

Table of Contents

Investigation of the Sintering Behavior of Ultrapure α-Alumina Containing Low Amounts of SiO_2 or CaO	
N. Louet, T. Epicier and G. Fantozzi	1
Sintering Behavior of Microstructured γ-Alumina with Nanosized γ-Alumina Additive	
S.W. Oh, H. Muto, K. Muramoto, W. Minami and H.J. Kim	7
Control of Shrinkage during Sintering of Alumina Ceramics Based on Master Sintering Curve Theory	
J. Tatami, Y. Suzuki, T. Wakihara, T. Meguro and K. Komeya	11
Bulk Consolidation of Non-Oxide Ceramic Powders Derived from Polymer Precursors	
S. Ishihara, T. Nishimura, J. Bill, F. Aldinger and F. Wakai	15
Centrifugal Sintering	
Y. Kinemuchi, H. Morimitsu, H. Ishiguro, S. Uchimura and K. Watari	19
Low-Temperature Sintering of α- and β-SiC Powders with AlB_2 Additive	
H. Tanaka, T. Nishimura, N. Hirosaki, Y. Kishi, H. Matsuo and Y. Ichikawa	23
Sintering and Characterization of $\text{Zr}_2\text{Al}_3\text{C}_5$ Monolith	
U. Leela-adisorn, S.M. Choi, S. Hashimoto, S. Honda, H. Awaji, K. Hayakawa and A. Yamaguchi	27
Thermal Evolution of Single Phase Lanthanum Zirconate	
M.O.D. Jarligo, Y.S. Kang and A. Kawasaki	31
Sinterability of Alumina-Dispersed 3Y-TZP	
B.R. Cho and D.G. Yeoum	37
Preparation of Ce-ZrO_2 Based Composites and Effect of Addition of 3Y-ZrO₂ on Their Microstructures	
A. Nakahira, M. Ohta, T. Murakami and T. Kudo	41
Grinding of Agglomerate AlN Powder by Wet Milling	
J.Y. Qiu, K. Watari, Y. Hotta, Y. Kinemuchi and K. Mitsuishi	45
Wet Jet Milling of Ceramics Powder	
N. Omura, Y. Hotta, Y. Kinemuchi, S. Kume and K. Watari	49
Hydrothermal Preparation and Characterization of Barium Titanate Powders	
C.H. Lu and P.C. Wu	53
Fabrication and Characterization of Various Calcium Phosphate Powders by Ultrasonic Spray Pyrolysis Technique	
H.J. Wang, Y.K. Jeong, K.S. Oh, B.H. Kim, S.H. Lee and Y.H. Choa	57
Fabrication and Characteristics of Hypereutectic Prealloyed Al-Si Powders by Gas Atomization Process	
Y.J. Kim, L.F. Wang, I.S. Chung, J.C. Kim and T.S. Jang	61
Effect of Magnesium Ion on the Precipitation of Hollow Calcium Carbonate by Bubble Templating Method	
G. Hadiko, Y.S. Han, M. Fuji and M. Takahashi	65
Effect of Different Salt on Fabrication of $\text{Sr}_{0.5}\text{Ba}_{0.5}\text{Nb}_2\text{O}_6$ by Molten-Salt Synthesis	
W. Chen, S. Kume, C. Duran and K. Watari	69
Processing and Property Evaluation of Alumina Aerogel Based Ceramic Nanocomposites	
A. Yamuna, K. Tajiri, S. Honda, S. Hashimoto and H. Awaji	73
Dispersion of ZrO_2 Particles in the $\text{Al}_2\text{O}_3/\text{ZrO}_2$ Ceramics by the Partial Chemical Dispersion Processes	
M.J. Cho, S.H. Youn, J.J. Kim, K.H. Hwang, J.K. Lee and M. Iwasa	77
Pre-Combustion CO_2 Capture Using Ceramic Absorbent and Methane Steam Reforming	
M. Kato, Y. Maezawa, S. Takeda, Y. Hagiwara, R. Kogo, K. Semba and M. Hamamura	81
Kumada Rearrangement of Polydimethylsilane Using a Catalytic Process	
Y. Kim, D.G. Shin, H.R. Kim, D.Y. Han, Y.U. Kang and D.H. Riu	85
Effect of Additives on Hydrolysis of Ti Alkoxide and Microstructural Observation of TiO_2	
A. Nakahira, Y. Fujita, T. Kubo, S. Eguchi, S. Nishida and T. Isshiki	89
Sol-Gel Preparation and Characterizations of Europium-Ion Doped Barium Magnesium Aluminate	
C.H. Lu, C.H. Huang, C.T. Chen, S.M. Wang, S.J. Huang, D. Zhang and R. Kadam	93

Syntheses of Bulky Y-Zeolite by Hydrothermal Hot-Pressing (HHP) Technique	97
S. Takezoe, K. Hosoi, M. Tajika, Y. Yamasaki and A. Nakahira	
Densification and Strengthening of Tricalcium Phosphate/Titania Composite by Hot Pressing	
J.K. Lee, D.S. Seo and H.C. Jung	101
Preparation of Mullite Composite Using Liquid Infiltration Technique	
B.R. Cho and D.H. Heo	105
Liquid-Phase Sintered Silicon Carbide with Aluminum Nitride and Rare-Earth Oxide Additives	
M. Hotta, N. Enomoto and J. Hojo	111
Effect of α-Alumina as a Seed in Alumina/Silicon Carbide Composites	
