Record Nr. Titolo Pubbl/distr/stampa	UNINA9910815642603321 Solid-state NMR spectroscopy : principles and applications / / edited by Melinda J. Duer Oxford ; ; Malden, MA, : Blackwell Science, 2002
ISBN	1-281-31276-2 9786611312763 0-470-99939-X 0-470-99938-1
Edizione	[1st ed.]
Descrizione fisica	1 online resource (562 pages)
Altri autori (Persone)	DuerMelinda J
Disciplina	543.0877 543/.0877
Soggetti	Nuclear magnetic resonance spectroscopy Solid state chemistry
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	 Solid-State NMR Spectroscopy Principles and Applications; List of Contributors; Contents; Index; Preface; Acknowledgements; Part I The Theory of Solid-State NMR and its Experiments; 1 The Basics of Solid- State NMR; 1.1 The vector model of pulsed NMR; 1.1.1 Nuclei in a static, uniform magnetic field; 1.1.2 The effect of rf pulses; 1.2 The quantum mechanical picture: hamiltonians and the Schrodinger equation; Box 1.1 Quantum mechanics and NMR; 1.2.1 Nuclei in a static, uniform field; 1.2.2 The effect of rf pulses; Box 1.2 Exponential operators, rotation operators and rotations 1.3 The density matrix representation and coherences1.3.1 Coherences and populations; 1.3.2 The density operator at thermal equilibrium; 1.3.3 Time evolution of the density matrix; 1.4 Nuclear spin interactions; 1.4.1 The chemical shift and chemical shift anisotropy; 1.4.2 Dipole-dipole coupling; Box 1.3 Basis sets for multispin systems; 1.4.3 Quadrupolar coupling; 1.5 Calculating NMR powder patterns; 1.6 General features of NMR experiments; 1.6.1 Multidimensional NMR; 1.6.2 Phase cycling; 1.6.3 Quadrature detection; Box 1.4 The NMR spectrometer; References

1.

	2 Essential Techniques for Spin-1/2 Nuclei2.1 Introduction; 2.2 Magic- angle spinning (MAS); 2.2.1 Spinning sidebands; 2.2.2 Rotor or rotational echoes; 2.2.3 Removing spinning sidebands; 2.2.4 Magic- angle spinning for homonuclear dipolar couplings; 2.3 High-power decoupling; 2.4 Multiple pulse decoupling sequences; Box 2.1 Average hamiltonian theory and the toggling frame; 2.5 Cross-polarization; 2.5.1 Theory; 2.5.2 Experimental details; Box 2.2 Cross-polarization and magic-angle spinning; 2.6 Solid or quadrupole echo pulse sequence; References; 3 Dipolar Coupling: Its Measurement and Uses 3.1 IntroductionBox 3.1 The dipolar hamiltonian in terms of spherical tensor operators; 3.2 Techniques for measuring homonuclear dipolar couplings; 3.2.1 Recoupling pulse sequence; Box 3.2 Analysis of the DRAMA pulse sequence; 3.2.2 Double-quantum filtered experiments; 3.2.3 Rotational resonance; Box 3.3 Excitation of double-quantum coherence under magic-angle spinning; 3.3 Techniques for measuring heteronuclear dipolar couplings; Box 3.4 Analysis of the C7 pulse sequence for exciting double-quantum coherence in dipolar-coupled spin pairs; 3.3.1 Spin-echo double resonance Box 3.5 Theory of rotational resonance3.3.2 Rotational-echo double resonance; Box 3.6 Analysis of the REDOR experiment; 3.4 Techniques for dipolar-coupled quadrupolar (spin-1/2) pairs; 3.4.1 Transfer of population in double resonance; 3.4.2 Rotational echo, adiabatic passage, double resonance; 3.5 Techniques for measuring dipolar couplings between quadrupolar nuclei; 3.6 Correlation experiments; 3.6.1 Homonuclear correlation experiments for spin-systems; 3.6.2 Homonuclear correlation experiments for guadrupolar spin systems; 3.6.3 Heteronuclear correlation experiments for spin-1/2 3.7 Spin-counting experiments
Sommario/riassunto	This book is for those familiar with solution-state NMR who are encountering solid-state NMR for the first time. It presents the current understanding and applications of solid-state NMR with a rigorous but readable approach, making it easy for someone who merely wishes to gain an overall impression of the subject without details. This dual requirement is met through careful construction of the material within each chapter. The book is divided into two parts: ""Fundamentals"" and ""Further Applications."" The section on Fundamentals contains relatively long chapters that deal with the bas