

Dynamic transmit antenna shuffling scheme for MIMO wireless communication systems

ABSTRACT

Two novel dynamic transmit antenna shuffling schemes, namely \varnothing -Optimal and \varnothing -Max STBC, are presented in order to reduce the interference in V-BLAST/STBC scheme. These antenna shuffling schemes with the channel state information (CSI) from the receiver, which significantly improves performance of the MIMO system in Rayleigh flat-fading channels by selecting the appropriate antenna shuffling pattern, have been compared with a few other related schemes in terms of BER and system capacity. The \varnothing -Optimal antenna shuffling scheme improves the BER performance significantly with a gain of 2 dB at BER of 10^{-3} compared to all other schemes, while the \varnothing -Max STBC antenna shuffling scheme enhances the V-BLAST/STBC system capacity by 4%.

Keyword: MIMO; V-BLAST; STBC; QR; ZF; CSI; Antenna shuffling scheme