Flexible Decoder for LDPC Codes

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Condition: New. Publisher/Verlag: AV Akademikerverlag | A technique to attain desirable trade-off between performance and complexity | Revision with unchanged content. Recent advances in coding theory have uncovered the previously forgotten power of LDPC codes. Their popularity can be related to their relatively simple iterative decoders and their potential to achieve high performance. These make them attractive for error correcting application in communication systems. However, decoding algorithms for LDPC codes have two major drawbacks. First, the algorithms are not optimal in the presence of short cycles in Tanner graph structure of the code. Moreover, there is still a need for a decoding algorithm with low complexity and high performance. This work aims to solve the above problems by merging Scheduling and Hybrid techniques. Deterministic schedule is applied with the objective of preserving the optimality of the algorithms and Hybrid technique is applied on the improved algorithms to provide desirable complexity/performance trade-off. The result is a flexible decoder for any available LDPC code and any combination of decoding algorithms based on the communication systems' need. This book can be used as a reference by professors, students and researches doing research in telecom industry in order to develop new efficient decoding techniques....

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