数学与系统科学研究院

计算数学所学术报告

报告人：**Prof. Chao Shen**

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报告题目：

On Energy-Efficient NOMA Designs for Heterogeneous Low-Latency Downlink Transmissions

邀请人： 刘亚锋 副研究员

报告时间：2018 年 7 月 6 日（周五）

下午 **15:00-16:00**

报告地点： 科技综合楼三层

311 报告厅

Abstract：

The ultra-reliable and low-latency communication (URLLC) is one of the emerging application scenarios in 5G. However, the research on its fundamental theory and transmission scheme is still at its early stage. This talk investigates energy-efficient resource allocation for the two-user downlink with strict latency constraints at users. To cope with strict latency constraints, the capacity formula of the finite blocklength codes (FBCs) is adopted, in contrast to the classical Shannon capacity formula. The FBC formula explicitly specifies the trade-off between blocklength and reliability. By investigating the superposition coding based non-orthogonal multiple access (NOMA) scheme and the time division multiple access (TDMA) scheme, we showed some interesting properties of the achievable rate with FBCs, and proposed a concave approximation of the FBC capacity formula which allows to obtain computationally efficient and high-quality solutions. Some future research problems will also be discussed.

Bio：

Chao Shen received the B.S. degree in communication engineering and the Ph.D. degree in signal and information processing from the Beijing Jiaotong University (BJTU), Beijing, China, in 2003 and 2012, respectively. He was a postdoc at BJTU, and also a visiting scholar at the University of Maryland, College Park (2014-2015), the Chinese University of Hong Kong, Shenzhen (2017.3-2018.3). Since March 2015, he has been with the State Key Laboratory of Rail Traffic Control and Safety, BJTU, Beijing, China, as an Associate Professor. His current research interests focus on the ultra-reliable and low-latency communications, UAV-enabled wireless communications, and energy-efficient wireless communications for high-speed rails.

欢迎大家参加！