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Soft decision decoding of the matroid codes

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Abstract

Matroid or M-codes are a class of non-binary linear block codes that are represented by matrices generated by a cycloclass over Galois field extension. A soft-decision (SD) of M-decoding based on combination of the modified Chase iterative algorithm and the generalized minimum distance decoding controlled by the symbol reliability is proposed and investigated. The contribution of this work is that experimentally is confirmed theoretical assumptions about gain increase due to SD application. An improvement of 1,5 dB of SD vs. hard-decision M-decoding is obtained. Results of the M-decoding simulation are presented and analyzed.

Keywords: matroids, soft-decision, M-decoding, M-codes

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