



# Scaling Behavior of Convolutional LDPC Ensembles over the BEC

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We study the scaling behavior of coupled sparse graph codes over the binary erasure channel. In particular, let  $2L+1$  be the length of the coupled chain, let  $M$  be the number of variables in each of the  $2L + 1$  local copies, let  $l$  be the number of iterations, let  $P_b$  denote the bit error probability, and let  $\{\epsilon\}$  denote the channel parameter. We are interested in how these quantities scale when we let the blocklength  $(2L + 1)M$  tend to infinity. Based on empirical evidence we show that the threshold saturation phenomenon is rather stable with respect to the scaling of the various parameters and we formulate some general rules of thumb which can serve as a guide for the design of coding systems based on coupled graphs.

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