上海交通大学自动化系
Department of Automation
Shanghai Jiao Tong University

系统控制与信息处理教育部重点实验室
Key Laboratory of System Control and Information Processing, Ministry of Education

# 学术报告会

**时间：2012年12月20日(周四)10:00-11:00**

**地点：电院群楼2-410会议室**

## Sensor Scheduling: from Offline to Online Design


**Dr. Ling Shi**

**The Hong Kong University of Science and Technology**



**Abstract:**

We consider state estimation over a network subject to limited sensor communications. A sensor needs to decide when to send its local state estimate to a remote estimator in order to minimize the average estimation error at the estimator subject to that the total communication time is no more than a pre-specified value. Two classic approaches to this sensor scheduling problem include offline design methods and online ones. In this talk, with some mild assumptions, we first present an optimal offline sensor schedule. Then, by exploring the online state estimate information, we introduce an event-triggering mechanism, which is implemented on top of the offline sensor schedule. The resulting hybrid (both online and offline) schedule, which can be implemented efficiently, is proven to outperform the optimal offline schedule, and hence provides a tradeoff between the two classic approaches in terms of estimation quality and computation complexity.


**Biography:**

**Ling Shi** received his B.S. degree in Electrical and Electronic Engineering from The Hong Kong University of Science and Technology in June 2002 and Ph.D. degree in Control and Dynamical Systems from The California Institute of Technology in August 2008. He is currently an assistant professor in the Department of Electronic and Computer Engineering at The Hong Kong University of Science and Technology. His research interests include networked control systems, wireless sensor networks, and distributed estimation and control.