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EEI KOLLOQUIUM

Challenges of Massive MIMO from Base Station Perspective

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Massive MIMO (or High Order MIMO) is considered as a feature for 5G systems for addressing the expected explosive demand for wireless network capacity. However, there is a drive today to deploy Massive MIMO for 4G systems. Many of the technical challenges to be solved are expected to be applicable also for 5G systems. In this talk, a brief introduction to Massive MIMO is given followed by deployment architectures considered (e.g. traditional macro, densified network, small cells). Channel modeling issues associated with large antenna arrays are then presented along with practical challenges (e.g. pilot de-contamination, precoder design, channel estimation, dealing with intra- and inter-cell interference) that need to be addressed to derive the gains from Massive MIMO. ACE simulation results showing the potential network performance gains for Massive MIMO systems using advanced antennas are presented.