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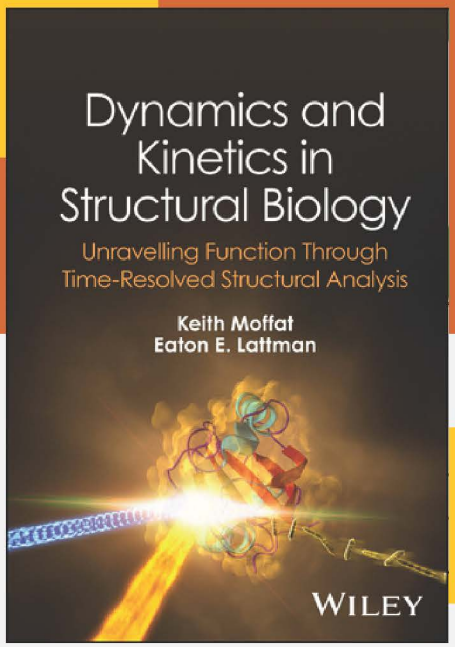

Dynamics and Kinetics in Structural Biology: Unravelling Function Through Time-Resolved Structural Analysis

Keith Moffat,
Eaton E. Lattman

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Structural biology seeks to understand the chemical mechanisms and functions of biological molecules, such as proteins, based on their atomic structures. Until recently, these structures have been studied only statically, using procedures which deliberately freeze atomic motion. However, freezing eliminates the rapid structural motions so essential to biological activity and function; the molecules are inactive. But with the recent development of X-ray free electron laser (XFEL) sources, efforts to conduct dynamic experiments have expanded using the principles of dynamics and kinetics to capture active biological molecules as they function.

Dynamics and Kinetics in Structural Biology promotes the development of these experiments and their successful application. It grounds readers in the foundational principles of dynamics and kinetics; proceeds through extended discussions of experimental procedures and data analysis techniques; and explores experimental frontiers in structural dynamics. The book will aid researchers to gather and interpret cutting-edge data on the dynamic structure of biological molecules, under conditions where they retain their biological functions.

Dynamics and Kinetics in Structural Biology offers readers:

- Authorship by founding figures in the field
- In-depth presentation of time-resolved X-ray crystallography, solution scattering, and more
- A pioneering contribution to a rapidly developing field of study

Dynamics and Kinetics in Structural Biology is essential reading for graduate students, scientists, researchers and industry professionals engaged in structural studies of biological systems. Industry professionals considering dynamic studies in the development of new product lines will also benefit.

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