数学与系统科学研究院

计算数学所学术报告

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报告题目：

Blind ArrayCalibration and Biconvex Compressive Sensing

邀请人： 刘亚锋 博士

报告时间：2015 年 12 月 20 日（周日）

上午 10:00~11:00

报告地点： 科技综合楼三层

311 报告厅

Abstract：

DOA estimation using an array of sensors is a classical problem that

arises in radar, sonar, wireless communications, and radio astronomy. The super-resolution DOA estimation methods, such as the eigenstructure methods and the maximum likelihood algorithms, can estimate directions of closely spaced spatial sources. However, this advantage is based on exact knowledge of array manifold, which is often not available in practice due to unavoidable array modeling errors. These errors, e.g., induced by unknown mutual coupling or array gain/phase perturbations, can cause substantial performance degradation for super-resolution algorithms. Thereby, array calibration and robust direction finding (DF) techniques are essential in all practical systems.

In this report, wewilltalk about two calibration problems: theeigenstructure based mutual coupling calibration and the array calibration based on compressive sensing.

For the first problem, we will introduce a newcalibration criterion. For the second problem, we present the state of the art of the technology and then introducesome remaining interesting problems.

Shu Cai received the B.Sc. degree in 2006 from Hefei University of Technology, Hefei, China, and the Ph.D. degree in 2013 from Xidian University, Xi'an, China, both in communications engineering. During his Ph.D study, he visited Professor Zhi-Quan (Tom) Luo at the UMN (Twins Cities) from 2011 to 2012. After his graduation, he joined Nanjing University of Posts and Telecommunications, Nanjing, China in August 2013, and he is currently an assistant professor there. His main research interests lie in array signal processing and signal processing for communications.

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