

M.J. Duer, editor. Introduction to Solid-State NMR Spectroscopy, Blackwell Publishing Ltd, Oxford, UK, 2004 (xiv + 349 pp., £29.99, ISBN 1-4051-0914-9)

*University of Birmingham Research Park,
Vincent Drive, Birmingham B15 23, UK*

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Solid-state nuclear magnetic resonance (NMR) is gaining widespread acceptance as an important method in the characterizing of solid-state form and the understanding of structure in the solid state. This method is a very sensitive reporter of molecular conformation, mutual interaction, dynamics and form. The excellent feature of solid-state NMR is that it can be used effectively even in inhomogeneous or amorphous systems. The chemistry of today and the future has lot to do with heterogeneous (solid) systems. Polymers are obvious example. New polymer materials involve the mixing of the desired material properties. Solid-state NMR can serve as a very important tool and can give huge amounts of information on such systems.

The book addresses the various aspects of solid-state NMR spectroscopy. The descriptions of different topics are also backed by mathematical explanations. The book opens with the chapter on basics concepts of NMR and essential techniques for solid-state NMR, such as magic-angle spinning, heteronuclear decoupling, homonuclear decoupling, cross-polarization and echo-pulse sequences are discussed in the subsequent chapter.

The interaction of the secondary field produced by the electrons with the nucleus is the shielding interaction and the frequency shift that this interaction causes in an NMR spectrum is the chemical shift. The theory and uses of shielding and chemical shift are summarized in chapter 3. Nuclear spin possesses a magnetic moment and in a collection of spins, these interact through, which is called dipole–dipole or dipolar coupling. The detailed description about the theory and uses of dipolar coupling and quadrupole coupling is given in the proceeding chapters.

Many bulk material properties are dependent on the flexibility and degrees of freedom of the underlying molecules and this phenomenon has created a huge interest in molecular motions in solids. Chapter 6 of the book addresses this important aspect and summarizes the various NMR techniques for studying molecular motion in solids.

This book has covered all the necessary information on solid-state NMR spectroscopy and it can serve as a guideline for all the persons, which are working in this very interesting and exciting branch of spectroscopy. We hope this book would not only be useful for the academic purposes, but also for research purposes as well, where solid-state NMR is likely to be a major investigative technique.

John F. Kennedy
Parmjit S. Panesar
*Chembiotech Laboratories,
Institute of Research & Development,*

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S.E. Harding, editor. Biotechnology and Genetic Engineering, Vol. 21, Intercept Ltd, Dorset, UK, 2004 (xii + 377 pp., £120.00, ISBN 1-898298-91-2)

Man has exploited biotechnology for thousands of years in various activities, however, the discovery of genetic engineering techniques is responsible for the current 'biotechnology boom' and has doubtless been the main cause of much recent publicity of biotechnology. Not only these techniques offer the prospect of improving existing processes and products, but they are also enabling us to develop totally new products, which were not previously possible.

This book gives an overview of recent issues and techniques in biotechnology and genetic engineering. The application of power ultrasound to biomolecular crystallization and application of small molecule chemical probes in biological systems are discussed in the first part of the book. The HIV kills more people worldwide than any other infectious disease. The development of microbicides seems to be most promising approach for the prevention of HIV transmission. Polymers, being the potent candidates for HIV microbicides, different polymers and their derivatives are currently being evaluated for their potential use.

Pharmaceutical and biopharmaceutical applications of polymers and polymeric systems are widespread, due to the variety of their structures and functionality. Polymeric devices have been found to enhance both the stability of biopharmaceuticals and their delivery profile. Different polymeric delivery systems for biopharmaceuticals have been reviewed in this book.

The issues of starch retrogradation and redesigning lignin for industry and agriculture have been addressed under plant biotechnology part of the book. The later review presents the current status of research into biosynthesis and manipulation of lignin, focussing particularly on the impact in controlling lignin quality for industrial applications such as wood pulping.

The final part of the books deals with the economics and safety issues. The use of recombinant DNA techniques to engineer food crops with novel traits has aroused tremendous interest and concern throughout the world. The science-based critique of corporate scientific practices and US regulatory system with respect to genetically engineered foods is given in the book. Different tools and