

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. Hirotsaki, 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-ZrO₂ 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 ZrO₂ 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 CO₂ 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 TiO₂ 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 S. Takezoe, K. Hosoi, M. Tajika, Y. Yamasaki and A. Nakahira	97
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. Umezū, 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. Lenčič, J. Dusza, M. Kašiarová, J. Kovalčík and V. Šída	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. Yoon, 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 Y.K. Jeong, D.K. Shin, H.J. Lee, K.S. Oh, J.H. Lee and D.H. Riu	203
Synthesis of Nano-Scaled α-Al_2O_3 Particles by Combustion Spray Pyrolysis B.S. Jun, S.J. Lee and G.L. Messing	207
Synthesis of SiC Nano-Powders by Solid-Vapor Reaction S.S. Lee, J.W. Kim, Y. Jung, J.H. Lee, J.H. Yoon and C.Y. Jo	211
Formation Mechanism of Nano AlN Powder by Gas-Reduction-Nitridation T. Yamakawa, J. Tatami, T. Wakihara, K. Komeya, T. Meguro and K. MacKenzie	215
Synthesis of Metal Oxide Hollow Nanoparticles by Chemical Vapor Condensation Process C.W. Lee, S.G. Kim and J.S. Lee	219
Microwave-Assisted Synthesis of MWO_4 and MMoO_4 (M = Ca, Ni) Nano-Powders Using Citrate Complex Precursor J.H. Ryu, J.W. Yoon, C.S. Lim and K.B. Shim	223
Synthesis and Microstructure of TiO_2-SiO_2 Nanoparticles by a Reverse Micelle and Sol-Gel Processing D.S. Bae, B.I. Kim, K.S. Han and J.H. Adair	227
Fabrication and Applications of Nano-Metal Particle Composites by Ultrasonic Eco-Process Y. Hayashi, H. Takizawa, Y. Saijo, T. Sekino, K. Suganuma and K. Niihara	231
Fabrication and Estimation of Au Coated γ-Fe_2O_3 Nanoparticles for Separation and Purification of Biomolecules S.H. Kim, J.K. Yang, K.J. Lee and Y.H. Choa	235
Nano-Structured High Purity Copper Processed by Accumulative Roll-Bonding S.H. Lee, S.Z. Han and C.Y. Lim	239
Direct Hydrothermal Processing of Long Titanate Nanofibers from Natural Rutile Y. Suzuki, S. Pavasupree, S. Yoshikawa and R. Kawahata	243
Synthesis of Nanotubular Titanate from Titanium Using Hydrothermal Treatment T. Kubo, W. Kato, Y. Yamasaki and A. Nakahira	247
Synthesis and Properties of Titania Nanotube Doped with Small Amount of Cations T. Sekino, T. Okamoto, T. Kasuga, T. Kusunose, T. Nakayama and K. Niihara	251
High Pressure / Low Temperature Sintering of Nanostructured Titania by Internal Heating Method C.H. Chiang, K.D. Pae and C.H. Lu	255
Growth of Carbon Nanotubes on Surface of Carbon Fibers Rod Y.S. Lim, W.S. Kim, S.Y. Moon, D.Y. Han and J.Y. Lee	259
On the Dissolution of WC in WC-Co Alloys O. Seo and S.H. Kang	263
Conventional Sintering Route for the Production of Alumina-Based Nanocomposites: A Microstructural Characterization P. Palmero, C. Esnouf, L. Montanaro and G. Fantozzi	267
Energy Changes and the Lattice Resistance W.J. Clegg, L. Vandeperre and J.E. Pitchford	271
Shot Peening - A New Method for Improving Mechanical Properties of Structural Ceramics H. Tomaszewski, K. Godwod, R. Diduszko, F. Carrois and J.M. Duchazeaubeneix	277
Critical Frontal Process Zone Size and R-Curve Behavior of Porous Ceramics H. Awaji, C.H. Chen and N. Kishi	281
Characteristics of Machining Damage and Their Influence on Strength in Alumina Ceramics System S. Tanaka, K. Sato, S. Yonetani, T. Nakamura and K. Uematsu	285
Estimation of Residual Stress in a Ceramic Coating Layer S. Ohtsuka, Y. Sekiguchi, S. Tochino and G. Pezzotti	289
From Niihara's Equation to Peculiar Nanoindentation Deformation of Ceramics and Semiconductors R. Nowak, A.T. Hirvonen and T. Sekino	293
Fracture Toughness of Fibrous Si_3N_4 Monolithic Ceramics H. Guo, D.H. Yoon and D.W. Shin	297
Prediction of Fracture Toughness in Fibrous Si_3N_4 Monolithic Ceramics H. Guo, D.H. Yoon and D.W. Shin	301