S.M. Choi, U. Leela-adisorn, S. Honda, S. Hashimoto and H. Awaji	115
Preparation and Morphology of C/C-SiC Composites by Si Melt Infiltration	
I.S. Han, D.W. Seo, S.W. Lee, K.S. Hong, S.K. Woo, Y.H. Chung and J.C. Lee	119
Preparation and Properties of Silicon Nitride Ceramics by Nitrided Pressureless Sintering (NPS) Process	
I.S. Han, S.H. Cheon, Y.H. Chung, D.W. Seo, S.W. Lee, S.K. Woo and K.S. Lee	125
Microwave Sintering BaTiO₃ Ceramics Using Liquid Phase Sintering	
Y. Nishimura, M. Yasuoka, T. Nagaoka, Y. Kinemuchi and K. Watari	131
Thermodynamical Calculations and Experimental Confirmation about the Mg-Al-Spinel Reaction Path in the Sol-Gel-Process	
W. Wunderlich, K. Vishista, F.D. Gnanam and D.D. Jayaseelan	135
Fabrication and Structure of TiO₂ Coated Open-Cell Mullite Ceramics	
S.H. Park, J.W. Kim, Y. Jung, J.H. Lee, U.Y. Paik and H.S. Lee	139
Dispersion of Barium Ferrite Particles for Slip Casting in Magnetic Field	
J.L. Li, S. Sano, A. Tsuzuki, A. Gotou, Y. Shibasaki, F.S. Zhang, J.T. Xiong, C.G. Zhang and T.J. Ma	143
The Vibrative Casting with a Thixotropic Behavior	
S.Y. Yoon, J.K. Lee, K.H. Hwang and B.S. Jun	147
Compositional Control in Solid Freeforming; Fabrication of 3D FGM	
M.M. Mohebi, S.F. Yang and J.R.G. Evans	151
Microstructural Characterization of Fine-Grained Pb(Zr_{0.52}Ti_{0.48})O₃ Ceramics Fabricated by a Spark Plasma Sintering	
S.M. Koo, S.H. Shim, J.W. Yoon and K.B. Shim	155
Rapid Fabrication of C/C-SiC Composites	
J. Wang, Z.H. Jin and G.J. Qiao	159
Strengthening Effect of In-Situ Dispersed Hexagonal Boron Nitride in Ceramic Composites	
G.J. Zhang, H. Kita, N. Kondo and T. Ohji	163
Biomorphic SiC Ceramics Prepared by Organic Template Method	
G.J. Qiao, Z.H. Jin and J.M. Qian	167
Fabrication of a Strontium-Doped Lanthanum Chromite (LSC) Thin Film on SUS430 Substrate	
H.J. Hwang, J.W. Moon, Y.H. Lim, S.H. Lee and E.A. Lee	173
Influence of Nitride on Sinterability of the Composite of Lithium Aluminum Silicate and Silicon Carbide	
M. Iguchi, M. Umezu, M. Kataoka, H. Nakamura and M. Ishii	177
Hydrogen Reduction and Sintering Behavior of Al₂O₃/CuO Powder Mixtures Prepared from Different Raw Powders	
S.T. Oh and S.J. Yoon	181
Low Cost Si₃N₄/SiC Nanocomposites, Processing, RT and HT Properties	
P. Šajgalík, M. Hnatko, Z. Lenčéš, J. Dusza, M. Kašiarová, J. Kovalčík and V. Šídá	185
Fabrication of Si₃N₄-TiN Nanocomposites via Various Routes	
J. Hojo, H. Kugimoto, M. Uehara and N. Enomoto	191
Hydrothermal Synthesis of Nano ZrO₂ Powders	
C. Duran, J. Yu, K. Sato, Y. Hotta and K. Watari	195
Synthesis of Nanocrystalline α-Al₂O₃ Using a 2-Step Calcination Method	
M.J. Cho, S.H. Youn, J.J. Kim, K.H. Hwang, B.S. Jun, S.Y. Yoon and J.K. Lee	199

Nano Magnetite Particles Prepared under the Combined Addition of Urea and Ammonia	203
Y.K. Jeong, D.K. Shin, H.J. Lee, K.S. Oh, J.H. Lee and D.H. Riu	
Synthesis of Nano-Scaled α-Al₂O₃ Particles by Combustion Spray Pyrolysis	207
B.S. Jun, S.J. Lee and G.L. Messing	
Synthesis of SiC Nano-Powders by Solid-Vapor Reaction	211
S.S. Lee, J.W. Kim, Y. Jung, J.H. Lee, J.H. Yoon and C.Y. Jo	
Formation Mechanism of Nano AlN Powder by Gas-Reduction-Nitridation	215
T. Yamakawa, J. Tatami, T. Wakihara, K. Komeya, T. Meguro and K. MacKenzie	
Synthesis of Metal Oxide Hollow Nanoparticles by Chemical Vapor Condensation Process	219
C.W. Lee, S.G. Kim and J.S. Lee	
Microwave-Assisted Synthesis of MWO₄ and MMoO₄ (M = Ca, Ni) Nano-Powders Using Citrate Complex Precursor	223
J.H. Ryu, J.W. Yoon, C.S. Lim and K.B. Shim	
Synthesis and Microstructure of TiO₂-SiO₂ Nanoparticles by a Reverse Micelle and Sol-Gel Processing	227
D.S. Bae, B.I. Kim, K.S. Han and J.H. Adair	
Fabrication and Applications of Nano-Metal Particle Composites by Ultrasonic Eco-Process	231
Y. Hayashi, H. Takizawa, Y. Saijo, T. Sekino, K. Suganuma and K. Niihara	
