Título: Structural Analysis Of Complex Networks

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Because of the increasing complexity and growth of real-world networks, their analysis by using classical graph-theoretic methods is oftentimes a difficult procedure. As a result, there is a strong need to combine graph-theoretic methods with mathematical techniques from other scientific disciplines, such as machine learning and information theory, in order to analyze complex networks more adequately.

Filling a gap in literature, this self-contained book presents theoretical and application-oriented results to structurally explore complex networks. The work focuses not only on classical graph-theoretic methods, but also demonstrates the usefulness of structural graph theory as a tool for solving interdisciplinary problems.

Special emphasis is given to methods related to the following areas:

* Applications to biology, chemistry, linguistics, and data analysis

* Graph colorings

* Graph polynomials

* Information measures for graphs

* Metrical properties of graphs

* Partitions and decompositions

* Quantitative graph measures

Structural Analysis of Complex Networks is suitable for a broad, interdisciplinary readership of

researchers, practitioners, and graduate students in discrete mathematics, statistics, computer science, machine learning, artificial intelligence, computational and systems biology, cognitive science, computational linguistics, and mathematical chemistry. The book may be used as a supplementary textbook in graduate-level seminars on structural graph analysis, complex networks, or network-based machine learning methods.