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 K. Chihara, Y. Shinoda, T. Akatsu and F. Wakai	403
Superplastic Behavior in GeO₂ - TiO₂ Doped TZP H. Ito, H. Yoshida, Y. Ikuhara, T. Yamamoto and T. Sakuma	407
Surface Diffusion and Incorporation Process of Adatom in Fe-Al Multilayer System C.H. Kim, I.Y. Kang and Y.C. Chung	411
Oxygen Diffusion along Symmetric [0001] Tilt Grain Boundaries in α-Alumina T. Nakagawa, I. Sakaguchi, K. Matsunaga, T. Yamamoto, H. Haneda and Y. Ikuhara	415
Oxynitride Glasses and Their Properties - Implications for High Temperature Performance of Silicon Nitride-Based Ceramics S. Hampshire and M.J. Pomeroy	419
High-Temperature Properties of Silicon Nitride with Lu-Si-O-N Grain Boundary Phases Y. Yamamoto, T. Nishimura, N. Hirotsaki, S. Guo, J. Cao and M. Mitomo	425
Analysis of Internal Friction on Silicon Nitride with Visco-Elastic Model S. Sakaguchi	429
Deformation Behavior of SiO₂ Doped Nanocrystalline Monoclinic Zirconia at Low Temperatures M. Yoshida, Y. Shinoda, T. Akatsu and F. Wakai	433
Microstructure and High Temperature Strength Characteristics of Unidirectionally Solidified Al₂O₃/GdAlO₃ Eutectic Composite H. Ohtsubo, N. Nakagawa, K. Shimizu, K. Shibata, A. Mitani and Y. Waku	437
Influence of Grain Boundary Properties on Microcracking of AlN in Sliding Test Y. Kobayashi, T. Hayase and N. Yamada	441
The Effect of Particle Migration on the Creep-Rate of Nanocomposites J.E. Pitchford, E. Lidén, S. Gustafsson, L.K.L. Falk, E. Carlström and W.J. Clegg	445
Crack Propagation Behavior of Alumina with Different Grain Sizes under Static and Cyclic Fatigue H. El Attaoui, M. Saâdaoui, J. Chevalier and G. Fantozzi	449
Crack-Healing under Cyclic Stress and Improvement of the Resultant Fatigue Strength of Si₃N₄/SiC K. Takahashi, K. Ando and S. Saito	453
Evaluation and Control of Crack Propagation in Dense Porcelain/ Porous Alumina Layered Structures for Dental Material Applications J.W. Kim, S.H. Park, Y. Jung and H.S. Lee	457
Critical Conditions for Crack-Healing of Structural Ceramics under Constant or Cyclic Stress M. Ono, W. Nakao, K. Takahashi and K. Ando	461
Simultaneous Removal of SO_x and NO_x by Catalytic Cordierite Filter M.C. Shin, J.S. Cha, J.H. Lee, S.H. Lee and H.S. Lee	465
Indentation Contact Deformation of 3Y-TZP at Elevated Temperatures H. Muto, R. Yamada, A. Matsuda and M. Sakai	469
High Temperature Characteristics of Melt Growth Composites and Their Application to Ultra High Efficiency Gas Turbine Components Y. Waku	473
Development and Evaluation of Ceramic Components for a Gas Turbine T. Fukudome, S. Tsuruzono, T. Tatsumi, Y. Ichikawa, T. Hisamatsu and I. Yuri	481
Effect of Reactive Filler Addition for Matrix of SiC Fiber/SiC Composite T. Inoue, M. Suzuki, T. Tanaka and S. Sodeoka	487
Thermal and Electrical Conductivities of Porous Carbon-Coated Ceramic Fiber Composites J.C. Lee, J.S. Yu, J.H. Sung, S. Park and S.C. Choi	491
Laser Chemical Vapor Deposition of Thick Oxide Coatings T. Goto and T. Kimura	495
La₂O₃ Doped Y₂O₃ Stabilized ZrO₂ TBC Prepared by EB-PVD M. Matsumoto, N. Yamaguchi and H. Matsubara	501
Deposition Behavior of YSZ Nano-Coating Layer by EB-PVD T.H. Shin, J.H. Yu, S.W. Lee, I.S. Han, S.K. Woo, B.K. Jang and S.H. Hyun	505
Thermal Conductivity of Nano-Pore Dispersed Y-PSZ Fabricated by EB-PVD B.K. Jang, N. Yamaguchi and H. Matsubara	509

