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Nota di contenuto	CERAMIC INTEGRATION AND JOINING TECHNOLOGIES: From Macro to Nanoscale; CONTENTS; PREFACE; CONTRIBUTORS; PART I: INTRODUCTION; 1: CERAMIC INTEGRATION ACROSS LENGTH SCALES: TECHNICAL ISSUES, CHALLENGES, AND OPPORTUNITIES; PART II: SCIENCE AND TECHNOLOGY FOR MACROSCALE INTEGRATION; 2: CERAMIC COMPONENT INTEGRATION BY ADVANCED BRAZING TECHNOLOGIES; 3: JOINING AND INTEGRATION ISSUES OF CERAMIC MATRIX COMPOSITES FOR THE NUCLEAR INDUSTRY; 4: AIR BRAZING: A NEW METHOD OF CERAMIC-CERAMIC AND CERAMIC-METAL JOINING 5: DIFFUSION BONDING OF SILICON CARBIDE AS AN ENABLING TECHNOLOGY FOR THE FABRICATION OF COMPLEX-SHAPED CERAMIC COMPONENTS6: INTEGRATION OF CARBON-CARBON COMPOSITE TO

METALLIC SYSTEMS FOR THERMAL MANAGEMENT APPLICATIONS; 7: CONTACT INTERACTION IN CARBON-METAL SYSTEMS FOR JOINING AND INTEGRATION; PART III: INTEGRATION ISSUES IN ENERGY GENERATION AND DEVICE FABRICATION; 8: INTEGRATION TECHNOLOGIES FOR FERRITES AND POWER INDUCTORS IN CERAMIC CIRCUIT BOARDS; 9: OXIDE THERMOELECTRIC POWER GENERATION; 10: INTEGRATION TECHNOLOGIES FOR SOLID OXIDE FUEL CELLS (SOFCs) AND OTHER ELECTROCHEMICAL REACTORS  
11: INTEGRATION TECHNOLOGIES FOR SENSORS  
12: ON-CHIP INTEGRATION OF FUNCTIONAL HYBRID MATERIALS AND COMPONENTS IN NANOPHOTONICS AND OPTOELECTRONICS; 13: INTEGRATION OF MULTIFUNCTIONAL PROPERTIES IN THERMAL BARRIER COATINGS BY CHEMICAL VAPOR DEPOSITION; 14: THE CHANGING PHYSICS IN METAL INTERCONNECT RELIABILITY; 15: INTEGRATION ISSUES OF BARIUM STRONTIUM TITANA TETHIN FILM FOR TUNABLE MICROWAVE APPLICATIONS; 16: AEROSOL DEPOSITION (AD) INTEGRATION TECHNIQUES AND THEIR APPLICATION TO MICRODEVICES; PART IV: NANO- AND BIOINTEGRATION  
17: ADVANCES IN NANOINTEGRATION METHODOLOGIES: PATTERNING, POSITIONING, AND SELF-ASSEMBLY  
18: INTEGRATION OF NANOWIRES IN NEW DEVICES AND CIRCUIT ARCHITECTURES: RECENT DEVELOPMENTS AND CHALLENGES; 19: INTEGRATING DIAMOND LIKE CARBON INTO NANOSTRUCTURE DESIGNS (FABRICATING MICROSCALE AND NANOSCALE ARCHITECTURES OF DIAMOND-LIKE CARBON FILMS); 20: SYNTHESIS, PROPERTIES, INTEGRATION, AND APPLICATIONS OF VERTICALLY ALIGNED CERAMIC NANOSTRUCTURES; 21: NANOINTEGRATION BASED ON THIN-FILM TECHNOLOGY; 22: MASS-MANUFACTURABLE NANOWIRE INTEGRATION: CHALLENGES AND RECENT DEVELOPMENTS  
23: USABILITY OF INK-JET PRINTING TECHNOLOGY AND NANOMATERIALS IN ELECTRICAL INTERCONNECTIONS, ELECTRONIC PACKAGING, AND SYSTEM INTEGRATION FOR MICROELECTRONICS APPLICATIONS  
24: BIOINTEGRATION OF PROSTHETIC DEVICES; INDEX

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Sommario/riassunto

This book joins and integrates ceramics and ceramic-based materials in various sectors of technology. A major imperative is to extract scientific information on joining and integration response of real, as well as model, material systems currently in a developmental stage. This book envisions integration in its broadest sense as a fundamental enabling technology at multiple length scales that span the macro, millimeter, micrometer and nanometer ranges. Consequently, the book addresses integration issues in such diverse areas as space power and propulsion, thermoelectric power generation, sol

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