

Abstract

Ehab Farouk Badran

DWT-Based Antenna Array for Correlated MIMO Channels

In this paper, we address the antenna array problem in spatially correlated Multiple-Input Multiple Output (MIMO) channels. To reduce the severe performance degradation of the traditional antenna array scheme in correlated channels, we propose to embed Discrete Wavelet Transform (DWT) operations in the RF chains. The resulting system shows a significant advantage for the capacity of spatial multiplexing schemes that reaching 5 b/s/Hz, while requiring only a minor hardware overhead and low computational complexity.