

1. Record Nr.	UNINA9910784645003321
Titolo	Protein NMR spectroscopy [[electronic resource] ] : principles and practice // editors, John Cavanagh ... [et al.]
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Academic Press, c2007
ISBN	1-280-96292-5 9786610962921 0-08-047103-X
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (915 pages)
Classificazione	35.62 35.71
Altri autori (Persone)	CavanaghJohn <1963->
Disciplina	572/.636
Soggetti	Proteins - Analysis Nuclear magnetic resonance spectroscopy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front cover; Title page; Copyright page; Preface; Preface to the First Edition; Acknowledgements; Table of Contents; 1 Classical NMR Spectroscopy; 1.1 Nuclear Magnetism; 1.2 The Bloch Equations; 1.3 The One-Pulse NMR Experiment; 1.4 Linewidth; 1.5 Chemical Shift; 1.6 Scalar Coupling and Limitations of the Bloch Equations; References; 2 Theoretical Description of NMR Spectroscopy; 2.1 Postulates of Quantum Mechanics; 2.2 The Density Matrix; 2.3 Pulses and Rotation Operators; 2.4 Quantum Mechanical NMR Spectroscopy; 2.5 Quantum Mechanics of Multispin Systems; 2.6 Coherence 2.7 Product Operator Formalism 2.8 Averaging of the Spin Hamiltonians and Residual Interactions; References; 3 Experimental Aspects of NMR Spectroscopy; 3.1 NMR Instrumentation; 3.2 Data Acquisition; 3.3 Data Processing; 3.4 Pulse Techniques; 3.5 Spin Decoupling; 3.6 B0 Field Gradients; 3.7 Water Suppression Techniques; 3.8 One-Dimensional 1H NMR Spectroscopy; References; 4 Multidimensional NMR Spectroscopy; 4.1 Two-Dimensional NMR Spectroscopy; 4.2 Coherence Transfer and Mixing; 4.3 Coherence Selection, Phase Cycling, and Field Gradients; 4.4 Resolution and Sensitivity 4.5 Three- and Four-Dimensional NMR Spectroscopy References; 5

Relaxation and Dynamic Processes; 5.1 Introduction and Survey of Theoretical Approaches; 5.2 The Master Equation; 5.3 Spectral Density Functions; 5.4 Relaxation Mechanisms; 5.5 Nuclear Overhauser Effect; 5.6 Chemical Exchange Effects in NMR Spectroscopy; References; 6 Experimental <sup>1</sup>H NMR Methods; 6.1 Assessment of the 1D <sup>1</sup>H Spectrum; 6.2 COSY-Type Experiments; 6.3 Multiple-Quantum Filtered COSY; 6.4 Multiple-Quantum Spectroscopy; 6.5 TOCSY; 6.6 Cross-Relaxation NMR Experiments; 6.7 <sup>1</sup>H 3D Experiments; References 7 Heteronuclear NMR Experiments 7.1 Heteronuclear Correlation NMR Spectroscopy; 7.2 Heteronuclear-Edited NMR Spectroscopy; 7.3 <sup>13</sup>C-<sup>13</sup>C Correlations: The HCCH-COSY and HCCH-TOCSY Experiments; 7.4 3D Triple-Resonance Experiments; 7.5 Measurement of Scalar Coupling Constants; 7.6 Measurement of Residual Dipolar Coupling Constants; References; 8 Experimental NMR Relaxation Methods; 8.1 Pulse Sequences and Experimental Methods; 8.2 Picosecond-Nanosecond Dynamics; 8.3 Microsecond-Second Dynamics; References; 9 Larger Proteins and Molecular Interactions; 9.1 Larger Proteins 9.2 Intermolecular Interactions 9.3 Methods for Rapid Data Acquisition; References; 10 Sequential Assignment, Structure Determination, and Other Applications; 10.1 Resonance Assignment Strategies; 10.2 Three-Dimensional Solution Structures; 10.3 Conclusion; References; Table of Symbols; List of Figures; List of Tables; Suggested Reading; Biomolecular NMR Spectroscopy; NMR Spectroscopy; Quantum Mechanics; Index; Spin-1/2 Product Operator Equations; Table of Constants

---

Sommario/riassunto

Protein NMR Spectroscopy combines a comprehensive theoretical treatment of NMR spectroscopy with an extensive exposition of the experimental techniques applicable to proteins and other biological macromolecules in solution. Beginning with simple theoretical models and experimental techniques, Protein NMR Spectroscopy develops the complete repertoire of theoretical principles and experimental techniques necessary for understanding and implementing the most sophisticated NMR experiments. Important new techniques and applications of NMR spectroscopy have emerged since the f

---