

SECOND, UPDATED AND EXTENDED EDITION

PROTEIN PHYSICS

A Course of Lectures

ALEXEI V. FINKELSTEIN
OLEG B. PTITSYN

Protein Physics covers the most general problems of protein structure, folding and function; it describes key experimental facts and introduces concepts and theories. It deals with fibrous, membrane and especially water-soluble globular proteins, in both their native and denatured states. The book summarizes and presents, in a systematic form, the results of several decades of worldwide fundamental research on protein physics, structure and folding. It describes many physical models to help the reader to make estimates and predictions of the physical processes occurring in proteins.

New to this revised edition, is the inclusion of novel information on amyloid aggregation, natively disordered proteins, protein folding in vivo, protein motors, misfolding, chameleon proteins, advances in protein engineering and design and advances in the modelling of protein folding. Furthermore, it provides problems with solutions, many new and updated references and physical and mathematical appendices. New figures (including stereo drawings, with a special appendix showing how to use them) have also been added.

Protein Physics is intended for graduate and advanced undergraduate students and researchers in academia and industry in biophysics, physics, biochemistry, biologists, biotechnology, and chemistry.

- Fully revised and expanded new edition based on the latest research developments in protein physics
- Written by the top experts in the field worldwide
- Deals with fibrous, membrane and especially water-soluble globular proteins, in both their native and denatured states
- Summarizes and presents in a systematic form the results of several decades of worldwide fundamental research on protein physics, structure and folding
- Examines experimental data on protein structure in the post-genome era.

From the review of the first edition:

"The lectures are unique ...anticipating questions from the students, and answering them, with an interspersion of simple examples ... a good introduction to protein physics for students ...will help chemists, physicists, and biologists acquire a widespread knowledge of current issues in protein structure, properties, and reactions."

Harold A. Scheraga, Todd Professor of Chemistry, Cornell University, USA; Member of the National Academy of Sciences of the USA, and of the American Academy of Arts and Sciences. December 2001.



elsevier.com

Physics

ISBN 978-0-12-809676-5



9 780128 096765