Abstract

An investigation into the wavelet packet transform (WPT) modulation scheme for Multiple Input Multiple Output (MIMO) band-limited systems is presented. The implementation involves using the WPT as the base multiplexing technology at baseband, instead of the traditional Fast Fourier Transform (FFT) common in Orthogonal Frequency Division Multiplexing (OFDM) systems. An investigation for a WPT-MIMO multicarrier system, using the Alamouti diversity technique, is presented. Results are consistent with those in the original Alamouti work. The scheme is then implemented for WPT-MIMO and FFT-MIMO cases with extended receiver diversity, namely 2 ?Nr MIMO systems, where Nr is the number of receiver elements. It is found that the diversity gain decreases with increasing receiver diversity and that WPT-MIMO systems can be more advantageous than FFT-based MIMO-OFDM systems.
Wavelet Packet Transform Modulation for Multiple Input Multiple Output Applications

References


Index Terms

Computer Science Wireless Communications

Keywords

Multiple Input Multiple Output (MIMO) Wavelet Packet Transform (WPT) OFDM Alamouti Space Time Block Coding (A-STBC)