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：

Symbol-Error Probability Constrained One-Bit Precoding with Sigma-Delta Modulation

邀请人：刘亚锋 副研究员

报告时间：**2020** 年 **12** 月 **14** 日（周一）

下午 **16:30-17:30**

报告地点：科技综合楼

311 教室

Abstract:

Using low-resolution analog-to-digital/digital-to-analog converters (ADCs/DACs) has been regarded as a potential way to reduce the hardware costs and power consumption of massive MIMO implementations. In this context, the challenge lies in how to suppress the quantization error induced by coarse quantization. Previous one-bit researches mainly focus on designing the optimal binary signal directly, which incurs a large number of discrete constraints. Sigma-Delta (SD) modulation is a classical signal processing concept for coarse AD/DA conversion of temporal signals. Recently, it has been shown that SD modulation can be adjusted to the space or MIMO case when the BS equipped with a uniform linear array. In this way, there is no need to deal with the binary optimization in precoding design. Inspired by these excellent works, we combine classical precoding with spatial SD modulation and find the binary signal with minimum transmitting power while meeting the symbol error probability (SEP) requirements of the system.

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