

# Abstract

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## **DWT-Based Joint Antenna Ion Algorithm for Correlated MIMO Channels**

This paper proposes a new discrete wavelet transform (DWT)-based joint antenna ion scheme for spatially correlated multiple-input multiple output (MIMO) channels. To reduce the severe performance degradation of the traditional antenna ion schemes in correlated channels, a new scheme which employ joint antenna ion (JAS) at both link ends algorithm and embed DWT operations in the receiver-end RF chains is proposed. Through extensive simulations it is demonstrated that the proposed DWT-based joint antenna ion has significant improvement of the capacity for both i.i.d and correlated MIMO channels, while requiring only a minor hardware overhead and low computational complexity for the DWT operations. Moreover, it is shown that the capacity associated with DWT-based JAS is higher than the system employing DWT-based receive antenna ion (RAS) only. This is achieved in i.i.d. and correlated MIMO channels.