

Abstract
MDP Convolutional Codes

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Maximum distance profile (MDP) convolutional codes are characterized by the property that the column distances increase in a maximal way. As a result these codes are capable of decoding a maximum number of errors per sliding interval.

In this talk we will present the basic properties of MDP codes and their relation to MDS convolutional codes [4]. The construction of these codes is closely related to the algebraic construction of superregular matrices. A stronger class of codes are the so called complete MDP convolutional codes which are capable to re-start the decoding process in case the decoder gets lost because of too many errors. It is an open question to come up with constructions of complete MDP convolutional codes over a given finite field.

For the erasure channel (like e.g. for transmissions over the Internet) we present an efficient decoding algorithm which has potential practical use, as these codes seem to perform better than comparable MDS block codes.

References

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