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"MIMO iterative array processing with a three-stage approach on interference elimination", pp.211-217

Yong Sun, Paul Strauch and Joe McGeehan

Abstract – It is well known that multiple-input-multiple-output (MIMO) systems promise to provide significant increases in system capacity for future wireless communication systems. However, realization of the highest potential capacity of a MIMO system will require a high signal to noise ratio and, most importantly, any interference from other access points or other systems has to be considered. Unpredictable interference is normally treated as an additional noise (colored-noise) in a MIMO system and this will significantly reduce the expected system capacity. In this paper, the architecture of MIMO iterative array processing with a three-stage approach is proposed to eliminate co-channel interference (CCI), multiple antenna interference (MAI) and inter symbol interference (ISI) in order to maintain high capacity of MIMO system. This architecture performs iterative operations between MIMO beamforming, soft interference cancellation, channel estimator and turbo equalization. Also, a theoretical study of MIMO capacity with beamforming under CCI is presented.