

A multicast approach for constructive interference precoding in MISO downlink channel

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Abstract:

This paper studies the concept of jointly utilizing the data information (DI) and channel state information (CSI) in order to design symbol-level precoders for a multiple input and single output (MISO) downlink channel. In this direction, the interference among the simultaneous data streams is transformed to useful signal that can improve the signal to interference noise ratio (SINR) of the downlink transmissions. We propose a maximum ratio transmissions (MRT) based algorithm that jointly exploits DI and CSI to gain the benefits from these useful signals. In this context, a novel framework to minimize the power consumption is proposed by formalizing the duality between the constructive interference downlink channel and the multicast channels. The numerical results have shown that the proposed schemes outperform other state of the art techniques