Fabrication and Estimation of Au Coated γ-Fe₂O₃ Nanoparticles for Separation and Purification of Biomolecules	235
S.H. Kim, J.K. Yang, K.J. Lee and Y.H. Choa	
Nano-Structured High Purity Copper Processed by Accumulative Roll-Bonding	239
S.H. Lee, S.Z. Han and C.Y. Lim	
Direct Hydrothermal Processing of Long Titanate Nanofibers from Natural Rutile	243
Y. Suzuki, S. Pavasupree, S. Yoshikawa and R. Kawahata	
Synthesis of Nanotubular Titanate from Titanium Using Hydrothermal Treatment	247
T. Kubo, W. Kato, Y. Yamasaki and A. Nakahira	
Synthesis and Properties of Titania Nanotube Doped with Small Amount of Cations	251
T. Sekino, T. Okamoto, T. Kasuga, T. Kusunose, T. Nakayama and K. Niihara	
High Pressure / Low Temperature Sintering of Nanostructured Titania by Internal Heating Method	255
C.H. Chiang, K.D. Pae and C.H. Lu	
Growth of Carbon Nanotubes on Surface of Carbon Fibers Rod	259
Y.S. Lim, W.S. Kim, S.Y. Moon, D.Y. Han and J.Y. Lee	
On the Dissolution of WC in WC-Co Alloys	263
O. Seo and S.H. Kang	
Conventional Sintering Route for the Production of Alumina-Based Nanocomposites: A Microstructural Characterization	267
P. Palmero, C. Esnouf, L. Montanaro and G. Fantozzi	
Energy Changes and the Lattice Resistance	271
W.J. Clegg, L. Vandeperre and J.E. Pitchford	
Shot Peening - A New Method for Improving Mechanical Properties of Structural Ceramics	277
H. Tomaszewski, K. Godwod, R. Diduszko, F. Carrois and J.M. Duchazeaubeneix	
Critical Frontal Process Zone Size and R-Curve Behavior of Porous Ceramics	281
H. Awaji, C.H. Chen and N. Kishi	
Characteristics of Machining Damage and Their Influence on Strength in Alumina Ceramics System	285
S. Tanaka, K. Sato, S. Yonetani, T. Nakamura and K. Uematsu	
Estimation of Residual Stress in a Ceramic Coating Layer	289
S. Ohtsuka, Y. Sekiguchi, S. Tochino and G. Pezzotti	
From Niihara's Equation to Peculiar Nanoindentation Deformation of Ceramics and Semiconductors	293
R. Nowak, A.T. Hirvonen and T. Sekino	
Fracture Toughness of Fibrous Si₃N₄ Monolithic Ceramics	297
H. Guo, D.H. Yoon and D.W. Shin	
Prediction of Fracture Toughness in Fibrous Si₃N₄ Monolithic Ceramics	301
H. Guo, D.H. Yoon and D.W. Shin	

Mechanical Properties of Transparent Polycrystalline Silicon Nitride	
R.J. Sung, T. Kusunose, T. Nakayama, Y.H. Kim, T. Sekino, S.W. Lee and K. Niihara	305
Electrical Resistance Behavior during Tensile Loading of Al₂O₃ Fiber-Nano RuO₂-Glass Composites	
B.K. Jang and H. Matsubara	309
Gas Pressure Dependence of Photon Emission Accompanying Fracture of Polycrystalline MgO in Nitrogen	
T. Shiota, Y. Toyoshima, K. Yasuda and Y. Matsuo	313
Mechanical Properties of Sol-Gel Inorganic-Organic Hybrid Films in Nanoindentation	
J.Q. Zhang, A. Matsuda, H. Muto and M. Sakai	317
The Change of Mechanical Properties for Anodic Aluminum Oxide by Heat Treatment	
D.J. Park, S.H. Kim, J.H. Lee, S.H. Lee and Y.H. Choa	323
Microstructures and Mechanical Properties of Nano-Structured Aluminum Fabricated by Accumulative Roll-Bonding Using Different Rolling Methods	
S.H. Lee, T. Sakai, C.H. Lee and Y.H. Choa	327
The Microstructures and Mechanical Properties of Molybdenum Disilicide Preforms Infiltrated by Aluminum	
X.L. Zhang, Z.H. Jin and Z.L. Lu	331
Development of Low Machining Cost Materials by Using Aluminum Borate	
H. Takano, T. Kusunose, T. Sekino, R. Ramaseshan and K. Niihara	335
Estimation of Thermal Shock Resistance by Infrared Radiation Heating and Water Flow Cooling Techniques	
S. Honda, H. Tanaka and H. Awaji	339
Improvement in Oxidation and Thermal Shock Resistance of Molten Glass-Coated Carbon Materials by Interfacial Control	
M. Wada, S. Kitaoka, N. Kawashima, Y. Yasutomi, T. Yamada, N. Osa, K. Naitou and M. Koyama	343
Microscopic Study of Sliding Wear Surfaces of Alumina	
T. Senda, Y. Kawagoe, N. Kotani, K. Murakami and K. Adachi	347
Dry Sliding Wear of Lu₂O₃ Sialon Ceramics	
