Novel model of social networks with tunable clustering coefficient*

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Abstract

We propose a novel method to generate scale-free networks with discretely tunable clustering coefficient in order to model real social networks. Recently several methods were introduced to generate networks with power law degree distribution, which are very frequent in nature. Most of them are based on preferential attachment [1, 2], but in these networks the average clustering coefficient is low opposite to the real social networks. Beside the attractive popularity our model is based on the fact that if a person knows somebody, probably knows several people from his/her acquaintanceship as well. The topological properties of these networks were studied and it was found that in these networks the cliques are more relevant independently from the system size. The model networks are being subjected to computer simulation of information spreading in the near future.

Keywords: scale-free network, clustering coefficient, social network

MSC: 05C82, 90B15, 91D30

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