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**Amanda L Traud\*** (altraud@email.unc.edu), 2000 Baity Hill Dr, Apt 326, Chapel Hill, NC 27514, and **Peter J Mucha**. *Using Eigenvector Methods to Find Sociological Patterns in Facebook Networks*.

Arising ubiquitously in biology, physics, and the social sciences, real-world networks are typically neither fully ordered nor fully random but instead share properties with both structured and random graphs. Such "complex networks" tend to live in small worlds, yet most of them can be decomposed into interconnected modules or "communities." Such communities play an important role in collegiate social life, as exemplified by networking sites such as the Facebook. Using recently developed eigenvector-based methods for community detection, we identify hierarchical communities of Facebook members. Using three variants of recently developed eigenvector-based methods for community detection [M. Newman. Phys. Rev. E 74, 036104 (2006)], we identify hierarchical communities of pages/individuals in the Facebook networks restricted to individual colleges and universities. In some cases, such cliques correlate closely to self-identifications of the individuals involved. For instance, the clustering of Caltech-affiliated Facebook pages correlates well with their residential colleges or "Houses." We discuss and investigate similar correlations between self-identified sociological information and algorithm-obtained community structures in the Facebook networks of other schools. (Received August 14, 2007)