

# **Performance Comparison of DFT-OFDM and Wavelet-OFDM with Zero-Forcing Equalizer for FIR Channel Equalization**

In conventional DFT based orthogonal frequency division multiplexing (OFDM), cyclic prefix (CP) is used to avoid the inter symbol interference (ISI) caused by a time dispersive channel. A solution has been proposed in literature, which involves replacing DFT with wavelet packet transform (WPT) in communication systems. WPT does not require CP and has the attraction of having much lower side lobes. However, in wavelet based multicarrier systems, channel equalization remains an open research area. In this article, a time-domain zero-forcing equalizer (ZFE) for wavelet packet based OFDM (WOFDM) is proposed. The performance comparison of DFT-OFDM and WOFDM is given for an arbitrary FIR channel with different types of wavelet packets. Simulation results show improvement in bit error rate (BER) performance for WOFDM.