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Daryl R DeFord* (daryl.r.deford.gr@dartmouth.edu), Dartmouth College, Kemeny Hall, 27 N. Main St., Hanover, NH 03755. *Dynamical Modeling for Multiplex Networks*.

Multiplex analyses of networks offer an important tool for leveraging the additional structure available in disaggregated data. In this talk, we will discuss the matched sum, a standard model for multiplex networks, describing the combinatorial and asymptotic properties of these graphs as the number of layers increases. These results allow us to characterize the pathological behavior that occurs when inter-layer connections overwhelm the intra-layer content. As an alternative to this structural approach, we present a family of dynamically-motivated models that avoids these pathologies and provide related spectral results. We apply these new methods to centrality and clustering problems for several data sets from the social sciences. (Received September 18, 2017)