Abstract

A hybrid decoding algorithm which proposed for nonbinary and binary low density parity (LDPC) codes, both the algorithm combines the weighted symbol flipping (WSF) algorithm with the fast Fourier transform q-ary sum product algorithm (FFT-QSPA). The flipped position and value are determined by the symbol flipping metric and the received bit values in the first stage WSF algorithm. If the low complexity WSF algorithm is failed, the second stage FFT-QSPA is activated as a switching strategy. They are particularly effective for decoding LDPC codes constructed based on finite geometries and finite fields. Analyzing both the techniques nonbinary LDPC codes gives the better error performance and greatly reduces the computation
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complexity compared to binary LDPC codes. The proposed hybrid algorithm is used for some applications in communication systems for high speed and low power consumption.

References

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Index Terms

- Computer Science
- Algorithms

Keywords

- Nonbinary And Binary Low Density Parity-check (ldpc) Code
- Weighted Symbol-flipping (wsf)
- Hybrid Weighted Symbol-flipping (hwsf)

Iterative Decoding.