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Computer Science : Computer Systems Organization and Communication Networks

Ganguly, N., Deutsch, A., Mukherjee, A. (Eds.)

Dynamics On and Of Complex Networks

Applications to Biology, Computer Science, and the Social Sciences

- A comprehensive and concise presentation of current research from experts in various disciplines compiled in one volume
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- For a broad audience of graduate students, researchers and practitioners in computer science, biology, statistical physics, nonlinear dynamics, linguistics, and the social sciences

In the context of network theory, Complex networks can be defined as a collection of nodes connected by edges representing various complex interactions among the nodes. Almost any large-scale system, be it natural or man-made, can be viewed as a complex network of interacting entities, which is dynamically evolving over time. Naturally occurring networks include biological, ecological and social networks (e.g., metabolic networks, gene regulatory networks, protein interaction networks, signaling networks, epidemic networks, food webs, scientific collaboration networks and acquaintance networks), whereas man-made networks include communication networks and transportation infrastructures (e.g., the Internet, the World Wide Web, peer-to-peer networks, power grids and airline networks). This edited volume is a sequel to the workshop Dynamics on and of Complex Networks (<http://www.cel.iitkgp.ernet.in/?eccs07/>) held as a satellite event of the fourth European Conference on Complex Systems in Dresden, Germany from October 1–5, 2007. The primary aim of this workshop was to systematically explore the statistical dynamics "on" and "of" complex networks that prevail across a large number of scientific disciplines. Dynamics on networks refers to the different types of processes, for instance, proliferation and diffusion, that take place on networks. The functionality/efficiency of these processes is strongly tied to the underlying topology as well as the dynamic behavior of the network.

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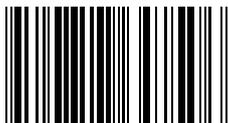
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