

# LDPC Convolutional Codes Coded Cooperation Based on Puncturing

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**Abstract**—Coded cooperation is a kind of virtual MIMO transmission technology that can achieve both coding gain and diversity gain, which is very promising in 5G communication. To design a scheme that can be used for near-capacity transmission and can be generalized for slow and fast fading channels, this paper studies the coding cooperation based on convolutional LDPC codes. Firstly, channel coding the original information by LDPC convolutional codes, then divided the coded words into two parts by puncturing algorithm; secondly, introducing space-time transmission into the second frame of coded cooperation, so the diversity gain can be obtained under different fading scenarios. Simulation results show that the system performance can be improved generally.

**Keywords**—coded cooperation; LDPC convolutional codes; space-time transmission; puncturing



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