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determining the parabolic motion on the Earth belong to the same force — Universal Gravitational Force? It is the integration of experimentalism and rationalism that constitutes the recent four hundred years scientific tradition and paradigm. This integration is represented most fully and fruitfully in physics, especially in the 20th century's modern physics. With invincible power, it is conquering every aspect of natural science. The permeation of this paradigm into life science is thus inevitable. As the result of this diffusion, life science must be not only experimental but also theoretical and comprehensive.

This book is the summary of our group's work in theoretical biology in the past 15 years (1987—2002). By choosing *Theoretic-Physical Approach* as its title instead of using a more common one *Theoretical approach*, the author intends to emphasize the significance of exploring the essence of the phenomena and finding the 'physics' behind them rather than only resorting to mathematical methods. Richard Feynman once said, "Physicists always have the habit of taking the simplest example of any phenomenon and calling it 'physics'." Although the life phenomena are extremely complex, we expect that this method of constructing the simplified model, neglecting all non-essential factors and extracting the 'coarse-grained' laws for the model system, can work effectively on the main topics of molecular biology. The characteristic feature of life which differentiates from an inanimate piece of matter is the large amount of information contained in it. Different from "matter" and "energy", "information" constitutes the third category in natural sciences. The central task of a mature theoretical approach to molecular biology thus lies in exploring the law on the formation, storage, expression and transmission of life information in each step, from DNA to mRNA, to amino acid sequence and finally to protein structure and function. Of course, to attain the goal, there is still a long way to go. The choice of the subject matter in this book only reflects on the author's personal point of view and his present research experience. Therefore it cannot be expected to cover every aspect of this field. In fact, in such a broad and rapidly developing field, even a relative comprehensiveness is hard to achieve. So it is probably more proper to consider this book a research report on the progress of theoretical biology.

Unexceptionally, every mature discipline has its own relatively stable scientific community and a rather consistent value system. Being a new discipline, theoretical biology is forming its community. I consider myself