

Abstract

Rank-one tensor modeling approach to joint channel and symbol estimation in two-hop MIMO relaying systems

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In this talk, we present two semi-blind receivers for joint channel and symbol estimation in MIMO relay-based communication systems. These receivers are developed for a two-hop system, assuming a tensor coding at the source and relay nodes. The central idea of the proposed approach is on the rank-one tensor modeling of the received signal, which allows the use of efficient estimation algorithms. The first receiver utilizes an iterative solution based on the alternating least squares (ALS) algorithm, while the second provides closed-form estimations of the channel and symbol matrices from a truncated higher order singular value decomposition (T-HOSVD). The proposed approach has a lower complexity compared to the receiver developed in a previous work, while providing remarkable performance.