Book Reviews

The Chemistry of the Fullerenes. Thieme Organic Chemistry Monograph Series. By Andreas Hirsch. Georg Thieme Verlag, Stuttgart, Germany. 1994. xii + 203 pp. 17 × 24 cm. ISBN 3-13-136801-2. DM/SFr 80.00 (pbk).

The fullerenes are molecular allotropes of carbon. They are constructed of fused pentagons and hexagons. The most abundant and stable fullerene is buckminsterfullerene C_{60} which has the shape of a soccer ball. The next stable homolog is C_{70}; it is shaped like a football. This is followed by the higher fullerenes C_{76}, C_{78}, C_{82}, C_{84}, C_{90}, C_{94}, and C_{96}. In this book is presented the first comprehensive overview of the chemistry and reactions of these highly symmetrical carbon allotropes.

The first chapter describes the discovery of the fullerenes and gives a description of the methods of production and isolation of the parent compounds. The mechanism of formation and the physical, thermodynamic, electronic, and spectroscopic properties of the fullerenes are also summarized. Description of the chemistry of the fullerenes is organized according to the type of chemical transformation. Accordingly, subsequent chapters describe electron transfer reactions, nucleophilic additions, cycloadditions, hydrogenations, radical additions, transfer metal complex formation, oxidations, and electrophilic reactions of the fullerenes, primarily C_{60}. In the final chapter, emerging principles of fullerene chemistry, such as reactivity and regiochemistry, are considered.

Fullerenes are of both theoretical and practical importance. The well-organized and lucid description of the chemistry of these compounds presented in this book will be of interest to both medicinal and organic chemists. Exciting derivatives with novel properties may be anticipated from future fullerene chemistry.

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Reagents for Organic Synthesis. Volume 17. Edited by Mary Fieser. John Wiley & Sons, Inc. New York. 1994. 443 pp. ISBN 0-471-00074-4. $54.95.

This very successful series, whose first volume appeared in 1967 (then authored by the late Louis and his wife Mary Fieser) has provided chemists with a comprehensive, up-to-date overview of the reagent literature. This volume includes material published in late 1990 to early 1993. The same format of this series has continued over the years, providing descriptions, structural formulas, examples of application, and references to new reagents as well as to reagents included in previous volumes. Author and subject indexes are provided. This volume, as is the case of the previous 16 volumes, should be on every chemistry library shelf and within easy reach of every research chemist involved with organic synthesis.

John L. Neumeyer
Research Biochemicals International
Natick, Massachusetts 01760

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