Abstract for GR-TR Conference on Statistical Mechanics and Dynamical Systems

Talk Invited Invited Talk

The structure and statistical properties of Japanese business firm network

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Network structure of about 1 million business firms in Japan is studied by analyzing a comprehensive database. It is found that link numbers follow a power law distribution showing that the network is a typical scale-free type. The exponent of the power law of the cumulative distribution is about 1.3 with the mean link number 4.5. Other basic quantities such as PageRanks, degrees of hub and authority, distribution of pair distance are also observed. We can construct a dynamic model of business firm network by modeling the processes of birth, death and merger of business firms. It is shown that the model converges to a statistically steady state in which most of the network properties are reproduced.