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Ian F. Blake* (ifblake@ece.ubc.ca), Department of Electrical and Computer Eng., 2332 Main Mall, University of British Columbia, Vancouver, BC V6T 1Z4, Canada. *Graph spectra and coding.*

Graph theory has played an important role in coding theory from its inception. Many of the investigations, from the iterative algorithms inspired by the work of Gallager to the efficient decoding algorithms of Spielman, involve aspects of the spectra of the graphs involved. This talk considers some of the recent directions this work has taken with special reference to the important class of biregular bipartite graphs. It relates the spectral properties of these graphs to aspects of the error performance of the related codes. The role of the second largest eigenvalue of the adjacency matrix of the graph is of special interest in many of these directions. (Received July 21, 2015)