

A Modified Extended Min-Sum Algorithm based on Posterior Probability Thresholding for Non-binary LDPC Codes

Yatong Zhao¹, Liqian Wang¹, Miao Zhu¹, Weiming Wang², Kai Tao², Yinlong Shi², and Xue Chen¹

¹Beijing University of Posts and Telecommunications Institute of Information Photonics and Optical Communications

²ZTE Corp

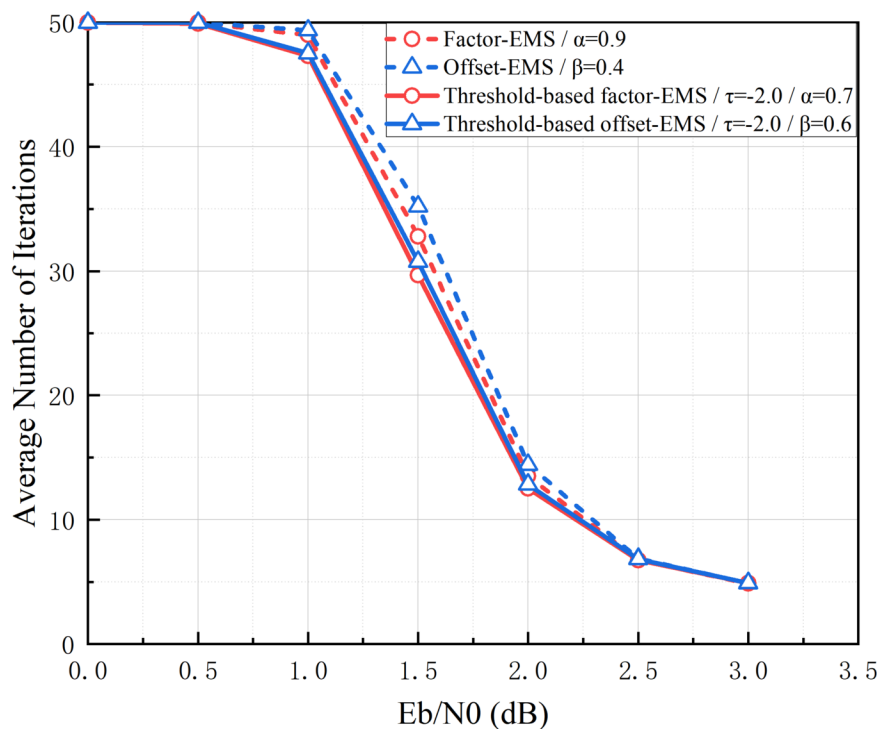
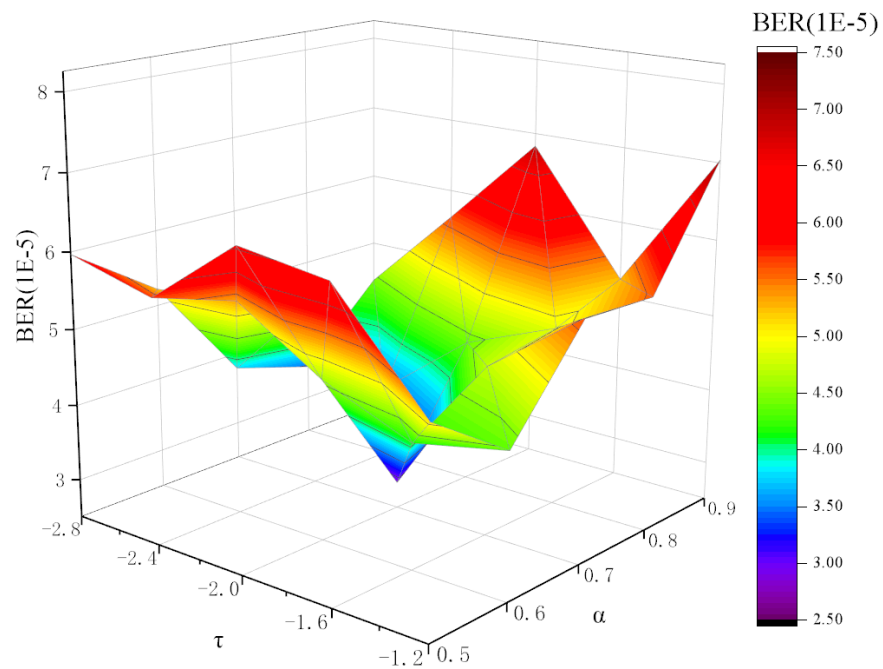
May 7, 2022

