

Model reduction of complex networks

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Abstract: Given a large and complex network, we would like to find the best partition of this network into a small number of clusters. This question has been addressed in many different ways. Here we propose a strategy along the lines of optimal prediction for the Markov chains associated with the dynamics on these networks. A k-means type algorithm is constructed for the partition of network. It is further generalized to the fuzzy version. We will illustrate our strategy on several examples.