M.I. Jones, K. Hirao, H. Hyuga and Y. Yamauchi	351
Increasing the Effectiveness of Aluminium Phosphate Binders	
C.L. Mulcahy and W.J. Clegg	355
Rolling Life Properties of Ceramic Bearings in Water	
T. Yamamoto, H. Ito, S. Niizeki and S. Matsunaga	359
Tribological Properties and Thermal Conductivity of Si₃N₄ / Si₃N₄-BN Alternate Layered Composites	
T. Hirao, K. Hirao and Y. Yamauchi	363
Wear Behavior of Nano-Sized Metal Particle Dispersed Al₂O₃ Nanocomposites	
S.T. Oh, S.J. Yoon, Y.H. Choa, Y.K. Jeong and K. Niihara	369
Fabrication of Nanoabrasive Grinding Wheels and Their Application to Grinding Silicon Wafers	
T.W. Kim, S.H. Hyun, J.S. Kim, J.H. Lee and H.W. Lee	373
Tribological Property of Plasma Sprayed TiO₂ Coating	
S.W. Lee, H. Du, H. Chen and B.Y. Hur	377
Adhesive and Wear Properties of Indium Tin Oxide (ITO) Thin Films Deposited by RF Magnetron Sputter	
Y.N. Kim, M.S. Jeon, M.C. Shin, S.M. Lee and H.S. Lee	381
Tribological Properties of TiN/DLC Nanocomposite Coatings	
W.J. Yang, T. Sekino, J.W. Yoon, K.B. Shim, K. Niihara and K.H. Auh	385
Corrosion Resistance of Commercial Si₃N₄ Bearing Balls	
O. Chimal-Valencia, M.S. Corral-García, H. Kume, Y. Nishikawa, M. Iwasa and S.D. De la Torre	389
Characteristic Evaluation of High Corrosion Resistant Ti/ (Pt + B₂O₃) Electrode with New Microstructure of Coat	
D.Y. Ju, S. Koga, P. Bian and T. Mitamura	393
Effect of Chemical Composition of Intergranular Glass on Superplastic Deformation of β-Silicon Nitride	
E. Narimatsu, Y. Shinoda, T. Akatsu and F. Wakai	399

Superplastic Deformation of Silicon Nitride Nanocomposite at High Strain Rates	403
K. Chihara, Y. Shinoda, T. Akatsu and F. Wakai	
Superplastic Behavior in GeO_2 - TiO_2 Doped TZP	407
H. Ito, H. Yoshida, Y. Ikuhara, T. Yamamoto and T. Sakuma	
Surface Diffusion and Incorporation Process of Adatom in Fe-Al Multilayer System	411
C.H. Kim, I.Y. Kang and Y.C. Chung	
Oxygen Diffusion along Symmetric [0001] Tilt Grain Boundaries in α-Alumina	415
T. Nakagawa, I. Sakaguchi, K. Matsunaga, T. Yamamoto, H. Haneda and Y. Ikuhara	
Oxynitride Glasses and Their Properties - Implications for High Temperature Performance of Silicon Nitride-Based Ceramics	419
S. Hampshire and M.J. Pomeroy	
High-Temperature Properties of Silicon Nitride with Lu-Si-O-N Grain Boundary Phases	425
Y. Yamamoto, T. Nishimura, N. Hirosaki, S. Guo, J. Cao and M. Mitomo	
Analysis of Internal Friction on Silicon Nitride with Visco-Elastic Model	429
S. Sakaguchi	
Deformation Behavior of SiO_2 Doped Nanocrystalline Monoclinic Zirconia at Low Temperatures	433
M. Yoshida, Y. Shinoda, T. Akatsu and F. Wakai	
Microstructure and High Temperature Strength Characteristics of Unidirectionally Solidified Al_2O_3 / GdAlO_3 Eutectic Composite	437
H. Ohtsubo, N. Nakagawa, K. Shimizu, K. Shibata, A. Mitani and Y. Waku	
Influence of Grain Boundary Properties on Microcracking of AlN in Sliding Test	441
Y. Kobayashi, T. Hayase and N. Yamada	
The Effect of Particle Migration on the Creep-Rate of Nanocomposites	445
J.E. Pitchford, E. Lidén, S. Gustafsson, L.K.L. Falk, E. Carlström and W.J. Clegg	
Crack Propagation Behavior of Alumina with Different Grain Sizes under Static and Cyclic Fatigue	449
H. El Attaoui, M. Saâdaoui, J. Chevalier and G. Fantozzi	
Crack-Healing under Cyclic Stress and Improvement of the Resultant Fatigue Strength of $\text{Si}_3\text{N}_4/\text{SiC}$	453
K. Takahashi, K. Ando and S. Saito	
Evaluation and Control of Crack Propagation in Dense Porcelain/ Porous Alumina Layered Structures for Dental Material Applications	457
J.W. Kim, S.H. Park, Y. Jung and H.S. Lee	
Critical Conditions for Crack-Healing of Structural Ceramics under Constant or Cyclic Stress	461
M. Ono, W. Nakao, K. Takahashi and K. Ando	
Simultaneous Removal of SO_x and NO_x by Catalytic Cordierite Filter	465
