Here, numerous winners of the Wolf prize from all chemical disciplines provide an overview of the new ideas and approaches that will shape this dynamic science over the forthcoming decades and so will have a decisive influence on our living conditions. This glimpse of the future is naturally based on the findings granted us by the rapid increase in chemical research during the 20th century. It may be said that a silent "revolution" took place, the positive results of which are still not fully predicted.

For example, chemists in research laboratories nowadays are able to develop drugs in increasingly short times to treat diseases once thought incurable. They can design new materials that withstand extreme conditions, and predict the properties of compounds that no one has even seen yet. In this exceptional book those breakthroughs of modern chemistry are illustrated and explained by leading scientists.

It stems from the high-quality papers given at the prestigious ceremony to accompany the presentation of the 20th Wolf Prize. It is an extraordinary source for every chemist in industry and academia to get an overview of the highlights of modern chemistry.

Main topics:

Some Reflections on Chemistry: Molecular, Supramolecular and Beyond.

Chemical Synthesis and Biological Studies of the Epothilones: Microtubule Stabilizing Agents with Enhanced
Activity Against Multidrug-Resistant Cell Lines and Tumors.

The Spirotetrahydrofuran Motif: Its Role in Enhancing Ligation in Belted Ionophores, Biasing Cyclohexane Conformation, and Restricting Nucleoside/Nucleotide Conformation.

Heterogeneous catalysis: From 'black art' to atomic understanding.

Drugs for a New Millennium.

Protein folding and beyond.

The Enzymology of Biological Nitrogen Fixation.

The Chemistry of Nitrogen in Soils.

Spherical Molecular Assemblies: A class of Hosts for the Next Millennium.

The Combinatorial Approach to Materials Discovery.

On One Hand but Not the Other: The Challenge of the Origin and Survival of Homochirality in Prebiotic Chemistry.

Chemical Reaction Dynamics Looks to the understanding of Complex Systems.

The Past, Present, and Future of Quantum Chemistry.

Quantum Alchemy.

Quantum Chemistry in the Next Millennium: The Next step.

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