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Nota di contenuto	Contents; Preface; Notations and conventions; 1 The Classical Magnetization Field; 1.1 Introduction; 1.2 Equations of motion; 1.2.1 Damping; 1.3 Approaching the Curie temperature; 2 Small motions of the Magnetization; 2.1 Introduction; 2.2 Models of small motions; 2.2.1 Distributive damping; 2.2.2 Instabilities and spin wave condensates; 3 Intrinsic Damping; 3.1 Introduction; 3.2 Magnetostrictive coupling; 3.2.1 Small samples; 3.2.2 Large, homogeneous samples; 3.3 Loss torque in magnetic metals; 3.3.1 Eddy current damping 3.3.2 Direct coupling of conduction electrons to the magnetization field3.4 Fluctuations in medium properties; 3.5 Relaxation due to weakly coupled magnetic impurities; 3.5.1 Slow relaxation; 3.5.2 Corrections to the adiabatic limit; 3.6 Appendix 3A. Inclusion of displacement current in Section 3.3.1; 4 Fluctuations; 4.1 Introduction; 4.2 Fluctuation-dissipation theorem; 4.3 Langevin equation, and generalized Langevin equation; 4.4 Fokker-Planck equation-cartesians; 4.4.1 Fokker-Planck equation in polar angles; 4.4.2 Fokker-Planck equation in the absence of well-defined canonical variables

5 Magnetization Reversal in a Very Dilute Array of Small Particles5.1 Introduction; 5.2 General observations; 5.3 Reversal in 2d; 5.3.1 Reversal in the long time limit; 5.3.2 Intermediate time scales; 5.3.3 Applied field and anisotropy axis misaligned; 5.3.4 Relation to first-passage type theories; 5.4 Rotation in 3d; 6 Magnetization Reversal in Arrays of Particles and Continuous Media; 6.1 Introduction; 6.2 Relaxation due to magnetic moment interaction in a sparse medium; 6.2.1 Equations of motion for dipolar interaction; 6.2.2 A single pair 6.3 More dense arrays of many interacting particles6.3.1 The Arnold web; 6.3.2 Relevance to magnetic relaxation and reversal; 6.3.3 Effective single-variable relaxation from causes other than chaos; 6.4 Magnetization reversal and the magnetization process in large, dense systems; 6.4.1 Simple model of magnetization reversal by domain wall motion; 6.4.2 Motion of a Bloch domain wall; 6.4.3 Magnetostatics and the magnetization process. Pre-existing domain walls; 6.5 Appendix 6A: Vortex solutions in cylinder and disc: stability considerations; References; Subject Index; A; B; C; D; E; F; G; H; I
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Sommario/riassunto

This book throws some light on poorly understood aspects of the motion of magnetization in magnetic solids, particularly the effects of dissipative mechanisms. Aside from its practical aspects (such as magnetic recording), it addresses readers interested in the basic physics of nonlinear phenomena. - ;Electrons in solids behave like microscopic bar magnets, and in certain solids these align to produce macroscopic magnetizations. This book deals with the dynamics of this magnetization field. It addresses questions of microscopic mechanism only to the extent that residual interactions of the mag