

1023-94-1500

Christine A Kelley* (ckelley@fields.utoronto.ca). *Pseudocodeword weights of codes from expander graphs.*

Codes on graphs, in conjunction with low complexity message-passing decoding algorithms, are shown to achieve near-capacity performance over several communication channels. In particular, sparse expander graphs are desirable, as they allow for quick dispersion of the messages. Recent work has shown that the iterative decoding performance is closely linked with the weight of pseudocodewords associated to the graph. In this talk, we review the construction of expander-based codes and present lower bounds on the minimum pseudocodeword weight for each type. These bounds are useful for predicting the performance of expander codes under graph-based iterative decoding and linear programming decoding. (Received September 26, 2006)