Non-linear Point to Point Propagation Model Based on Complex Networks

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Abstract. Infectious disease model is used to describe the global level of a complex network propagate, but in the real world, people pay more attention to the point to point level of a complex network propagate, especially for the quantification of point to point propagation. In order to solve this problem, we proposed a non-linear point to point propagation model of complex network based on edge weight calculation. Characteristics of edge propagation weight between nodes is described and quantified from point to point perspective. At the same time, nodes have a damping effect on propagation. The propagation damping calculation is incorporated into characteristics of edge propagation weight and node which is functional. Referring to some ideas of the neuron model, series theory and information transmission theory, and the model is verified in a large-scale financial risk propagation experiment.