

APPROXIMATION OF MATRIX FUNCTIONS ARISING IN THE
ANALYSIS OF COMPLEX NETWORKS

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Following recent work of Estrada, Hatano, Higham and coworkers I will describe some new techniques for the analysis of complex networks using matrix functions. Examples include notions like subgraph centrality, communicability, Estrada index, and other measures that can be expressed in terms of the exponential of the adjacency matrix of the underlying graph, as well as other matrix functions. Computational techniques for bounding and estimating quantities of interest for large networks will be discussed and illustrated by numerical examples.