Solving Problems with NMR Spectroscopy. Edition No. 2

Description: Solving Problems with NMR Spectroscopy, Second Edition, is a fully updated and revised version of the bestselling book. This new edition still clearly presents the basic principles and applications of NMR spectroscopy with only as much math as is necessary. It shows how to solve chemical structures with NMR by giving many new, clear examples for readers to understand and try, with new solutions provided in the text.

It also explains new developments and concepts in NMR spectroscopy, including sensitivity problems (hardware and software solutions) and an extension of the multidimensional coverage to 3D NMR. The book also includes a series of applications showing how NMR is used in real life to solve advanced problems beyond simple small-molecule chemical analysis.

This new text enables organic chemistry students to choose the most appropriate NMR techniques to solve specific structures. The problems provided by the authors help readers understand the discussion more clearly and the solution and interpretation of spectra help readers become proficient in the application of important, modern 1D, 2D, and 3D NMR techniques to structural studies.

- Explains and presents the most important NMR techniques used for structural determinations
- Offers a unique problem-solving approach for readers to understand how to solve structure problems
- Uses questions and problems, including discussions of their solutions and interpretations, to help readers understand the fundamentals and applications of NMR
- Avoids use of extensive mathematical formulas and clearly explains how to implement NMR structure analysis
- Foreword by Nobel Prize winner Richard R. Ernst

New to This Edition

- Key developments in the field of NMR spectroscopy since the First Edition in 1996
- New chapter on sensitivity enhancement, a key driver of development in NMR spectroscopy
- New concepts such as Pulse Field Gradients, shaped pulses, and DOSY (Diffusion Order Spectroscopy) in relevant chapters
- More emphasis on practical aspects of NMR spectroscopy, such as the use of Shigemi tubes and various types of cryogenic probes
- Over 100 new problems and questions addressing the key concepts in NMR spectroscopy
- Improved figures and diagrams
- More than 180 example problems to solve, with detailed solutions provided at the end of each chapter

Contents:


The Second Dimension: Data Acquisition in 2D NMR. Data Processing in 2D NMR. Plotting 2D Spectra.

Nuclear Overhauser Effect: nOe and Selective Population Transfer. Relaxation. Mechanism of nOe. Factors Affecting nOe. Some Practical Hints.


The Third Dimension: Basic Philosophy. Types and Positions of Peaks in 3D Spectra.

Recent Developments in NMR Spectroscopy: Selective Pulses in Modern NMR Spectroscopy. One-Dimensional Experiments Using Soft Pulses. Heteronuclear Selective 1D NMR Experiments. Two-


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