

Assortativity in Graphs

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Networks where high-degree nodes preferentially connect to other high-degree nodes are called (degree) assortative. Real-world networks often show high assortativity or high disassortativity. Therefore, there is an interest to produce models of networks with predefined assortativity or disassortativity. In this course we will review the knowledge about assortative models of networks. We will focus on algebraic properties of highly assortative graphs. We will also present some usual and new algorithms for producing the highest assortative graphs with a given degree distribution. Finally, we will show the impact of assortativity on dynamics of spreading on graphs.