

Construction of LDPC convolutional codes

Julia Lieb¹,

¹ University of Zurich

In this talk, we consider LDPC convolutional codes, i.e. convolutional codes with a sparse sliding parity-check matrix, over arbitrary finite fields. It is important for the decoding performance of these codes that the associated Tanner graph is free from short cycles not fulfilling the full-rank condition (FRC). We present constructions of such codes using so-called difference triangle sets (DTS) and relate properties of the code, such as distance and degree, to properties of the DTS. Moreover, we give conditions on the DTS that ensure that the associated Tanner graph is free from cycles of arbitrary size. These conditions can be relaxed if the underlying field size is sufficiently large.