

# Papers Published in Volume 5

## Number 1

Editorial . . . . .	1
<i>State of the Art</i> —Hexagonal Boron Nitride: Fabrication, Properties and Applications . . . . . A. LIPP, K. A. SCHWETZ & K. HUNOLD (FRG)	3
The Control of Morphology in Silicon Nitride Powder Prepared from Rice Husk . . . . . I. A. RAHMAN & F. L. RILEY (UK)	11
Sintering and Characterization of $\text{Al}_2\text{O}_3$ - $\text{TiB}_2$ Composites . . . . . ISAO KIMURA, NORIYASU HOTTA, YUKIO HIRAOKA, NATSUKAZE SAITO & YUJI YOKOTA (Japan)	23
Low-shrinkage Reaction-bonded Alumina . . . . . NILS CLAUSSEN, TUYEN LE & SUXING WU (FRG)	29
The Effect of Surface Transformation on the Wear Behaviour of Zirconia TZP Ceramics . . . . . I. BIRKBY, P. HARRISON & R. STEVENS (UK)	37
Calcium Phosphate Glasses and Glass-ceramics for Medical Applications . . . . . F. DE MESTRAL & R. A. L. DREW (Canada)	47
Chemical Reaction Engineering Aspects of a Rotary Reactor for Carbothermal Synthesis of SiC . . . . . F. K. VAN DIJEN & R. METSELAAR (The Netherlands)	55
The Use of Modulated Pressure in Ceramic Injection Moulding . . . . . J. G. ZHANG, M. J. EDIRISINGHE & J. R. G. EVANS (UK)	63

## Number 2

Editorial . . . . .	73
<i>State of the Art</i> —Stuijts Memorial Lecture 1989: The Mastery of Microstructure . . . . . R. J. BROOK (FRG)	75
Demonstration of Grain Growth Induced Microcracking and its Role in the Electrical Response of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ . . . . . D. S. SMITH, S. SUASMORO & C. GAULT (France)	81
Resistance Measurements in Thick Films of $\text{YBa}_2\text{Cu}_3\text{O}_x$ in the Temperature Range Between 25 and 860°C. . . . . F. W. GIACOBBE (USA)	87
Reactions in the $\text{CaO}$ - $\text{Cs}_2\text{O}$ - $\text{Al}_2\text{O}_3$ System at 900°C . . . . . JOHAN A. M. VAN HOEK, FRANS J. J. VAN LOO, LODEWIJK R. WOLFF & RUDI METSELAAR (The Netherlands)	93
Studies on Phase Distribution in ( $\text{O}' + \beta'$ )-Sialon Composites . . . . . W. Y. SUN, W. L. LI & D. S. YAN (T. S. YEN) (People's Republic of China)	99
Sintering and Properties of Silicon Nitride Densified with Liquids in the System $\text{MgO}$ - $\text{AlN}$ - $\text{SiO}_2$ . . . . . P. K. DAS & J. MUKERJI (India)	105

Sintering of Amorphous Polymer-Derived Si, N and C Containing Composite Powders . . . . .	113
RALF RIEDEL, MARTIN SEHER & GERD BECKER (FRG)	
Oxidation Behavior of SiC Whisker Reinforced Mullite ( $-ZrO_2$ ) Composites . . . . .	123
H. Y. LIU, K.-L. WEISSKOPF, M. J. HOFFMANN & G. PETZOW (FRG)	
Densification of Ceramics Containing Entrapped Gases . . . . .	135
SUK-JOONG L. KANG & KYUNG J. YOON (Korea)	
 <i>Number 3</i>	
Editorial . . . . .	141
<i>State of the Art</i> —Aluminum Oxynitride Spinel: A Review . . . . .	143
NORMAND D. CORBIN (USA)	
Effects of Surface Purification on the Properties of Aqueous Silicon Nitride Suspensions . . . . .	155
HEINZ STADELMANN, GÜNTER PETZOW & PETER GREIL (FRG)	
Predicting the Viscosity of Ceramic Injection Moulding Suspensions . . . . .	165
T. ZHANG & J. R. G. EVANS (UK)	
Electrical Properties and Defect Structure of Barium Metatitanate within the p-Type Regime . . . . .	173
J. NOWOTNY & M. REKAS (FRG)	
Sintering and Dielectric Properties of Single-Phase $Pb(Mg_{1/3}Nb_{2/3})O_3-PbTiO_3$ . . . . .	183
K. KATAYAMA, M. ABE, T. AKIBA & H. YANAGIDA (Japan)	
Ytria- and Ceria-stabilized Tetragonal Zirconia Polycrystals (Y-TZP, Ce-TZP) Reinforced with $Al_2O_3$ Platelets . . . . .	193
KARL-HEINZ HEUSSNER & NILS CLAUSSEN (FRG)	
Tensile and Compressive Creep Characteristics from Bending Tests: Application to SiC–SiC Composites . . . . .	201
FRANÇOIS ABBÉ, RÉGIS CARIN & JEAN-LOUIS CHERMANT (France)	
 <i>Number 4</i>	
Editorial . . . . .	207
Sol–Gel Coating of Silicon Nitride with Mg–Al Oxide Sintering Aid . . . . .	209
M. KULIG, W. OROSCHIN & P. GREIL (FRG)	
Oxidation of Silicon by Water . . . . .	219
R. G. STEPHEN & F. L. RILEY (UK)	
Tribological and Interfacial Phenomena in $Al_2O_3/SiC$ and $SiC/SiC$ Couples at High Temperature . . . . .	223
P. BOCH, F. PLATON & G. KAPELSKI (France)	
Abrasive Wear of Ceramic–Matrix Composites . . . . .	229
DIETMAR HOLZ, ROLF JANSSEN, KLAUS FRIEDRICH & NILS CLAUSSEN (FRG)	
Non-Linearity in Rare Earth Doped Zinc Oxide Varistor Prepared by Flash Combustion Method . . . . .	233
P. M. VIPIN, V. V. SANJAYNATH, H. K. VARMA, K. G. K. WARRIER & A. D. DAMODARAN (India)	
High Breakdown Voltage ZnO Varistors Obtained by Pressureless Sintering . . . . .	237
P. Q. MANTAS & J. L. BAPTISTA (Portugal)	

