



SYMPOSIUM PROGRAM

International Symposium on

Novel Materials Processing by Advanced Electromagnetic Energy Sources

***Convention Hall of Osaka University
March 19-22, 2004***



19 March 04, Room A

Session 1-A-A-I: Opening Session & Plenary Lecture

- 9:30 Opening
- 9:35* Smart Processing Development of Novel Materials for Electromagnetic Wave Control
Y.Miyamoto

Session 1-A-A-II: Novel Plasma Processing (I)

- 10:30* Peculiar Mechanical and Electronic Properties of tBN and cBN Thin Films
T.Yoshida
- 11:00 Effects of Ion Irradiation on Plasma Anisotropic CVD
K.Takenaka, M.Takeshita, K.Koga, M.Shiratani and Y.Watanabe
- 11:20 Investigation of Plasma Nitridation of Silicon for Gan Growth Using In-situ Ellipsometer
S.Frederico, T.Ishijima, Y.Honda and H.Sugai
- 11:40 Optimization of Oxide Material Electrode for High-density Plasma Production in
Capacitively Coupled RF Discharge
Y.Ohtsu, T.Shimazoe and H.Fujita

Session 1-A-P-I: Novel Plasma Processing (II)

- 13:30* High Plasma Density Sputter Deposition of Platinum Clusters for Fuel Cell Electrodes
R.W.Boswell, C.Charles and P.Brault
- 14:00 Mirror-confinement-type ECR Plasma Synthesis of Dielectric and Ferroelectric Thin Films
T.Matsumoto, A.Niino, K.Numata, H.Saito and S.Miyake
- 14:20 Study on Correlation Between Qualities of a-Si:H Films and Cluster Amount Using
Cluster Suppressed Plasma CVD and Downstream-cluster-collection Methods
K.Koga, N.Kaguchi, M.Shiratani and Y.Watanabe
- 14:40 Nanometer-ranged Metallic Coatings by Noble Pulsed Cathodic Arc Deposition
S.-Y.Chun, S.-J.Lee, C.-H.Lee and A.Chayahara

Session 1-A-P-II: Novel Plasma Processing (III)

- 15:15* Nanostructured Ultra Denses Film Synthesis by High Density Plasma in Magnetron Sputtering
J.G.Han

- 15:45 Process Control of Carbon Nanotube Formation Using RF Glow-discharge Plasma in Strong Magnetic Field
T.Kaneko, H.Matsuoka, T.Hirata, R.Hatakeyama and K.Tohji
- 16:05 Development of a Low Pressure and High Density Pulse Modulated Microwave Plasma for Microcrystalline Silicon Thin Film Formation
S.Takahashi, K.Homma, K.Yamakawa, S.Den, M.Hori and T.Goto
- 16:25 Rf Sheet-plasma Source Using Permanent Magnets
Y.Sakawa, K.Yano and T.Shoji



19 March 04, Room B

Session 1-B-A-II: Microwave/Millimeter-wave Processing (I)

- 10:30* Micro- and Millimeter-wave Processing of Advanced Materials at Karlsruhe Research Center
M.Thumm, L.Feher and G.Link
- 11:00 Quasi-stationary Electro-thermal Heating Model for Microwave/Hybrid-processed Materials Using Greens Function Techniques
M.Paulson, L.Feher and M.Thumm
- 11:00 Aerospace CFRP Structure Fabrication with The 2.45 GHz Hephaistos System
L.Feher and M.Thumm
- 11:40 Optimization of Slotted Waveguides for 2.45 GHz Applications by Using The Nobel Slot Types
S.Stanculovic, L.Feher and M.Thumm

Session 1-B-P-I: Pulsed High Current Processing (I)

- 13:30* Electrical Field Enhancement of Compaction and Super-plastic Deformation of Structural and Functional Ceramics
M.Nygren and Z.Shen
- 14:00 Homogeneity of Porous Metals Prepared by Pulsed Electric Current Pressure-sintering
M.Nanko, M.Sato, K.Matsumaru and K.Ishizaki
- 14:20 Sintering Behaviors of Metallic and Ceramic Powders during Pulsed Electric-current Sintering Process
K.Saida, K.Nishimoto, Y.Kawabata and R.Tsuduk
- 14:40 Discharge Phenomena and Effect of Pulse Condition on Sintering in Pulsed Current Sintering
K.Ozaki, A.Matsumoto, T.Nishio and K.Kobayashi

