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Nota di contenuto	Magnetic Nanoparticles; Contents; Preface; List of Contributors; 1 Introduction; 1.1 Some Words about Nanoparticles; 1.2 Scope; 1.2.1 Magnetic Nanoparticles Inside Us and Everywhere Around Us; 1.3 The Most Extensively Studied Magnetic Nanoparticles and Their Preparation; 1.3.1 Metals; 1.3.2 Nanoparticles of Rare Earth Metals; 1.3.3 Oxidation of Metallic Nanoparticles; 1.3.4 Magnetic Alloys; 1.3.4.1 Fe-Co Alloys; 1.3.5 Magnetic Oxides; 1.3.6 Final Remarks; 2 Synthesis of Nanoparticulate Magnetic Materials; 2.1 What Makes Synthesis of Inorganic Nanoparticles Different from Bulk Materials? 2.2 Synthesis of Magnetic Metal Nanoparticles2.2.1 Reduction of Metal Salts in Solution; 2.2.1.1 Electron Transfer Reduction; 2.2.1.2 Reduction via Intermediate Complexes; 2.2.2 Thermal Decomposition Reactions; 2.2.2.1 Decomposition of Metal Carbonyls; 2.2.2.2 Decomposition of Metal Alkene and Arene Complexes; 2.2.3 Combination Methods Used for Synthesis of Alloy Nanoparticles; 2.3 Synthesis of Magnetic Metal Oxide Nanoparticles; 2.3.1 Reactions of Hydrolysis; 2.3.1.1 Hydrolysis in Aqueous Solutions; 2.3.1.2 Hydrolysis in Nonaqueous Solutions; 2.3.2 Oxidation Reactions 2.3.3 Thermal Decomposition of Metal Complexes with O-Donor

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Structure, and Properties

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## Sommario/riassunto

This interdisciplinary approach to the topic brings together reviews of the physics, chemistry, fabrication and application of magnetic nanoparticles and nanostructures within a single cover. With its discussion of the basics as well as the most recent developments, and featuring many examples of practical applications, the result is both a clear and concise introduction to the topic for beginners and a guide to relevant comprehensive physical phenomena and essential technological applications for experienced researchers.

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