The Microstructure and Composition of Oxide Films Formed during High Temperature Oxidation of a Sintered Silicon Nitride . . . . .	245
P. ANDREWS & F. L. RILEY (UK)	
Carbothermal Reduction and Nitriding of TiO <sub>2</sub> . . . . .	257
T. LIČKO, V. FIGUSCH & J. PÚCHYOVÁ (Czechoslovakia)	
Announcement. . . . .	267
<i>Number 5</i>	
The Effect of Iron Diffusion into a Glass-Ceramic Coating on Mild Steel—a Bulk Glass Simulation . . . . .	269
F. SUN & D. HOLLAND (UK)	
Solid Combustion Synthesis of Ti <sub>3</sub> SiC <sub>2</sub> . . . . .	283
R. PAMPUCH, J. LIS, L. STOBIERSKI & M. TYMKIEWICZ (Poland)	
Characterization of a New Ternary Ce-Y-Tetragonal Zirconia . . . . .	289
B. BASTIDE, P. CANALE & P. ODIER (France)	
Preparation of Li <sub>2</sub> ZrO <sub>3</sub> by Powder Reaction and Hydrolysis of Metal Alkoxides . . . . .	295
C. ALVANI, L. BRUZZI, S. CASADIO, V. RONDINELLA, A. TUCCI & E. H. TOSCANO (Italy)	
Thermal Properties of Ceramic Injection Moulding Suspensions in the Liquid and Solid States . . . . .	303
T. ZHANG, J. R. G. EVANS & K. K. DUTTA (UK)	
Sintering of Si <sub>3</sub> N <sub>4</sub> with Y <sub>2</sub> O <sub>3</sub> and Al <sub>2</sub> O <sub>3</sub> Added by Coprecipitation . . . . .	311
JI-SOON KIM, HELMUT SCHUBERT & GÜNTER PETZOW (FRG)	
Reinforcement of Silicon Nitride Ceramics by β-Si <sub>3</sub> N <sub>4</sub> Whiskers . . . . .	321
P. ŠAJGALÍK & J. DUSZA (Czechoslovakia)	
Chemical Stability of Cordierite–ZrO <sub>2</sub> Composites . . . . .	327
NAHUM A. TRAVITZKY & NILS CLAUSSEN (FRG)	
<i>Number 6</i>	
Strength of Structural Ceramics after Exposure to Sodium Sulfate. . . . .	333
JEFFREY J. SWAB & GARY L. LEATHERMAN (USA)	
Thermomechanical Properties and Oxidation Resistance of Zirconia CVI-Matrix Composites: I—Mechanical Behavior . . . . .	341
J. MINET, F. LANGLAIS, J. M. QUENISSET & R. NASLAIN (France)	
Preparation and Sintering Behaviour of Ultrafine Mn/Fe and Fe/Co Mixed Oxides . . . . .	357
J. M. JIMÉNEZ-MATEOS, J. MORALES & J. L. TIRADO (Spain)	
Thermal Shock Resistance of Ceramic Materials in Melt Immersion Tests . . . . .	365
W. DIENST, H. SCHOLZ & H. ZIMMERMANN (FRG)	
Rheology of Aqueous Silicon Nitride Suspensions . . . . .	371
ALWIN NAGEL, GÜNTER PETZOW & PETER GREIL (FRG)	
On the Fracture Toughness of Polycrystalline Alumina Measured by SEPB Method . . . . .	379
TOSHIHIKO NISHIDA, TAKESHI SHIONO & TOMOZO NISHIKAWA (Japan)	
The Removal of Carbon or Carbon Residues from Ceramic Powders or Greenware with Ammonia . . . . .	385
F. K. VAN DIJEN & J. PLUIJMAKERS (The Netherlands)	