M.C. Shin, J.S. Cha, J.H. Lee, S.H. Lee and H.S. Lee	
Indentation Contact Deformation of 3Y-TZP at Elevated Temperatures	469
H. Muto, R. Yamada, A. Matsuda and M. Sakai	
High Temperature Characteristics of Melt Growth Composites and Their Application to Ultra High Efficiency Gas Turbine Components	473
Y. Waku	
Development and Evaluation of Ceramic Components for a Gas Turbine	481
T. Fukudome, S. Tsuzuzono, T. Tatsumi, Y. Ichikawa, T. Hisamatsu and I. Yuri	
Effect of Reactive Filler Addition for Matrix of SiC Fiber/SiC Composite	487
T. Inoue, M. Suzuki, T. Tanaka and S. Sodeoka	
Thermal and Electrical Conductivities of Porous Carbon-Coated Ceramic Fiber Composites	491
J.C. Lee, J.S. Yu, J.H. Sung, S. Park and S.C. Choi	
Laser Chemical Vapor Deposition of Thick Oxide Coatings	495
T. Goto and T. Kimura	
La_2O_3 Doped Y_2O_3 Stabilized ZrO_2 TBC Prepared by EB-PVD	501
M. Matsumoto, N. Yamaguchi and H. Matsubara	
Deposition Behavior of YSZ Nano-Coating Layer by EB-PVD	505
T.H. Shin, J.H. Yu, S.W. Lee, I.S. Han, S.K. Woo, B.K. Jang and S.H. Hyun	
Thermal Conductivity of Nano-Pore Dispersed Y-PSZ Fabricated by EB-PVD	509
B.K. Jang, N. Yamaguchi and H. Matsubara	

Thermal Stability and Mechanical Properties of Plasma Sprayed Al₂O₃/ZrO₂ Nano-Composite Coating	513
S. Sodeoka, M. Suzuki and T. Inoue	
Investigation of Strontium-Niobium Oxides for Application to Thermal Barrier Coatings	517
M. Shida, K. Akiyama, I. Nagano, Y. Murakami and S. Ohta	
Thermal Conductivity of Zirconia for Thermal Barrier Coatings: A Perturbed Molecular Dynamics Study	521
M. Yoshiya, M. Matsumoto, A. Harada, M. Takeuchi and H. Matsubara	
Mechanical Properties and Damage Durability of Thermal Barrier Coatings with Thermal Fatigue	525
H.J. Jang, D.B. Kim, Y. Jung, J.C. Chang, S.C. Choi and U.Y. Paik	
Advances in YSZ Coatings Prepared by Sol-Gel Route. Applications to Fuel Cells or Thermal Barrier Coatings	529
F. Ansart, J.P. Bonino, P. Lenormand, C. Robert and C. Viazzi	
New Challenge of Plasma Spray Coatings in Nano Oxide Ceramics	533
S.W. Lee, H. Chen, Y. Zeng and C.X. Ding	
Development of Nanostructured Al₂O₃-Ni HVOF Coatings	539
S.P. Hannula, E. Turunen, J. Keskinen, T. Varis, T. Fält, T.E. Gustafsson and R. Nowak	
Process Optimization for Nanostructured HVOF -Sprayed Al₂O₃-Based Ceramic Coatings	545
E. Turunen, T. Varis, T.E. Gustafsson, J. Keskinen, P. Lintunen, T. Fält, R. Nowak and S.P. Hannula	
Quest and Evaluation of Topcoat Materials for Environmental Barrier Coatings of SiC/SiC Composites	549
H. Nakayama, K. Morishita, S. Ochiai, T. Sekigawa, K. Aoyama, T. Oi, M. Yamamoto, K. Okamura and M. Sato	
Reliability during Thermal Shock Testing of NiCr Films on Mn-Ni-Co Oxide Substrates	553
M.S. Jeon, J.K. Song, E.J. Lee, H.S. Lee, T.H. No, D.H. Kim and I.G. Park	
Comparison of Water Vapor Corrosion Behaviors of Ln₂Si₂O₇ (Ln=Yb and Lu) and ASiO₄ (A=Ti, Zr and Hf) EBC's	557
S. Ueno, D.D. Jayaseelan, H. Kita, T. Ohji and H.T. Lin	
Characterization and Photocatalytic Properties of Plasma Sprayed TiO₂ Coatings Deposited from Nanoparticles	561
H. Chen, T.H. Kim, S.W. Lee, H.S. Aum, B.Y. Hur, Y. Zeng and C.X. Ding	
Titania Nanocrystals-Dispersed Coatings from SiO₂-TiO₂ Gel Films through Hydrolysis and Dissolution	565
A. Matsuda, T. Kogure, H. Muto, M. Sakai, K. Tadanaga, T. Minami and M. Tatsumisago	
Preparation and Characterization of Titania Thin Films	569
C.H. Lu, J.H. Huang, H.H. Chen and P.H. Huang	
Development of Silicon Carbide Coating on Al₂O₃ Ceramics from Precursor Polymers by Radiation Curing	573
R.A. Wach, M. Sugimoto and M. Yoshikawa	
Accelerated Degradation Test of Indium Tin Oxide (ITO) Thin Films Deposited by RF Magnetron Sputter	577
H.G. Shin, Y.N. Kim, J.K. Song and H.S. Lee	
Local Acceleration Effects of Adatom at the Vicinity on the Surface: Case of Co Nano Thin-Films on Al Surface	581
S.C. Lee, S.P. Kim, K.R. Lee and Y.C. Chung	