Session 1-B-P-II: Nano-structure Analysis and Synthesis

- 15:15* In-situ TEM Observation of Alloy Phase Formation in Nanometer-sized Particles
H.Mori and J.G.Lee
- 15:45 Effects of Second Metal Contents on Microstructure and Micro-hardness of Ternary Nitride Films Synthesized by Cathodic Arc Method
H.Hasegawa, M.Kawate, A.Kimura, Hashimoto and T.Suzuki
- 16:05 Formation of Ge-C Films Using Low-energy Ion-beam Induced Chemical Vapor Deposition
T.Matsutani, T.Asanuma, M.Kiuchi and T.Takeuchi

- 16:25 Synthesis of Fine Ferrite Particles From Powder Mixtures by Using Well-controlled Thermal Plasmas
O.Fukumasa, T.Yamashita, M.Kurita and Y.Yamatani



19 March 04, Room C

Session 1-C-A-II: Nano-integration

- 10:30* How Small Can You Get? From Alice in Wonderland to Quantum Dots and Q-bits: Quantum Dots Synthesis and Application
P.O'Brien,
- 11:00 Fabrication of Silicon Micro-needles Array by Microwave Plasma with DC Biasing
H.Yoshimura, H.Fujimori and A.Hatta
- 11:20 Fabrication and Fracture Toughness of SiC Nanowires/Tyranno-SA Fibers-reinforced SiC Matrix Composite
H.Araki, W.Yang, Q.Hu, H.Suzuki and T.Noda
- 11:40 Giant Dielectric Permittivity Observed in Perovskite Artificial Superlattices
T.Tsurumi, T.Harigai, D.Tanaka, S.M.Nam, H.Kakemoto and S.Wada

Session 1-C-P-I: Ion Cluster Sources and Processing (I)

- 13:30* Fundamental Aspect of Cluster Ion Collision and Its Application to Nano-processing
J.Matsuo, T.Aoki and T.Seki
- 14:00 Surface Structure Dependence of Impact Processes of Gas Cluster Ions
T.Aoki and J.Matsuo
- 14:20 Development of The Large Current Cluster Ion Beam Technology
T.Seki and J.Matsuo
- 14:40 Design of a Compact Gas Cluster Ion Beam Source for Secondary Ion Emission Measurements
L.K.Ono, T.Aoki, T.Seki, J.Matsuo and A.Itoh

Session 1-C-P-II: Ion Cluster Sources and Processing (II)

- 15:15* Exprimental Study of Cluster Size Effect with Size-selected Cluster Ion Beam Irradiation System
N.Toyoda, S.Houzumi, T.Aoki and I.Yamada
- 15:45 High Quality Oxide Thin Film Formation with Gas Cluster Ion Beam Assisted Deposition System
Y.Fujiwara, S.Ionue, T.Nose, K.Mochiji, T.Mitamura, N.Toyoda and I.Yamada
- 16:05 Morphology Dependence of Surface Smoothing of Ar Gas Cluster Ion Beams
S.Houzumi, T.Mashita, N.Toyoda, K.Mochiji, T.Mitamura and I.Yamada
- 16:25 Diamond-like Carbon Coating with Ar Cluster Ion Beam Assisted Deposition
T.Kitagawa, K.Miyauchi, N.Toyoda, J.Matsuo and I.Yamada



20 March 04, Room A

Session 2-A-A-I: Plenary Lecture

9:15* Cluster Ion Beam Process Technology
I.Yamada

Session 2-A-A-II: Novel Plasma Processing (IV)

10:10* Structural Control of Nanocarbon Materials by Novel Plasma Processing
R.Hatakeyama

10:40 Development of Negative Oxygen Ion Using Solid Materials
T.Terasawa, J.Yuyama, M.Ohba, Y.Agawa, Y.Hara and S.Amano

