EFFICIENT TOMLINSON-HARASHIMA PRECODING ORDERING USING QR DECOMPOSITION

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ABSTRACT

In this paper, we investigate the effect of precoding ordering on systems with successive interference cancellation for multiple-input multiple-output (MIMO), i.e., Tomlinson-Harashima precoding (THP). Based on the well known QR-decomposition, a simple precoding ordering scheme based on a per-layer mean square error (MSE) criterion of the diagonal entries of the R-factor is proposed. In addition, an effi-

point-to-point communications while in [8, 9] transmit feed-forward filter is used, allowing point-to-multipoint communications (downlink scenarios) with decentralised and non-cooperative simple receivers.

Both DFE and THP can be further improved by utilising possible degrees of freedom (DoF) arises from ordering strategies for detection and precoding, respectively. The vertical Bell Labs layered space-time (V-BLAST) [10, 11] is known