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

Design and Characterization of Porosity Gradient for the Laminated Alumina Tubes C.H. Chen, S. Ishiguro, S. Honda and H. Awaji	601
Alumina-Based Nanocomposites Fabricated by a Novel Soaking Method U. Leela-adisorn, T. Matsunaga, S.M. Choi, S. Honda and H. Awaji	607
Properties and Microstructure of Mullite-Based Iron Nanocomposite H. Wang, T. Sekino, T. Kusunose, T. Nakayama and K. Niihara	611
High-Toughness Tetragonal Zirconia/Alumina Nano-Ceramics O. Vasylykiv, Y. Sakka and V. Skorokhod	615
Microstructures and Mechanical Properties of Fine-Scale Fibrous Alumina / Zirconia Bi-Phase Composite Fabricated by Co-Extrusion Process H. Miyazaki, Y. Yoshizawa and K. Hirao	619
Nanocomposite Formation in the Fe₃O₄-M (M=Al, Ti) Systems by Mechanical Alloying C.H. Lee, S.H. Lee, S.J. Lee, Y.H. Choa and J.S. Kim	623
Fabrication of α-Sialon Nano-Ceramics X. Xu, T. Nishimura, N. Hirotsaki, R.J. Xie, Y. Yamamoto and H. Tanaka	629
Fabrication and Evaluation of β-SiAlON Nanoceramics D. Hiratsuka, J. Tatami, T. Meguro, K. Komeya, I. Hayashi, J.F. Yang and M. Omori	633
Fabrication and Properties of Machinable AlN-BN Ceramic Nanocomposites H.Y. Jin, W. Wang, J.Q. Gao, G.J. Qiao and Z.H. Jin	637
Electrical Properties of AlN-SiC Ceramics R. Kobayashi, J. Tatami, T. Wakihara, T. Meguro and K. Komeya	641
Fabrication of Electronic Conductive Silicon Nitride Ceramics by Convenient Powder Metallurgical Process Y.H. Kim, T. Sekino, H. Kawaoka, R.J. Sung, T. Kusunose, T. Nakayama and K. Niihara	645
Effect of Oxynitride Grain Boundary Phase on Toughening of Silicon Nitride Ceramics T. Kusunose, T. Sekino, P.E.D. Mogan and K. Niihara	649
Electrically Conductive Aluminum Nitride Ceramics Containing In-Situ Synthesized Boron Carbonitride J. Yoshikawa, Y. Katsuda, N. Yamada and H. Sakai	653
Fabrication of Conductive Alumina by Gelcasting and Reduction Sintering M. Takahashi, K. Adachi, R.L. Menchavez and M. Fuji	657
Preparation and Electrical Properties of Carbon Nanotubes Dispersed Zirconia Nanocomposites T. Ukai, T. Sekino, A.T. Hirvonen, N. Tanaka, T. Kusunose, T. Nakayama and K. Niihara	661
Synthesis and Densification of CNTs/Fe/Al₂O₃ Nanocomposite Powders by Chemical Vapor Deposition S.H. Yoo, H.J. Wang, S.T. Oh, S.G. Kang and Y.H. Choa	665
Preparation of Organic/Inorganic Nanocomposites with Microwave Process D.H. Kim, S.S. Park, B.S. Jun, J.K. Lee, K.H. Hwang, H.C. Park and S.Y. Yoon	669
Fabrication of Yttria Stabilized Tetragonal Zirconia Polycrystals Containing TiNi Intermetallic Compounds N. Tanaka, T. Sekino, T. Kusunose, H. Wang, T. Nakayama and K. Niihara	673
Synthesis of Monodispersed Inorganic-Organic Hybrid Particles from Phenyltriethoxysilane K. Shimoike, A. Matsuda, H. Muto and M. Sakai	677
Evaluation of Thermal Stability of Porous Material by Sintering Stress F. Wakai, Y. Shinoda and T. Akatsu	683
Preparation and Properties of Porous Alumina Ceramics with Oriented Pores T. Isobe, Y. Kameshima, A. Nakajima and K. Okada	689
Fabrication and Characteristic of Porous Alumina Developed with SiC Nano-Fiber or Nano-Whisker S.J. Je, J.W. Kim, Y. Jung and U.Y. Paik	693
Preparation of Ceramic Honeycomb Filter Supported Zeolite Membrane Modules by Microwave-Assisted In-Situ Crystallization C.D. Madhusoodana, R.N. Das, Y. Kameshima and K. Okada	697
In-Situ Formation and Coating of Cordierite Whiskers on Cordierite Based Honeycomb Support D.D. Jayaseelan, S. Ueno, H. Kita, N. Kondo and T. Ohji	701