11:00 Zirconium Oxide Thin Film Preparation Using Intermittent DC Zirconium Cathodic
Arc PBII&D in Oxygen Circumstance
H.Yoshinaga, K.Yukimura, Y.Ohtsu, H.Fujita and K.Nakamura

11:20 Preparation of Hard Carbon Nanocrystallite Films by MCECR Plasma Sputtering Method
D.Diao, C.Cai, S.Miyake and T.Matsumoto

Session 2-A-P-I: Nano Composite Materials

13:30* Hard Nanocomposite Films Prepared by Reactive Magnetron Sputtering
J.Musil and S.Miyake

14:00 Novel Microwave Plasma Reactor with Two Microwave Oscillators for Nano-crystalline
Diamond Film Synthesis
M.Nagatsu and J.Maeda

14:20 Structure and Properties of Hard and Conductive a-C and a-C:H Films
H.S.Myung, Y.S.Park, J.G.Han, B.Hong and L.R.Shaginyan

14:40 Low-temperature Preparation of Superhard Nanocomposite Films
Z.G.Li, M.Mori, M. Kumagai, H.Saito, Y.Muramatsu, S.Konuma and S.Miyake

Session 2-A-P-II: Advanced Plasma Sources (I)

15:15* Large Area Coatings of Nanocrystalline Diamond by New MW Plasma System
Y.Koga

15:45 Field Emission Performance of Carbon Nanotube Overcoated with Amorphous Carbon
Film Prepared with Surface-wave Plasma
M.Nagatsu and S.Kurita

16:05 Anode Melting from Free-burning Arcs
M.Tanaka, M.Ushio and J.J.Lowke

16:25 Spatially Resolved Optical Emission Spectroscopy of Pulse Magnetron Sputtering Discharges
Y.M.Kim, M.J.Jung, J.G.Han and S.G.Oh



20 March 04, Room B

Session 2-B-A-II: Microwave/Millimeter-wave System

- 10:10* High Power Submillimeter Wave Radiation Source, Gyrotron FU Series
T.Idehara, I.Ogawa, S.Mitsudo and O.Watanabe
- 10:40 Powerful Electron Beams for Cyclotron Resonance Devices
V.N.Manuilov
- 11:00 Rapid Heating by Single-mode Cavity Controlled at 6 GHz
H.Fukushima
- 11:20 Millimeter-wave Dielectric Measurement of SiC Powders as a Basis of Millimeter-wave Sintering of Ceramics
S.Sano, A.Tsuzuki, J.Li, A.Gotou, Y.Makino and S.Miyake

Session 2-B-P-I: Microwave/Millimeter-wave Processing (II)

- 13:30* Simultaneous Use of Different High Frequency Electromagnetic Energy Sources for Materials Processing
M.W.Porada
- 14:00 The Role of High Pressure Plasma in High Temperature Microwave Processing of Materials
T.Gerdes, R.Tap and M.W.Porada
- 14:20 Heating Behavior of Slags in 2.45 GHz Applicator
C.Yan, N.Yoshikawa and S.Taniguchi
- 14:40 28 GHz Microwave Heating of Metal Powders
H.Abe, N.Nemoto and K.Yamamoto

Session 2-B-P-II: Pulsed High Current Processing (II)

- 15:15* Mechanical Properties of Binderless WC Produced by Spark Plasma Sintering Process
Y.S.Kwon, H.T.Kim, D.W.Choi and J.S.Kim
- 15:45 Microscopic Structure and Thermoelectric Properties of ZnO Ceramics Prepared by The Polymerized Complex and SPS Methods
S.Katsuyama, M.Ito and S.Hara
- 16:05 Hydroxyapatite Formation Using Effect of The Spark Plasma System (SPS)
M.Omori, O.Akira, T.Onoki and T.Hashida
- 16:25 Preparation of Composite Dielectric Ceramics by Spark-plasma-sintering Method
T.Takeuchi and H.Kageyama



20 March 04, Room C

Session 2-C-A-I: Ultra Fine Particles Processing

- 10:10* Coating of Piezoelectric Thick Film and Application to MEMS Device in Use of Aerosol Deposition Method
J.Akedo

