieval from Fourier measurements.

We begin by considering sampling a signal when we are interested in recovering its power spectrum. Next, we develop the minimal sampling rates required to achieve minimal distortion when representing an arbitrary signal by quantized samples. We then treat sampling of ultrasound signals where the goal is to create a beamformed image from the given samples. Finally, we propose several new measurement techniques in optical imaging that enable phase retrieval even in 1D problems from Fourier measurements.

欢迎大家参加！