



Ceramics and Composites Processing Methods

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Examines the latest processing and fabrication methods

There is increasing interest in the application of advanced ceramic materials in diverse areas such as transportation, energy, environmental protection and remediation, communications, health, and aerospace. This book guides readers through a broad selection of key processing techniques for ceramics and their composites, enabling them to manufacture ceramic products and components with the properties needed for various industrial applications. With chapters contributed by internationally recognized experts in the field of ceramics, the book includes traditional fabrication routes as well as new and emerging approaches in order to meet the increasing demand for more reliable ceramic materials.

Ceramics and Composites Processing Methods is divided into three sections:

- **Densification**, covering the fundamentals and practice of sintering, pulsed electric current sintering, and viscous phase silicate processing
- **Chemical Methods**, examining colloidal methods, sol-gel, gel casting, polymer processing, chemical vapor deposition, chemical vapor infiltration, reactive melt infiltration, and combustion synthesis
- **Physical Methods**, including directional solidification, solid free-form fabrication, microwave processing, electrophoretic deposition, and plasma spraying

Each chapter focuses on a particular processing method or approach. Collectively, these chapters offer readers comprehensive, state-of-the-science information on the many approaches, techniques, and methods for the processing and fabrication of advanced ceramics and ceramic composites.

With its coverage of the latest processing methods, *Ceramics and Composites Processing Methods* is recommended for researchers and students in ceramics, materials science, structural materials, biomedical engineering, and nanotechnology.

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Editorial Review

From the Back Cover

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About the Author

Narottam P. Bansal, PhD, is Senior Research Scientist at the NASA Glenn Research Center, where he has conducted research on glasses, ceramics, and composites since 1985. In addition to publishing more than 230 papers, Dr. Bansal holds seven patents and is the author or editor of five books and 32 conference proceedings.

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