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-- Ternary Ni-Cu-Co Alloy -- Ternary Ni-Cu-W Alloy -- MAGNETIC PROPERTIES -- OXIDATION BEHAVIOUR -- MECHANICAL PROPERTIES -- APPLICATION OF NI-CU-CO ALLOY TEXTURED SUBSTRATE FOR YBCO FILM DEPOSITION -- CONCLUSION -- ACKNOWLEDGMENT -- REFERENCES -- Chapter 4 MAGNETORESISTANCE EFFECTS IN CU AND CO, CO/CU MULTILAYERS AND GRANULAR CU-CO ALLOYS AND IN RAPIDLY QUENCHED GD-DOPED CU-CO ALLOYS -- ABSTRACT -- INTRODUCTION -- MAGNETORESISTANCE OF PURE COPPER. MAGNETORESISTANCE OF ALLOYS AND COMPOSITES COPPER - COBALT -- MAGNETORESISTANCE OF ALLOYS COPPER - COBALT - GADOLINIUM -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 5 MECHANICAL PROPERTIES OF COPPER UNDER DYNAMIC LOAD -- ABBREVIATIONS -- DEFINITION OF COOPER PROPERTIES BY KOLSKY METHOD -- Experimental Apparatus for Dynamic Tests -- Determination of the Dynamic Characteristics of Strength and Plasticity -- RESULTS OF TESTS OF COPPER USING KOLSKY METHOD -- CRITICAL SPALL STRENGTH OF COPPER -- Experimental Apparatus for Spall Strength Determination -- Critical Spall Strength Determination -- Durability of Copper at Explosive Jet High-Speed Stretching -- Dynamic Viscosity and Cooper Relaxation Time Under Dynamic Load -- CONCLUSION -- REFERENCES -- Chapter 6 COPPER ALLOY MICROSTRUCTURES FOR APPLICATION IN MICROREACTORS -- ABSTRACT -- I. INTRODUCTION -- II. EXPERIMENTAL -- Materials, Processing and Characterization -- III. RESULTS AND DISCUSSION -- III.1. Zeolite Film Growth on Copper-Based Plates -- III.2. Zeolite Film Growth on Brass Microchannels -- III.3. Confined Zeolite Film Growth on Brass Microchannels -- III.3. Zeolite Film Growth on Brass Microgrids -- IV. MICROREACTOR ASSEMBLY WITH THE ZEOLITE/BRASS MICROSTRUCTURES -- CONCLUSIONS -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 7 COMPOSITE ELECTRODEPOSITS WITH C60 FULLERENE -- ABSTRACT -- INTRODUCTION -- EXPERIMENTAL -- RESULTS AND DISCUSSION -- REFERENCES -- Chapter 8 INFLUENCE OF ALLOYING WITH NI, AL, ZN, SN AND AG ON THE ANNEAL HARDENING EFFECT IN SINTERED COPPER BASE ALLOYS -- ABSTRACT -- INTRODUCTION -- EXPERIMENTAL -- Cold Rolling -- Anneal Hardening Effect -- CONCLUSIONS -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 9 HIGH STRENGTH COPPER-BASED CONDUCTOR MATERIALS -- Abstract -- 1. General Aspects of Cu-Based Conductor Materials -- 1.1. The Specific Resistivity -- 1.2. Hardening of Conductor Materials. 1.3. Common Cu-based Conductor Materials -- 1.3.1. Nickel-Based Precipitates -- 1.3.2. Iron-Based Precipitates -- 1.3.3. Titanium-Based Precipitates -- 1.3.4. Chromium-Based Precipitates -- 1.3.5. Comparison of the Constituents -- 2. Cu-Ag Alloys -- 2.1. Precipitation Reaction -- 2.2. Separating Matrix Grains -- 2.3. Third Element Additions -- 2.3.1. CuAgCe and CuAgY -- 2.3.2. CuAgNi and CuAgMg -- 2.3.3. CuAgCr and CuAgFe -- 2.3.4. CuAgZr -- 2.4. Strength and Conductivity -- 3. Cu-Nb Alloys -- 3.1. Surpassing the Solubility Limits -- 3.2. Precipitation Reaction -- 3.3. Microstructures Stability -- 3.4. Strength and Conductivity -- 4. Summary and Outlook -- Acknowledgment -- References -- Chapter 10 NEW MATERIALS FOR TECHNOLOGICAL APPLICATIONS FROM THE Ti-Cr-Cu TERNARY SYSTEM -- ABSTRACT -- INTRODUCTION -- Background -- From the Binaries Ti-Cr, Ti-Cu and Cr-Cu to the Ternary Ti-Cr-Cu System -- EXPERIMENTAL -- RESULTS -- Phase Equilibria in the Ti-Cr-Cu System at 800 °C -- The Pseudo Binary (Ti_{1-x}Cr_x)(Cr_{1-y}Cu_y)₂ Phase -- The Ternary Compound Ti₃(Cr_xCu_{1-x})₅ -- The Pseudo Binary (Ti_{1-x}Cr_x)₂(Cr_yCu_{1-y}) -- The Pseudo Binary (Ti_{1-x}Cu_x)(Cr_yCu_{1-y}) -- The Pseudo Binary Ti₂(Cr_xCu_{1-x})₃ and Ti₃(Cr_xCu_{1-x})₄ -- The Binary TiCu₄

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Sommario/riassunto

This book presents current research in the study of the preparation, properties and applications of copper alloys. Topics discussed include the electrodeposition of copper based alloys for giant magneto resistance applications; the mechanical properties of copper under dynamic load; copper alloy micro-structures for application in microreactors and high strength copper-based conductor materials.