- 10:40 Mechanically and Electrically Induced Nanoparticle Bonding for Advanced Materials
H.Abe, M.Naito, K.Nogi and T.Fukui
- 11:00 Coating Property of Titania Film with Hydroxyapatite Produced by Fine Particle Beam Irradiation
M.Tsukamoto, T.Imanaka, N.Abe, T.Fujihara, T.Ito, T.Nakayama, J.Morimoto and J.Akedo
- 11:20 Electrical Properties of Aerosol Deposited Pb(Zr,Ti)O₃ Thick Films by CO₂ Laser Radiation
S.Baba, M.Lebedev, J.Akedo and N.Abe

Session 2-C-P-I: Functional Materials (I)

- 13:30* Development of Advanced SiC/SiC Composite for High Energy Conversion Systems
A.Kohyama, Y.Katoh and T.Hinoki
- 14:00 High-strength SiC Matrix Production with Polymeric Techniques
M.Kotani, A.Kohyama, Y.Katoh, T.Iinoue, K. Okamura and H.Serizawa
- 14:20 Synthesis of SiC Nanowires with In-situ Deposition of Carbon Coating by a New Chemical Vapor Growth Process
W.Yang, H.Araki, Q.Hu, H.Suzuki and T.Noda
- 14:40 Irradiation Effects on Advanced SiC Fibers and Their Composites
T.Hinoki, T.Nozawa, Y.Katoh and A. Kohyama

Session 2-C-P-II: Functional Materials (II)

- 15:15* Nanostructure Derivation by Electron Beam Irradiation
T.Kameyama and S.Tanaka
- 15:45 Reactive Ionized Sputter-deposition of Oxide and Nitride Thin Films
Y.Matsuda, M.Iwaya, M.Hokamura, S.Kawano, Y.Ide, M.Shinohara and H.Fujiyama
- 16:05 Structural and Optical Modification of HfO₂ Thin Film Prepared by IBAD Method
T.Mori, M.Fujiwara, R.R.Manory, I.Shimizu and S.Miyake
- 16:25 Synthesis of Na_xCo₂O₄ Thermoelectric Oxide by The Polymerized Complex Method and SPS Methods
M.Ito, T.Nagira, S.Katsuyama and S.Hara



21 March 04, Room A

Session 3-A-A-I: Plasma Processing (V)

- 9:15* Amorphous Carbon Film Deposition by Magnetically-driven Shunting Arc Discharge
K.Yukimura, M.Kumagai, K.Takaki, S.Mukaigawa and T.Fujiwara
- 9:45 Applications of Pulsed Vacuum Arc Ion Source
C.Cai, O.Mi, W.Ma, L.Wu and Y.Yan
- 10:05 Gravity-free Gas Arc Experiment by Use of a Jet Plane
(Temperature Measurement and Nano-Tube Production)
T.Mieno and T.Mizutani
- 10:25 Influence of Surface State of Sputtering Target on ZrO₂ Thin Film Preparation Using Oxygen Reactive Plasma Sputtering
Y.Ohtsu, M.Egami, H.Fujita and K. Yukimura

Session 3-A-A-II: Functional Materials (III)

- 11:00* Synthesis of Ultra Water-repellent Surfaces by Using Microwave Plasma
O.Takai, Y.Wu and Y.Inoue
- 11:30 Water Resistant Hydrogen Absorbing Films Prepared by Ion Beam Assisted Deposition
N.Nishimiya, K.Numata, H.Saito, T.Mori and S.Miyake
- 11:50 Deposition of Water-repellant Films by High-pressure Fluorocarbon Surface-wave Plasmas
D.Mezerette, M.Kuroda and H.Sugai
- 12:10 Applications of EBEP Plasma Gun Deposited TiO₂/TiN/TiO₂ Films as Heat Mirror
H.Homyara, K.Junnji S.Ikezawa, Y.Ninomiya, K.Nakamura, K.Yoshimura, H.Taoda and T.Hara



21 March 04, Room B

Session 3-B-A-I: Microwave/Millimeter-wave Processing (III)

