WHITNEY DRAZEN, Northeastern University
Fractional Cospectrality

A necessary condition for perfect state transfer between two vertices u and v in a graph with adjacency matrix A is the cospectrality of these vertices. We can characterize cospectrality in terms of the eigenvectors of A at the u and v coordinates. In this talk we consider fractional revival, a more general phenomenon than perfect state transfer. We find an analogous necessary condition on the eigenvectors of A for fractional revival that we call *fractional cospectrality*. We give several equivalent formulations of this notion and present examples of families of graphs with fractionally cospectral pairs. Additionally, we will discuss when we can glue graphs at their fractionally cospectral pairs and maintain fractional cospectrality.