CHEMISTRY

Over the past decade, myriad techniques have shown that solid-state nuclear magnetic resonance (NMR) can be used in a broad spectrum of applications with exceptionally impressive results. Solid-state NMR results can yield high-resolution details on the structure and function of many important biological solids, including viruses, fibril-forming molecules, and molecules embedded in the cell membrane.

Filling a void in the current literature, *NMR Spectroscopy of Biological Solids* examines all the recent developments, implementation, and interpretation of solid-state NMR experiments and the advantages of applying them to biological systems. The book emphasizes how these techniques can be used to realize the structure of non-crystalline systems of any size. It explains how these isotropic and anisotropic couplings interactions are used to determine atomic-level structures of biological molecules in a non-soluble state and extrapolate the three-dimensional structure of membrane proteins using magic-angle spinning (MAS). The book also focuses on the use of multidimensional solid-state NMR methods in the study of aligned systems to provide basic information about the mechanisms of action of a variety of biologically active molecules.

FEATURES:

- Includes a comprehensive selection of chapters from both academic and industrial perspectives, authored by world renowned experts
- Illustrates how results elucidate chemical bonding, molecular shape and geometry, local and global molecular dynamics, folding, and intermolecular interactions
- Describes how to extrapolate the three-dimensional organization of molecules in microcrystalline states
- Highlights solid-state NMR's applicability to non-soluble, non-crystalline biological, material, and chemical molecules, including polymers, glass, silk, amyloids, lipids, and collagen
- Shows how the study of aligned systems and three-dimensional structure of membrane proteins can explain a variety of biological mechanisms of action

Addressing principles, methods, and applications, *NMR Spectroscopy of Biological Solids* provides a critical selection of solid-state NMR methods for solving a wide range of practical problems that arise in both academic and industrial research of biomolecules in the solid state.

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Suite 300, Boca Raton, FL 33487

270 Madison Avenue
New York, NY 10016

2 Park Square, Milton Park
Abingdon, Oxon OX14 4RN, UK