Title IA-Based Hybrid Beamforming Design in MIMO Interference Channel

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***Abstract*—In this paper, we develop a hybrid beamforming design over multiple input multiple output (MIMO) interference channels. Since the performance of MIMO interference channels depends on the desired channel and the leakage of interference signals, the proposed hybrid beamforming design first selects radio frequency (RF) precoders/combiners and optimizes the corresponding baseband precoders/combiners to maximize the rate over the desired channel by adopting the concept of orthogonal matching pursuit (OMP). Then, by using interference alignment (IA), we modify the baseband precoders/combiners to suppress the interference. From simulation results, we demonstrate that the proposed hybrid beamforming design offers the better sum rate than the baseline scheme in signal to noise ratio (SNR) region of interest where the interference is the dominant factor to the performance while preserving the degrees of freedom (DOF).**

***Keyword*—Analog/RF beamforming, digital/baseband beamforming, hybrid beamforming, interference alignment, interference channel**

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