

between June 1994 and May 1995. The introductory chapter to this volume provides a list of all books and reviews, with NMR as the principal theme, that were known to the compiler for the period under review. The compilation is sectionalised for the reader's convenience into books, regular review series, edited books and symposia, reviews in periodicals, reviews and books in foreign language, and details over 650 articles. The foreign language articles are subdivided according to language and the English title is provided.

The following two chapters provide detailed information on the theoretical and physical aspects and applications of nuclear shielding. The shieldings of particular nuclear species are comprehensively covered in the latter of these chapters. The theoretical aspects and applications of spin-spin couplings are dealt with in the next two sections. Subsequent chapters discuss solid-state NMR and multiple pulse NMR. Ninety percent of the papers on solid-state NMR cited in *Chemical Abstracts* during this review period are concerned with the application of the technique, with the remaining ten percent involving technique or analysis development. The areas that have received greatest attention are polymers, biological materials, zeolites and zeotypes and minerals.

The remaining six chapters detail specific areas of application and include natural macromolecules, synthetic macromolecules, conformational analysis, NMR spectroscopy in living systems, NMR imaging and oriented molecules. There are several sub-sections of specific interest to the bio-organic chemist, including peptides and proteins, nucleic acids, carbohydrates, and lipids. The only area missing from this volume, compared with previous editions, is a section on 'Nuclear Spin Relaxation in Liquids and Gases', however readers are assured that two years coverage of this area will be provided in Volume 26 of this series.

Volumes in this series are extremely well referenced and incorporate a tremendous amount of information on NMR allowing those with specific interests in aspects of NMR to keep abreast of the pertinent literature without spending copious hours searching for references. Such volumes are particularly valuable to individuals who want to get rapidly acquainted with a specific sub-field of NMR spectroscopy, and are therefore highly recommended.

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***Enzymes for Carbohydrate Engineering*, K.-H. Park, J.F. Robyt, Y.-D. Choi (Eds.), Elsevier Science BV., Amsterdam, The Netherlands, 1996, pp. Vii + 215 Price \$147.00, ISBN 0-444-82408**

Currently, the industrial or bulk enzymes play an important role in many biotechnological processes. Polysaccharide-degrading enzymes represent one of the most significant groups of industrially important bulk enzymes. Such enzymes include amylases, pectinases and cellulases. In addition, several other carbohydrate transforming enzymes such as glucose isomerase, invertase and lactase also significantly involve in commercial markets. Carbohydrate engineering is also currently an important part of biotechnology. As the application of enzymology to carbohydrate engineering has developed rapidly, the gap between researches and applications in bio-industries has become greater.

This book, *Enzymes for carbohydrate engineering: Progress in Biotechnology, Vol. 12*, results from two consecutive symposia which were organised by the Research Centre for New-Bio-Materials in Agriculture held in Suwon, Korea. The book gives most up-to date information and achievements in enzymology as applied to carbohydrate engineering. The opening chapter presents a comprehensive survey of the synthetic mechanisms and actions of glucan-sucrases. Several chapters deal with characterisation and modification of amylases and related enzymes. This book also provides a comprehensive survey of the structures of the cellulases, pectinases and xylanases involved in the breakdown of plant cell walls. In addition, it gives an information for the manipulation of storage compounds, including lipids, in transgenic plants. In recent year, the use of thermophilic organisms as sources of more stable enzymes has generated considerable interest. One chapter in this book deals with the properties of thermozymes: amylopululanase and xylose isomerase.

Many valuable ideas and information from many fields of research work such as basic chemistry, molecular biology, and enzymology, carbohydrate enzymology, biotechnology, agricultural engineering presented in this book can be important sources for biotechnological developments. Therefore, this book is an informative reference for enzyme technologists and those in carbohydrate technology

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