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

Photocatalytic Activity of Titania and Zirconia-Doped Titania Nanocrystals Prepared by Surfactant-Assisted Templating Method S. Sakulkhaemaruethai, Y. Suzuki and S. Yoshikawa	815
Comparison of Adsorption Capability and Photocatalytic Activity for Methylene Blue Decomposition of LiInO_2 with NaInO_2 J.H. Wang and T. Nonami	819
The Preparation of Visible Light-Responsive TiO_2 Thin Films by Applying a RF-Magnetron Sputtering Deposition Method and Their Photocatalytic Reactivity for the Decomposition of Water with a Separate Evolution of H_2 and O_2 M. Kitano, H. Kikuchi, T. Hosoda, M. Takeuchi, M. Matsuoka, T. Eura, M. Anpo and J.M. Thomas	823
The Intelligent Catalyst: Pd-Perovskite Having the Self-Regenerative Function in a Wide Temperature Range H. Tanaka, I. Tan, M. Uenishi, M. Taniguchi, Y. Nishihata and J. Mizuki	827
The Self-Regenerative "Intelligent" Catalyst for Automotive Emissions Control I. Tan, M. Taniguchi, H. Tanaka, M. Uenishi, N. Kajita, Y. Nishihata, J. Mizuki and K. Niihara	833
Removal of Heavy Metal Ions from Aqueous Pb-EDTA and Cu-EDTA Solutions Using Nanosized ZnO Powders by Solution-Combustion Method J.H. Lee, J.U. Seo, Y.J. Chung, J.C. Lee and S. Park	837
Synthesis of Solution-Combusted ZnO Nanopowder and Its Application to Gold Recovery S. Park, J.C. Lee, J.U. Seo, J.H. Lee and H.J. Kim	841
Effect of Additives on Dielectric Loss of AlN Ceramics S. Kume, M. Yasuoka, N. Omura and K. Watari	845
Dielectric and Piezoelectric Properties of $x\text{Pb}(\text{Ni}_{1/3}\text{Nb}_{2/3})\text{O}_3 - y\text{Pb}(\text{Mn}_{1/3}\text{Nb}_{1/3}\text{Sb}_{1/3})\text{O}_3 - (1-x-y)\text{Pb}(\text{Zr}_{0.48}\text{Ti}_{0.52})\text{O}_3$ Ceramics H.J. Sun, W. Chen, X.F. Liu, Q. Xu, J. Zhou and H. Wang	849
Effect of Sintering Temperature on Structure, Piezoelectric and Ferroelectric Properties of $(\text{Na}_{0.5}\text{Bi}_{0.5})_{0.90}\text{Ba}_{0.10}\text{TiO}_3$ Ceramic Q. Xu, X.L. Chen, S.J. Wu, W. Chen, H. Wang, B.H. Kim and J.H. Lee	853
Thermodynamic and Dielectric Properties of MgSiN_2 Ceramics Z. Lenčič, K. Hirao, P. Šajgalik and M.J. Hoffmann	857
Ultrasonic Spray Nozzle System with Piezoelectric Ceramics for Water Treatment Applications J.S. Koh, J.C. Lee, S.H. Cho and S.C. Choi	861
Pressure Sensing Using Electrostatic Capacitance N. Bamba, N. Endo, T. Takagi and T. Fukami	865
Preparation and Evaluation of Metal/Ceramic Nanocomposites for High Frequency Inductive Devices J.K. Yang, D.J. Park, J. Kim, S.Y. Chang, C.H. Lee, T. Sekino, K. Niihara and Y.H. Choa	869
Microstructural and Electrical Characterisation of $\text{La}_x\text{Ba}_{1-x}\text{Ti}_{1-x}\text{Y}_x\text{O}_3$ ($0 \leq x \leq 0.50$) Ceramics A. Feteira, D.C. Sinclair and M. Lanagan	873
A Structural Consideration of a Solid Solution $\text{La}_4\text{Ni}_{3-x}\text{Mn}_x\text{O}_{10}$ S. Ueno, H.B. Misram and N. Kamegashira	877
Extraction of Crystal Structures Based on Euclidean Voronoi Diagram and Angle Distributions among Atoms D.S. Kim, Y.C. Chung, S.W. Seo, S.P. Kim and C.M. Kim	881
Sintering and Electronic Conducting Properties of $\text{La}_{0.8}\text{Ca}_{0.2}\text{CrO}_3$ Perovskite-Type Complex Oxides Synthesized by Different Methods Q. Xu, W.F. Guo, W. Chen, H. Wang, D.P. Huang and B.T. Wang	885
Magnetic and Electronic Properties of Transition Metal Doped β-SiC - A Diluted Magnetic Semiconductor Y.S. Kim, H.C. Kim and Y.C. Chung	889
Development of Ferrite Magnetic Materials with High Strength by a Low-Temperature Sintering Method D.Y. Ju and P. Bian	893
Processing and Mechanical Properties of Microcellular Ceramics Y.W. Kim, S.H. Kim, C.B. Park and H.D. Kim	899

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