Laser-Assisted Synthesis of Amorphous/Pseudoamorphous GaN Thin Films and Nanostructures	585
S.H. Shim, N. Koshizaki, J.W. Yoon and K.B. Shim	
The Effects of Nitrogen and Annealing on the Electrical Property of the Diamond-Like Carbon (DLC) Films	589
B.G. Choi, J.K. Kim, W.J. Yang, K. Niihara, J.W. Yoon and K.B. Shim	
The Anisotropic Properties of the Tape Cast Si₃N₄ Ceramics with Rod-Like β-Si₃N₄ Seeds Addition	593
Y.P. Zeng, N. Kondo, K. Hirao, H. Kita, T. Ohji and S. Kanzaki	
Fabrication and Characterization of Zirconia-Based New Ceramic Composites for Thermal Barrier Coatings	597
A.T. Hirvonen, Y. Yamamoto, T. Sekino, R. Nowak and K. Niihara	

Design and Characterization of Porosity Gradient for the Laminated Alumina Tubes	601
C.H. Chen, S. Ishiguro, S. Honda and H. Awaji	
Alumina-Based Nanocomposites Fabricated by a Novel Soaking Method	607
U. Leela-adisorn, T. Matsunaga, S.M. Choi, S. Honda and H. Awaji	
Properties and Microstructure of Mullite-Based Iron Nanocomposite	611
H. Wang, T. Sekino, T. Kusunose, T. Nakayama and K. Niihara	
High-Toughness Tetragonal Zirconia/Alumina Nano-Ceramics	615
O. Vasylkiv, Y. Sakka and V. Skorokhod	
Microstructures and Mechanical Properties of Fine-Scale Fibrous Alumina / Zirconia Bi-Phase Composite Fabricated by Co-Extrusion Process	619
H. Miyazaki, Y. Yoshizawa and K. Hirao	
Nanocomposite Formation in the Fe_3O_4-M (M=Al, Ti) Systems by Mechanical Alloying	623
C.H. Lee, S.H. Lee, S.J. Lee, Y.H. Choa and J.S. Kim	
Fabrication of α-Sialon Nano-Ceramics	629
X. Xu, T. Nishimura, N. Hirosaki, R.J. Xie, Y. Yamamoto and H. Tanaka	
Fabrication and Evaluation of β-Si₃Al₄ Nanoceramics	633
D. Hiratsuka, J. Tatami, T. Meguro, K. Komeya, I. Hayashi, J.F. Yang and M. Omori	
Fabrication and Properties of Machinable AlN-BN Ceramic Nanocomposites	637
H.Y. Jin, W. Wang, J.Q. Gao, G.J. Qiao and Z.H. Jin	
Electrical Properties of AlN-SiC Ceramics	641
R. Kobayashi, J. Tatami, T. Wakihara, T. Meguro and K. Komeya	
Fabrication of Electronic Conductive Silicon Nitride Ceramics by Convenient Powder Metallurgical Process	645
Y.H. Kim, T. Sekino, H. Kawaoka, R.J. Sung, T. Kusunose, T. Nakayama and K. Niihara	
Effect of Oxynitride Grain Boundary Phase on Toughening of Silicon Nitride Ceramics	649
T. Kusunose, T. Sekino, P.E.D. Mogan and K. Niihara	
Electrically Conductive Aluminum Nitride Ceramics Containing In-Situ Synthesized Boron Carbonitride	653
J. Yoshikawa, Y. Katsuda, N. Yamada and H. Sakai	
Fabrication of Conductive Alumina by Gelcasting and Reduction Sintering	657
M. Takahashi, K. Adachi, R.L. Menchavez and M. Fuji	
Preparation and Electrical Properties of Carbon Nanotubes Dispersed Zirconia Nanocomposites	661
T. Ukai, T. Sekino, A.T. Hirvonen, N. Tanaka, T. Kusunose, T. Nakayama and K. Niihara	
Synthesis and Densification of CNTs/Fe/Al₂O₃ Nanocomposite Powders by Chemical Vapor Deposition	665
S.H. Yoo, H.J. Wang, S.T. Oh, S.G. Kang and Y.H. Choa	
Preparation of Organic/Inorganic Nanocomposites with Microwave Process	669
D.H. Kim, S.S. Park, B.S. Jun, J.K. Lee, K.H. Hwang, H.C. Park and S.Y. Yoon	
Fabrication of Yttria Stabilized Tetragonal Zirconia Polycrystals Containing TiNi Intermetallic Compounds	673
N. Tanaka, T. Sekino, T. Kusunose, H. Wang, T. Nakayama and K. Niihara	
Synthesis of Monodispersed Inorganic-Organic Hybrid Particles from Phenyltriethoxysilane	677
K. Shimoike, A. Matsuda, H. Muto and M. Sakai	
Evaluation of Thermal Stability of Porous Material by Sintering Stress	683
F. Wakai, Y. Shinoda and T. Akatsu	
Preparation and Properties of Porous Alumina Ceramics with Oriented Pores	689
T. Isobe, Y. Kameshima, A. Nakajima and K. Okada	
Fabrication and Characteristic of Porous Alumina Developed with SiC Nano-Fiber or Nano-Whisker	693
S.J. Je, J.W. Kim, Y. Jung and U.Y. Paik	
