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5.1.3 Atomic Force Microscopy5.2 Applications of Optical Microscopy and AFM; 5.2.1 Applications of Optical Microscopy; 5.2.2 Applications of Atomic Force Microscopy; 5.3 New Developments of Optical Microscopy and AFM Techniques; 5.3.1 Optical Microscopy-Based 3D Shape Reconstruction; 5.3.1.1 Defocus Imaging Model; 5.3.1.2 New Shape Reconstruction Method; 5.3.1.3 Experimental Results; 5.3.2 AFM Based Elasticity Imaging and Height Compensation Method; 5.3.2.1 Compression Effect; 5.3.2.2 Surface Characteristics Measurement; 5.3.2.3 Experiments with MWCNTs and Graphenes; 5.4 Conclusion ReferencesChapter 6 Strength and Electrical Conductivity of Bulk Nanostructured Cu and Cu-Based Alloys Produced by SPD; 6.1 Introduction; 6.2 Microstructure and Strength and Electrical Conductivity of Bulk Nanostructured Cu Produced by SPD; 6.2.1 Microstructure; 6.2.2 Strength; 6.2.2.1 Electrical Conductivity; 6.3 Bulk Nanostructured Precipitation-Hardenable Cu-Cr Alloys from SPD; 6.3.1 Bulk Nanostructured Precipitation-Hardenable Cu-Cr Alloys Produced by High-Pressure Torsion (HPT); 6.3.1.1 Microstructure; 6.3.1.2 Strength and Electrical Conductivity
6.3.2 Bulk Nanostructured Precipitation-Hardenable Cu-Cr Alloys Produced by Equal-Channel Angular Pressing (ECAP)

Sommario/riassunto

The nanostructuring of materials is a versatile route particularly well-suited to the fabrication of metallic materials for engineering applications with desired properties, for example, increased corrosion and temperature resistance, enhanced performance under mechanical loads or the long-term shape preservation of workpieces. This ready reference provides in-depth information on both the bottom-up and the top-down approaches to the synthesis and processing of nanostructured materials. The focus is on advanced methods of mechanical nanostructuring, such as severe plastic deformation, includin