- 9:15* What Type of Transport Phenomena Can Be Induced by Microwave Field in Solids and How These Phenomena Contribute into Material Processing
V.E.Semenov and K.I.Rybakov
- 9:45 Application of Millimeter-wave Radiation for Rapid Annealing of Silicon
Y.Bykov, A.Eremeev, N.Zharova, I.Plotnikov and K.Rybakov
- 10:05 Boron Carbide Ceramics Sintering by Using 24 GHz Compact Gyrotron
S.Mitsudo, H.Hoshizuki, K.Matsuura, T.Saji, T.Idehara, M.Glyain, A.Eremeev, T.Honda, Y.Iwai, A.Kitano, H.Nishi and I.Shibahara
- 10:25 Synthesis of Nanocrystalline Oxide Ceramics Via Millimeter Wave Sintering of Mechanically Alloyed Amorphous Powders
H.Kimura

Session 3-B-A-II: Microwave/Millimeter-wave Processing (IV)

- 11:00* Effect of Electric and Magnetic Fields at Microwave Frequencies on The Material Processing
D.Agrawal
- 11:30 An In-situ Observation of The Non-thermal Effect in Microwave Heating
M.Sato, R.Roy, P.Ramesh and D.Agrawal
- 11:50 Microwave Heating of Powder Metals under Biased Static Magnetic Field
R.Ramesh, M.Sato, et al.
- 12:10 Industrial Applications of Microwave Sintering for Powder Metals
T.Hayashi and M.Sato



21 March 04, Room C

Session 3-C-A-I: Pulsed Power Processing

- 9:15* Novel Preparation of Thin Films and Nanopowders by Pulsed-power Technology
K.Yatsui, H.Suematsu, W.Jiang and T.Suzuki

- 9:45 Synthesis of Ti-Fe-O Thin Films Prepared by PLD
S.Suzuki, S.Ogata, M.Hirai, T.Suzuki, H.Suematsu, W.Jiang and K.Yatsui
- 10:05 Preparation of Ti-Ni-N-O Thin Films by Pulsed Laser Deposition and Their Oxidation Characteristics
A.Sayama, M.Hirai, T.Suzuki, H.Suematsu, W.Jiang and K.Yatsui
- 10:25 Oxidation Properties of Cr(N,O) Thin Films Synthesized by Pulsed Laser Deposition
J.Inoue, H.Asami, M.Hirai, T.Suzuki, H.Suematsu, W.Jiang and K.Yatsui

Session 3-C-A-II: Micro/ Millimeter-wave Processing (V)

- 11:00* Morphology- and Size-controlled Synthesis of Nanoparticles Driven under Microwave Irradiation
S.Yanagida and Y.Wada
- 11:30 Millimeter-wave Effect on Sintering of Silicon Nitrides by 28 GHz Millimeter-wave Radiation
T.Ueno, S.Sano, H.Saito, Y.Makino and S.Miyake
- 11:50 Preparation of Silver Nanoparticles under Microwave Irradiation
T.Yamamoto, Y.Wada and S.Yanagida
- 12:10 Microwave-assisted Polyol Process for Preparation of Metal Oxide Nanosized Fine-particles
T.Nakamura, T.Yamamoto, Y.Wada, T.Kitamura and S.Yanagida



22 March 04, Room A

Session 4-A-A-I: Functional Materials (IV)

- 9:15* Formation and Physical Properties of Cr Base Alloys by Sputtering
M.Naka
- 9:45 Oxidation Resistance of Sintered Chromium Nitride Composite
H.Kuwahara, N.Ise and S.Sano
- 10:05 Fabrication of Large-size Functionally Graded Materials by Advanced Spark Plasma Sintering (SPS) System
M.Tokita
- 10:25 Preparation of Fe₂VAl Using MA-PCS Process and Its Thermoelectric Property
A.Matsumoto, K.Kobayashi, T.Nishio and K.Ozaki

Session 4-A-A-II: Advanced Plasma Sources (II)

- 11:00* Plasma Sources Development in VHF/Microwave Range for Materials Processing
H.Sugai, E.A.Fattah, E.Stamate and T.Ishijima
- 11:30 Designing Large-area RF Plasma Sources Driven by Multiple Low-inductance Internal Antenna Units
Y.Setsubara, S.Sugiura, H.Nakamura, K.Takahashi and K.Ono
- 11:50 Numerical Investigation of an N₂/Ar ECR Plasma for Nitridation
H.Muta and Y.Kawai
- 12:10 Simulation of SWP Cable
S.Ahmad, H.Mawatari, K.Baba, S.Ikezawa and K.Nakamura