Preparation of Ceramic Honeycomb Filter Supported Zeolite Membrane Modules by Microwave-Assisted In-Situ Crystallization	697
C.D. Madhusoodana, R.N. Das, Y. Kameshima and K. Okada	
In-Situ Formation and Coating of Cordierite Whiskers on Cordierite Based Honeycomb Support	701
D.D. Jayaseelan, S. Ueno, H. Kita, N. Kondo and T. Ohji	

Fabrication of Porous Ni-ZrO₂ for SOFC Using NiO-ZrO₂ Composite Powders	705
K. Sato, S. Honda, T. Nishikawa and H. Awaji	
Synthesis and Application of Nano Porous La_{0.6}Sr_{0.4}CoO_{3-δ} on an Oxygen Separation Membrane	709
K.J. Lee, J.W. Park, J.K. Yang, K.S. Lee and Y.H. Choa	
Durability of Ceramic Filter for Hot Gas Cleaning	713
M.C. Shin, J.S. Cha, J.H. Lee, S.H. Lee and H.S. Lee	
Macroporous Ceramics Coated with Mesoporous Layer for Enzyme Encapsulation	717
S. Seelan, K. Kato and Y. Yokogawa	
Preparation of Bimodal Porous Apatite Ceramics through Slip Casting Using Fine Hydroxyapatite Powders	723
Y. Zhang, Y. Yokogawa and T. Kameyama	
Fabrication of Uniformly Nano-Sized Macroporous Silica Structure Using Templates	729
D.S. Chang, Y.J. Kwon, C.S. Lim, J.W. Yoon and K.B. Shim	
Fabrication of Large Ceramic Components with Controlled Microstructure by Powder Thermoset Molding	733
H.W. Lee, J.S. Kim, J.H. Lee and H. Song	
Mineral Sand as a Low Cost Source of Nanomaterials	739
R. Kawahata and Y. Suzuki	
Fabrication and Characterization of Zeolite-Carbon Composite from Industrial Wastes	743
N.F. Gao, K. Watari and S. Kume	
Evaluation of Energy Consumption in Ceramic Fabrication Process for Alumina Ceramics with Diverse Particle Sizes	747
S. Nagano and K. Watari	
Fabrication of Al₂O₃ Ceramics by Environmentally Friendly Process	751
T. Nagaoka, T. Tsugoshi, Y. Hotta, K. Sato and K. Watari	
Characteristics of Wall and Floor Tiles Using Waste Glass	755
Y.K. Kim, Y. Jung, J.B. Song, M.C. Shin and H.S. Lee	
Honeycomb Supports, Filters and Catalysts for Cleaner Environment	759
S.P. Shukla, C.D. Madhusoodana and R.N. Das	
Preparation of Porous Hydroxyapatite Using Extrusion of PAN	765
M. Ohta, M. Tajika and A. Nakahira	
Synthesis and Characterization of Calcium Phosphate-AMP Layered Materials	769
M. Kaneno, K. Sakamoto, S. Yamaguchi and K. Suganuma	
Finite Element Analysis on Proof Testing of Ceramic Ball Heads for Total Hip Replacements: Trauma Loading Considerations	773
D.G. Carillo, M.C. Curiel, H.S. Aum and S.W. Lee	
Application of Zeolites on Cellulose Fiber	777
H.M. Lim, J.S. Jung, B.Y. Kim and S.H. Lee	
Formation of Hydroxyapatite from Mechanochemically Treated β-Tricalcium Bis (Orthophosphate)	781
M. Kaneno, K. Sakamoto, S. Yamaguchi and K. Suganuma	
Transmission Electron Microscopic Study on Thermal Decomposition Process of Calcium-Deficient Hydroxyapatite	785
M. Tamai, K. Nishio, T. Isshiki and A. Nakahira	
Dissolution and Mechanical Properties of Sintered Hydroxyapatite Immersed in Water	789
D.S. Seo, H. Kim, K.H. Hwang and J.K. Lee	
Correlation of Physical Properties of Inorganic Carrier and Microbial Survival Rate	793
H.M. Lim, S.H. Lee, J.B. Park, J.A. Kwon and Y.S. Yu	
Luminescence Properties of Rare-Earth Doped α-SiAlONs	797
R.J. Xie, M. Mitomo and N. Hirosaki	
Effects of Sn²⁺ Co-Doping on the Photoluminescence of Eu³⁺ Ion in Strontium Phosphate	803
C.H. Lu and V. Natarajan	
Synthesis of WO₃ Electrochromic Sensor by Sol-Gel Method and Characterization of Its Electrochemical and Optical Properties	807
C.Y. Kim, J.W. Choi, T.Y. Lim and D.K. Choi	
Thermoelectric Properties of Al-Doped ZnO Prepared by Electrical Field-Assist Sintering	811
H. Kaga and R. Asahi	

Photocatalytic Activity of Titania and Zirconia-Doped Titania Nanocrystals Prepared by Surfactant-Assisted Templating Method	815
S. Sakulkhaemaruethai, Y. Suzuki and S. Yoshikawa	
Comparison of Adsorption Capability and Photocatalytic Activity for Methylene Blue Decomposition of LiInO₂ with NaInO₂	819
J.H. Wang and T. Nonami	
