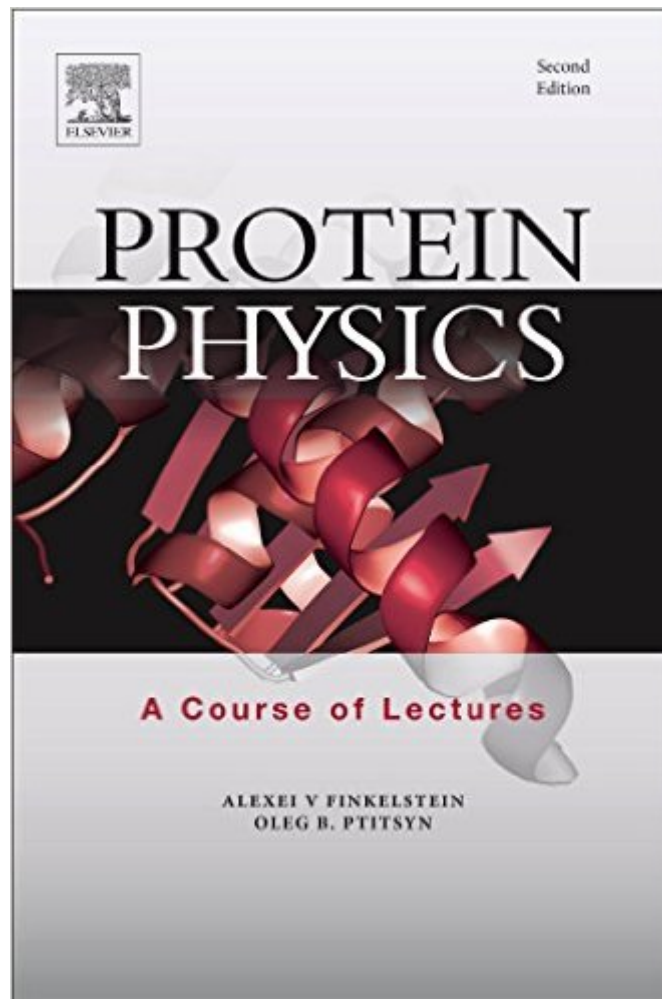


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# Protein Physics, Second Edition: A Course Of Lectures (Soft Condensed Matter, Complex Fluids And Biomaterials)



## Synopsis

Protein Physics: A Course of Lectures covers the most general problems of protein structure, folding and function. It describes key experimental facts and introduces concepts and theories, dealing with fibrous, membrane, and water-soluble globular proteins, in both their native and denatured states. The book systematically summarizes and presents the results of several decades of worldwide fundamental research on protein physics, structure, and folding, describing many physical models that help readers make estimates and predictions of physical processes that occur 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 & design, and advances in the modeling of protein folding. Further, the book provides problems with solutions, many new and updated references, and physical and mathematical appendices. In addition, new figures (including stereo drawings, with a special appendix showing how to use them) are added, making this an ideal resource for graduate and advanced undergraduate students and researchers in academia in the fields of 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 world's top expert in the field. Deals with fibrous, membrane, and water-soluble globular proteins, in both their native and denatured states. Summarizes, in a systematic form, the results of several decades of worldwide fundamental research on protein physics and their structure and folding. Examines experimental data on protein structure in the post-genome era.

## Book Information

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## Customer Reviews

I have been concerned with the topic of this book for all my academic life: namely the physical laws that explain how proteins, the major molecules of life carry-out their unimaginably complex functions. As such, I am familiar with the topics and have met both authors. None of this prepared me for the pleasure of encountering brilliant minds seeing into life's mysteries and revealing their insight in this delightful series of 25 lectures. The style is definitely different from conventional chapters in a text book and I wish the book will be released in Kindle form so that I could have the text read to me. The thinking is deep and many of the problems illustrate facts that few know, for example, Problem 24.1, which shows that only a rigid enzyme can be an efficient catalyst.

This book brings together a unique course of lectures on the physics of protein molecules. These lectures unveil for the reader the most interesting and important questions on structure, folding and functioning of the molecular "bricks of life", the protein molecules. The uniqueness of the course is that the authors start from the very beginning, not assuming any specialized knowledge background for the reader, and then, as a well-informed and experienced guide, lead them to the most difficult and deepest questions on the cutting edge of the field. Therefore, reading the lectures is both a captivating and useful journey for student and established researcher alike. Another particularly uncommon aspect of the course is that the difficult questions are presented in the form of a dialog between the authors and reader. This has the effect of keeping the reader puzzled and focused on the problem. There are not too many professional books that discuss real world scientific problems with such vividness and strictness. I am sure that no one will regret buying and reading this truly exceptional book.

“Protein Physics” by Alexei Finkelstein and Oleg Ptitsyn is just a very necessary and timely book for everyone working in the field of protein research. Starting from its early Russian edition appeared more than 10 years ago, I use it in my courses in biophysics and molecular modeling of proteins. In addition, I always recommend it to researchers – newcomers to the lab. Being written by the leading biophysicists, the book explains “on fingers” and in a cheerful manner quite difficult physical concepts of protein organization. Roman Efremov, biophysicist

One of the most authoritative textbooks upon the intricate subject of physics and protein folding

and misfolding. This book presents a nice and profound exposition of the physics lying behind protein folding and other physical processes at the molecular level. Its content is suitable to both experts and non-experts in the field since every equation has been explained throughout. This book certainly should be read by any physicist interested in how molecular biology has benefited from the physical insight in the last decades.

Brilliant books from brilliant Russian biophysicists. I have adopted this book for my graduate class in biophysics.

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