ON BIPARTIZATION OF NETWORKS

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Network analysis aims to identify important nodes in a network and to uncover structural properties of a network such as bipartivity. A network is said to be bipartite if its nodes can be subdivided into two nonempty sets such that there are no edges between nodes in the same set. It is a computationally difficult task to determine the closest bipartite network to a given network. The aim of this work is to describe how a given network can be approximated by a bipartite one by solving a sequence of simple optimization problems. Computed examples illustrate the performance of the described spectral bipartization method. We also show how this procedure can be applied to detect the presence of a large anti-community in a network and to identify it.

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