22 March 04, Room B

Session 4-B-A-I: Advanced Laser Processing (I)

- 9:15* Laser-matter Interaction in High-power Single-mode Fiber Laser Irradiation and Applications to Microwelding
I.Miyamoto, T.Kosumi and S.J.Park
- 9:45 Effect of Surface Orientation on Characteristic Weld Microstructure Evolution of Ni-base Superalloy Single Crystal
M.Sakamoto and S.Katayama
- 10:05 Modification of Hydroxyapatite Crystallization Using IR Laser
W.Guan, N.Hayashi, S.Ihara, S.Satoh and C.Yamabe
- 10:25 Spectroscopic Analysis of C₂ Molecules in The Laser Ablation Plume at a Graphite-water Interface
T.Sakka, K.Saito and Y.H.Ogata

Session 4-B-A-II: Advanced Laser Processing (II)

- 11:00* All Solid State High Power Lasers for Materials Processing
F.Bachmann
- 11:30 Giant Energy Laser System with Extreme Peak Power
K.A.Tanaka
- 11:50 High Speed Micro-welding by Single-mode Fiber Laser
T.Kosumi, S.J.Park, T.Ooie and I.Miyamoto
- 12:10 Formation and Properties of TiO₂-Zn Coating by Direct Diode Laser Cladding
J.Morimoto, T.Onoda, Y.Sasakia and N.Abe



22 March 04, Room C

Session 4-C-A-I: Coating and Modification (I)

- 9:15* Progress and Application of Nano-surface Engineering in China
B.Xu and W.Zhang
- 9:45 The Development of Nano-photocatalytic TiO₂ Coatings by Thermal Spraying
A.Ohmori, K.Nakade and J.Yasuoka
- 10:05 Material Coating Using Electromagnetically Accelerated Plasma JET
H.Tahara
- 10:25 Formation of Nitride Reinforced TiAl Layers by Reactive Low Pressure Plasma Spraying with Nitrogen Gas
A.Hirose, K.Honda and K.F.Kobayashi

Session 4-C-A-II: Coating and Modification (II)

- 11:00* Recent Research on Flattening Behavior of Thermal Sprayed Particle onto Flat Substrate Surface
M.Fukumoto, H.Kaji, M.Shiiba and I.Ohgitani

- 11:30 Influence of Surface Roughness on Room Temperature Adhesional Bonding
- Pressureless Full Contact Behavior and Stress Induced Diffusion Along Bonded Interface -
S.Matsusaka and Y.Takahashi
- 11:50 Microstructure Control for Joining Advanced Stainless Steel
T.Kuroda, K.Ikeuchi and Y.Kitagawa
- 12:10 Effect of Ultrasonic Wave on The Morphology of Fracture Surface of Alumina/Copper Brazing
K.M.Hafez and M.Naka



20 March 04, Room P

Poster Session: 11:40 - 13:30

1. Plasma Sources and Processing

Production of Large-area Microwave Plasma for Material Processing
H.M.Liu, T.Ishijima, K.Takasu, Y.Nojiri and H. Sugai

The Structure of Amorphous Carbon Films including Hydrogen Atoms
S.Fujimoto and T.Hamada

Measurement of Ion Energy of Pulsed Vacuum Arc
C.Cai, O.Mi, W.Ma and Y.Yan

Novel Method to Increase Energy Density of Arc Plasma Jet
D.Zhu, H.Shao, H.Yu and Y.Wu

Relationship between H/D⁻ Production and Plasma Parameter Control with Magnetic Filter in
Volume Negative Ion Sources
S.Mori, Y.Tauchi, O.Fukumasa, M.Hamabe K.Tsumori and Y.Takeiri

Deposition of Polycrystalline Silicon Film by Inductively-coupled Plasma Using Low-inductance
Internal Antennas
Y.Hamaoka, H.Inami, T.Watanabe, A.Ebe, T.Shoji, Y.Setsuhara and S.Miyake