The Preparation of Visible Light-Responsive TiO₂ Thin Films by Applying a RF-Magnetron Sputtering Deposition Method and Their Photocatalytic Reactivity for the Decomposition of Water with a Separate Evolution of H₂ and O₂	823
M. Kitano, H. Kikuchi, T. Hosoda, M. Takeuchi, M. Matsuoka, T. Eura, M. Anpo and J.M. Thomas	
The Intelligent Catalyst: Pd-Perovskite Having the Self-Regenerative Function in a Wide Temperature Range	827
H. Tanaka, I. Tan, M. Uenishi, M. Taniguchi, Y. Nishihata and J. Mizuki	
The Self-Regenerative "Intelligent" Catalyst for Automotive Emissions Control	833
I. Tan, M. Taniguchi, H. Tanaka, M. Uenishi, N. Kajita, Y. Nishihata, J. Mizuki and K. Niihara	
Removal of Heavy Metal Ions from Aqueous Pb-EDTA and Cu-EDTA Solutions Using Nanosized ZnO Powders by Solution-Combustion Method	837
J.H. Lee, J.U. Seo, Y.J. Chung, J.C. Lee and S. Park	
Synthesis of Solution-Combusted ZnO Nanopowder and Its Application to Gold Recovery	841
S. Park, J.C. Lee, J.U. Seo, J.H. Lee and H.J. Kim	
Effect of Additives on Dielectric Loss of AlN Ceramics	845
S. Kume, M. Yasuoka, N. Omura and K. Watari	
Dielectric and Piezoelectric Properties of xPb(Ni_{1/3}Nb_{2/3})O₃ - yPb(Mn_{1/3}Nb_{1/3}Sb_{1/3})O₃- (1-x-y)Pb(Zr_{0.48}Ti_{0.52})O₃ Ceramics	849
H.J. Sun, W. Chen, X.F. Liu, Q. Xu, J. Zhou and H. Wang	
Effect of Sintering Temperature on Structure, Piezoelectric and Ferroelectric Properties of (Na_{0.5}Bi_{0.5})_{0.90}Ba_{0.10}TiO₃ Ceramic	853
Q. Xu, X.L. Chen, S.J. Wu, W. Chen, H. Wang, B.H. Kim and J.H. Lee	
Thermodynamic and Dielectric Properties of MgSiN₂ Ceramics	857
Z. Lenčš, K. Hirao, P. Šajgalík and M.J. Hoffmann	
Ultrasonic Spray Nozzle System with Piezoelectric Ceramics for Water Treatment Applications	861
J.S. Koh, J.C. Lee, S.H. Cho and S.C. Choi	
Pressure Sensing Using Electrostatic Capacitance	865
N. Bamba, N. Endo, T. Takagi and T. Fukami	
Preparation and Evaluation of Metal/Ceramic Nanocomposites for High Frequency Inductive Devices	869
J.K. Yang, D.J. Park, J. Kim, S.Y. Chang, C.H. Lee, T. Sekino, K. Niihara and Y.H. Choa	
Microstructural and Electrical Characterisation of La_xBa_{1-x}Ti_{1-x}Y_xO₃ (0 x 0.50) Ceramics	873
A. Feteira, D.C. Sinclair and M. Lanagan	
A Structural Consideration of a Solid Solution La₄Ni_{3-x}Mn_xO₁₀	877
S. Ueno, H.B. Misram and N. Kamegashira	
Extraction of Crystal Structures Based on Euclidean Voronoi Diagram and Angle Distributions among Atoms	881
D.S. Kim, Y.C. Chung, S.W. Seo, S.P. Kim and C.M. Kim	
Sintering and Electronic Conducting Properties of La_{0.8}Ca_{0.2}CrO₃ Perovskite-Type Complex Oxides Synthesized by Different Methods	885
Q. Xu, W.F. Guo, W. Chen, H. Wang, D.P. Huang and B.T. Wang	
Magnetic and Electronic Properties of Transition Metal Doped β-SiC - A Diluted Magnetic Semiconductor	889
Y.S. Kim, H.C. Kim and Y.C. Chung	
Development of Ferrite Magnetic Materials with High Strength by a Low-Temperature Sintering Method	893
D.Y. Ju and P. Bian	
Processing and Mechanical Properties of Microcellular Ceramics	899
Y.W. Kim, S.H. Kim, C.B. Park and H.D. Kim	

Preparation and Properties of a Novel Anode of Interpenetrating Phase Composite Structure	
J.Y. Park, J.H. Lee, J.S. Kim and H.W. Lee	905
Fabrication and Fuel Cell Properties of Gd-Doped CeO₂ Micro-Tube Ceramics Reactors Prepared by Gel Precursor	
Y. Fujishiro, K. Hamamoto, R.V. Mangalaraja and M. Awano	909
Preparation of YSZ Electrolyte for SOFC by Electron Beam PVD	
T.H. Shin, J.H. Yu, S.W. Lee, I.S. Han, S.K. Woo, B.K. Jang and S.H. Hyun	913
Effect of Alumina Additions on Mechanical and Electrical Properties of 8mol% Yttria-Stabilized Zirconia Prepared by Spark Plasma Sintering	
J.K. Kim, K.H. Kim, Y.H. Choa, J.W. Yoon and K.B. Shim	917
Sealing Behavior of Visco-Elastic Composite Seals for SOFC Applications	
J.C. Lee, S. Park, J.S. Yu, J.H. Lee, J.S. Kim and H.W. Lee	921