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Technique; 3.2.1 Multiple Modulation Multiple Echoes; 3.2.2 Echo Shape and Amplitude; 3.2.3 Echo Phases; 3.2.4 Echo Sensitivity to Diffusion, Relaxation and Flow; 3.3 Diffusion Measurement; 3.3.1 One-Dimensional (1-D) Diffusion; 3.3.2 Two-Dimensional (2-D) Diffusion 3.3.3 Three-Dimensional (3-D) Diffusion3.4 Application: Flow; 3.4.1 One-Dimensional (1-D) Flow; 3.4.2 Three-Dimensional (3-D) Flow; 3.5 Summary; References; 4: Magnetic Resonance Force Microscopy; 4.1 Introduction; 4.2 MRFM Instrumentation; 4.3 Spin Manipulation in MRFM; 4.4 Imaging with MRFM; 4.5 Conclusions; Acknowledgments; References; 5: Dynamic Fixed-Point Generation Using Non-Linear Feedback Fields-with Applications in MR Contrast Enhancement; 5.1 Introduction; 5.2 Quantum Mechanical Derivation of Fixed Points; 5.3 Classical Derivation of Fixed Points; 5.4 Evolution of the Fixed Points 5.5 Applications5.6 Conclusions; References; 6: Shimming Pulses; 6.1 Introduction; 6.2 The Low Magnetic Field Regime; 6.2.1 Concomitant Fields and Berry's Phase; 6.2.2 Rotating-Frame Gradients; 6.2.3 Spatial Selectivity in Low Fields; 6.2.4 Coherent Averaging in Composite Selective Pulses; 6.2.5 Composite Selective Pulses; 6.2.6 Slice Selection in Low Fields; 6.2.7 Slice Selection in Zero Fields; 6.3 The Inhomogeneous Field Regime; 6.3.1 Slice Selection; 6.3.2 Restoring Spectroscopic Resolution; 6.4 Conclusions; Acknowledgments; References; Part Two: Polarization Enhancement
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Sommario/riassunto

This handbook and ready reference covers materials science applications as well as microfluidic, biomedical and dental applications and the monitoring of physicochemical processes. It includes the latest in hardware, methodology and applications of spatially resolved magnetic resonance, such as portable imaging and single-sided spectroscopy.For materials scientists, spectroscopists, chemists, physicists, and medicinal chemists.