

Models of life: dynamics and regulation in biological systems

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Abstrak

"Reflecting the major advances that have been made in the field over the past decade, this book provides an overview of current models of biological systems. The focus is on simple quantitative models, highlighting their role in enhancing our understanding of the strategies of gene regulation and dynamics of information transfer along signalling pathways, as well as in unravelling the interplay between function and evolution. The chapters are self-contained, each describing key methods for studying the quantitative aspects of life through the use of physical models. They focus, in particular, on connecting the dynamics of proteins and DNA with strategic decisions on the larger scale of a living cell, using E. coli and phage lambda as key examples. Encompassing fields such as quantitative molecular biology, systems biology and biophysics, this book will be a valuable tool for students from both biological and physical science backgrounds"--