Steve Butler* (butler@iastate.edu). Constructions of cospectral graphs for the normalized Laplacian.

The spectrum of the normalized Laplacian matrix gives important information about graphs and is tied to random processes. Because of its unusual definition (involving square roots) it can be an unwieldy matrix to work with and it has some unusual properties. We will look at several constructions of cospectral graphs for the normalized Laplacian with special focus on graphs which have differing number of edges and still have the same set of eigenvalues. This includes examples where one graph is a subgraph of the other!

Part of this is joint work with Kristin Heysse. (Received August 24, 2016)