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Asymptotic bounds on the decoding error probability for two ensembles of LDPC codes.
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Summary: Two ensembles of low-density parity-check (LDPC) codes with low-complexity decoding algorithms are considered. The first ensemble consists of generalized LDPC codes, and the second consists of concatenated codes with an outer LDPC code. Error exponent lower bounds for these ensembles under the corresponding low-complexity decoding algorithms are compared. A modification of the decoding algorithm of a generalized LDPC code with a special construction is proposed. The error exponent lower bound for the modified decoding algorithm is obtained. Finally, numerical results for the considered error exponent lower bounds are presented and analyzed.

MSC:

[94B70](#) Error probability in coding theory

[94B05](#) Linear codes, general

[94B35](#) Decoding

Full Text: [DOI](#)

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