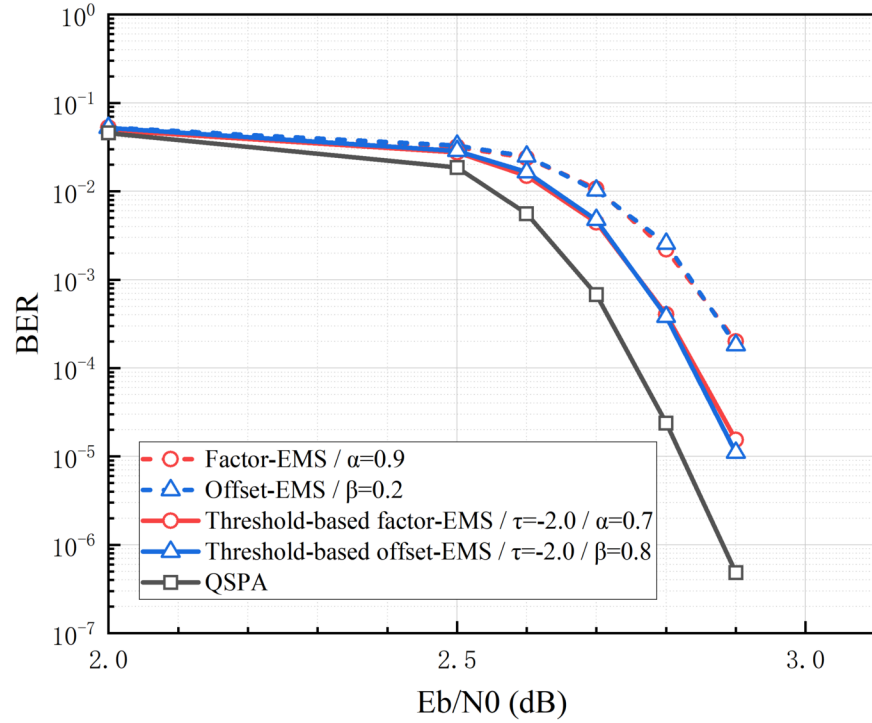
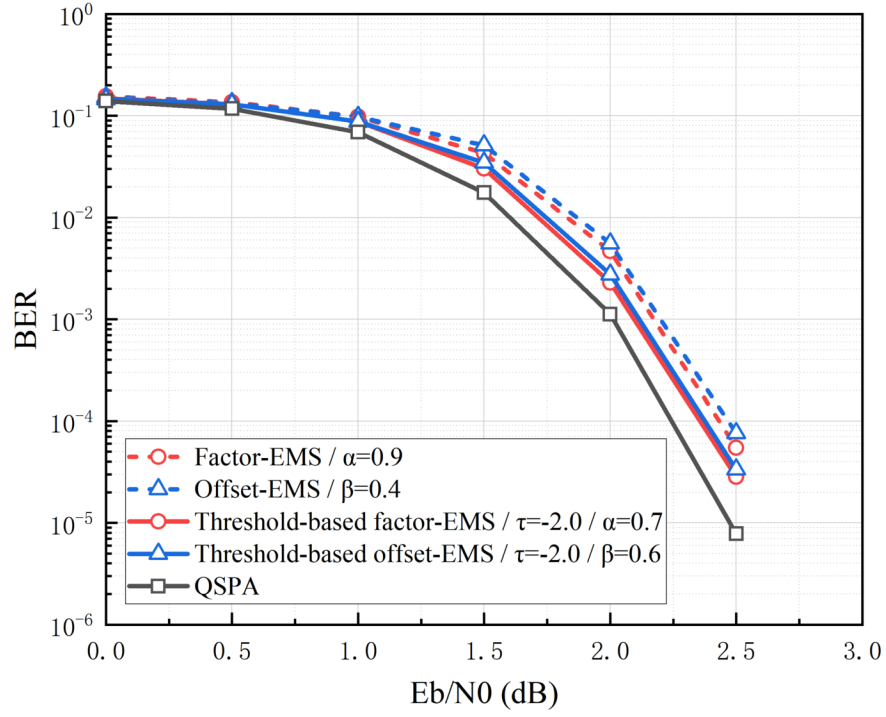
Abstract

This letter focuses on the improvement in the error correction performance of the extended min-sum (EMS) decoding algorithm. Introducing factor/offset modifications in the check node update process of the EMS algorithm can improve the performance. Based on this, we propose a novel threshold-based modified EMS algorithm that introduces the factor/offset in a targeted manner by setting a threshold for the posterior probability. Simulation results show that an additional performance gain of the order of 0.08 dB is obtained with the proposed method without significantly increasing the method's complexity.

Hosted file

A_Modified_Extended_Min-Sum_Algorithm_Based_on_Posterior_Probability_Thresholding_for_Non-Binary_LDPC_Codes available at <https://authorea.com/users/481010/articles/568208-a-modified-extended-min-sum-algorithm-based-on-posterior-probability-thresholding-for-non-binary-ldpc-codes>





Hosted file

Table 1. Comparison of operation times in one iteration.docx available at <https://authorea.>

[com/users/481010/articles/568208-a-modified-extended-min-sum-algorithm-based-on-posterior-probability-thresholding-for-non-binary-ldpc-codes](https://arxiv.org/abs/2205.01010)