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| Nota di contenuto | Front cover; Physical metallurgy and advanced materials; Copyright page; Contents; Preface; About the authors; Acknowledgments; Illustration credits; Chapter 1 Atoms and atomic arrangements; 1.1 The realm of materials science; 1.2 The free atom; 1.2.1 The four electron quantum numbers; 1.2.2 Nomenclature for the electronic states; 1.3 The Periodic Table; 1.4 Interatomic bonding in materials; 1.5 Bonding and energy levels; 1.6 Crystal lattices and structures; 1.7 Crystal directions and planes; 1.8 Stereographic projection; 1.9 Selected crystal structures; 1.9.1 Pure metals 1.9.2 Diamond and graphite 1.9.3 Coordination in ionic crystals; 1.9.4 AB-type compounds; Chapter 2 Phase equilibria and structure; 2.1 Crystallization from the melt; 2.1.1 Freezing of a pure metal; 2.1.2 Plane-front and dendritic solidification at a cooled surface; 2.1.3 Forms of cast structure; 2.1.4 Gas porosity and segregation; 2.1.5 Directional solidification; 2.1.6 Production of metallic single crystals for research; 2.2 Principles and applications of phase diagrams; 2.2.1 The concept of a phase; 2.2.2 The Phase Rule; 2.2.3 Stability of phases; 2.2.4 Two-phase equilibria 2.2.5 Three-phase equilibria and reactions 2.2.6 Intermediate phases; 2.2.7 Limitations of phase diagrams; 2.2.8 Some key phase diagrams; 2.2.9 Ternary phase diagrams; 2.3 Principles of alloy theory; 2.3.1 |

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