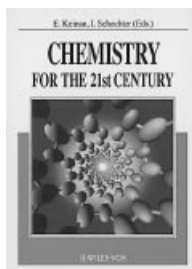


## The Shape of Things to Come

**Chemistry for the 21st Century.** Edited by Ehud Keinan and Israel Schechter. Wiley-VCH, Weinheim 2001. xiv + 293 pp., softcover € 39.90.—ISBN 3-527-30235-2

Where is chemical research going, and what should be the chemist's research targets in the present age of interdisciplinary science? These are the questions considered by Ehud Keinan and Israel Schechter in *Chemistry for the 21st Century*. The book contains a wide-ranging collection of articles by well-known scientists representing different fields of work, and it provides an impressive demonstration of the rich variety of chemical research that crosses subject boundaries. The 15 chapters discuss the resulting benefits in the areas of supramolecular chemistry, chemical synthesis, drug design, heterogeneous catalysis, protein research, nitrogen chemistry, combinatorial chemistry, prebiotic chemistry, molecular modeling, and quantum chemistry, and they extrapolate from what has already been achieved to identifying the tasks for the future. They cover topics as varied as protocols for total syntheses of epothilones, methods for the biological testing of synthetic compounds with therapeutic potential, and examples of the conformational control of biological function.



Guidelines for the development of efficient catalysts are indicated, and there are discussions about the importance of biological sources of nitrogen and ways of using them. The close interweaving of chemistry and biology is emphasized, especially in the chapter "Drugs for a New Millennium". Advances in the understanding of biological processes and of factors that affect them have made it possible to develop specific strategies for the design and synthesis of active agents. Combinatorial chemistry extends the scope of interaction further to include inorganic chemistry and the materials sciences. The use of combinatorial methods for drug design has generated interest in applying inorganic chemistry to the development of suitable solid phases as support materials for molecular libraries. The chapter on protein chain folding goes hand in hand with the chapter on theoretical chemistry, which defines the ever-more precise characterization of the spectroscopic and dynamic properties of large molecules, such as proteins, as an important frontier of modern quantum chemistry. *Chemistry for the 21st Century* is a rich pool of ideas for research on challenging current problems, as for example in the discussions about homochirality of biomolecules and theories about its origins in prebiotic chemistry.

The book is certainly not a comprehensive treatment of all the research topics centered around chemistry. Nevertheless, the examples chosen will serve to give the attentive reader an impression of the wide-ranging nature of chemical research and its important intermeshing with other disciplines. A look at the list of contents is enough to appreciate the broadness of the range of topics and to arouse one's curiosity. Although a few of the authors have tended to put more emphasis on reviewing their own subject than on identifying new directions of research, taken as a whole the 15 chapters serve to point the way ahead for

chemistry-related interdisciplinary work in the modern age.

The book is not only of interest to chemists—scientists in related disciplines such as physics and biology will also derive useful ideas from it. Students will certainly find it stimulating, and it may also give them a broader outlook to help in deciding on their preferred area of research. Although the book generally assumes some scientific education on the part of the reader, even some without a background in natural science may benefit from reading one or another of the chapters.

Ehud Keinan and Israel Schechter have put together nice collection of chemical research topics, which are bound together by the common element of cooperative research and mutual enrichment across interdisciplinary boundaries. We can look forward with anticipation to the two further volumes that are to complement this one in the series *Science for the 21st Century*.

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**Virtual Screening for Bioactive Molecules.** Edited by Hans-Joachim Böhm and Gisbert Schneider. Wiley-VCH, Weinheim 2000. xviii + 307 pp., hardcover € 129.00.—ISBN 3-527-30153-4

Virtual screening is a computer-based method for arriving at a systematic selection of compounds from a large number of molecules, as the editors explain in defining the subject of this book. It consists of 12 chapters describing the different approaches to virtual screening. The authors of the individual chapters are drawn mainly from industrial research and development groups,

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