

Review of Fullerenes: The Hydrogenated Fullerenes

Fullerenes: The Hydrogenated Fullerenes. Edited by Franco Cataldo. (Actinium Chemical Research Institute, Rome, Italy) and Susana Iglesias-Groth. (Instituto de Astrofísica de Canarias, Tenerife, Spain). From the series, Carbon Materials: Chemistry and Physics, 02. Edited by F. Cataldo and P. Milani. Springer Science + Business Media B.V.: Dordrecht, Heidelberg, London, New York. 2010. xiv + 278 pp. \$189. ISBN 978-1-4020-9886-4.

Fullerenes appeared on the chemical scene soon after their fullerene precursors—in fact, Birch hydrogenation was one of the very first reactions of fullerenes, reported by Haufler, Smalley, and numerous co-workers in 1990. Two decades later, investigations of fullerenes have flourished to the point that this book covers a vast array of topics. In 12 chapters, the reader gets an overview of the role of fullerenes and related carbon nanostructures in absorption lines and hydrogen formation in the interstellar medium (3 chapters), theoretical and experimental studies of the fullerene–hydrogen systems (2 chapters), chemical methods to prepare [60]fullerenes, isotope effects in perdeuterofullerenes, NMR studies of fullerenes, low-temperature infrared studies of fullerenes and fullerenes, high-pressure hydrogenated carbon nanostructures including C_{60} plus carbon nanotubes and nanofibers, and topological modeling of $C_{60}H_{36}$ isomers. The coverage in each chapter appears to be quite thorough, encompassing both the history of the topic and current developments. Every chemist will find certain chapters of particular interest—for this reviewer those about the chemical preparation of [60]fullerenes by Briggs and Miller and the NMR spectroscopy of fullerenes were favorites. Additional coverage of electrochemistry and materials or biological applications of fullerenes would have been worth reading, but perhaps not enough is known about those subjects to fill a chapter. The major distraction in reading this book is that the editing could have been tighter. In places, the English is convoluted, and corrections of errors such as “Haufler” for Haufler would have been appreciated. Overall, this book is a worthwhile investment for individuals or libraries who want a quick look at the state of the art of hydrogenated fullerenes. Some American chemists may wax nostalgic for the days when support for basic research in this area was more readily available from funding agencies.

John P. Selegue
 University of Kentucky

10.1021/ja111721f

Published: January 14, 2011