Synthesis of Polycrystalline Silicon Thin Films by Plasma Enhanced Chemical Vapor Deposition
Using Multiple Inductive Coupled Plasma Modules with Low Inductance Antenna
A.Ebe, H.Inami, Y.Setsuhara, T.Shoji and S.Miyake

Magnetic Neutral Loop Discharge Plasma and Its Application in Etch Process
W.Chen, K.Sugita, Y.Morikawa, T.Hayashi and K.Suu

2. Microwave/Millimeter-wave Processing

Microwave Sintering of AlN-TiN Functionally Graded Substrates
M.W.Porada, R.Borchert and M.Wildersohn

Mechanical Strength Evaluation for the Silicon Nitride Ceramics Sintered by 28 GHz
Millimeter-wave Heating Method
H.Saito, T.Ueno, S.Sano, Y.Makino and S.Miyake

Intergranular Microstructure of Yb₂O₃-added AlN Sintered by Millimeter-wave Heating
T.Yoshioka, Y.Makino, S.Miyake and H.Mori

Effects of Internal Heating by Millimeter Wave Energy on Sintering Mechanism of Al₂O₃
T.Saji, Y.Makino and S.Miyake

3. Pulsed High Current/Power Processing

SiC Coating on MWCNTs and Densification with SiC by SPS
Y.Morisada and Y.Miyamoto

Production of Nd-Fe-B Magnets by Spark Plasma Sintering
T.Saito, T.Takeuchi and H.Kageyama

Microstructure of Al/Al₂O₃ Functionally Graded Material Made by Pulse Current Pressure Sintering Process
T.Nagae, M.Mizubayashi, M.Yokota, M.Nose, T.Ishiguro and S.Saji

Characteristics of Fe-SiC Composite Consolidated by Pulsed Current Sintering Process
T.Nishio, K.Kobayashi, A.Matsumoto and K.Ozaki

Pulsed Electric-current Press Bonding of 5056 Aluminum Alloy to 304 Austenitic Stainless Steel
S.Tomida, T.Nagae and K.Nakata

Mechanical Properties of SiC/Ti-15V-3Cr-3Sn-3Al Composites by Spark Plasma Sintering
S.Kinbara, H.Izui and M.Okano

Dielectric Properties of Pb(Zr,Ti)O₃ Ceramics Prepared by Pulsed Electric Current Sintering
K.Uenishi, T.Goto, K.Fujimoto and K.F.Kobayashi

Effects of Heating Rate on Densification and Grain Growth Pulse Electric Current Sintering of Alumina
Y.Zhou, K.Hirao, Y.Yamauchi and S.Kanzaki

4. Ultra Fine Particles Processing

Influence of ICP Plasma on Dielectric Properties of PZT Films Fabricated by ADM
M.Mori, S.Miyake, Y.Makino and J.Akedo

Fabrication of Barium Titanate Layer by Aerosol Deposition Method
T.Ito, H.Hatono and M.Kiyohara

Infrared Thermal History Study in Aerosol Gas Deposition Process
J.Li, S.Sano, A.Tsuzuki, A.Gotou, J.Akedo, N.Abe, M.Tsukamoto, Y.Makino and S.Miyake

5. Advanced Laser Processing

Anisotropic Fusion Zone of Lotus-type Porous Metals by Laser Welding
T.Murakami, T.Tsumura, K.Nakata, T.Ikeda, H.Nakajima and M.Ushio

Penetration Welding of Plastics Using a Wavelength Tunable CO₂ Laser and a Transparent Heat Sink
T.Matayoshi and Y.Kurosaki

6. Coating and Modification

Auger Analysis of (Al,Ti)N/Si Interface Synthesized by Ion Beam Assisted Deposition and Optimization of Film Formation Factors
Y.Takahashi, H.Ishii, Y.Tanabe, S.Watanabe, S.Li, Q.Pang and K.Inoue

Research of TiN Coating by Means of Gas Tunnel Type Plasma Reactive Spraying
W.Jiang and A.Kobayashi

Simultaneous Chromizing-siliconizing Diffusion Coating on Austenitic Stainless Steel
A.Nishimoto, K.Nakao, K.Ichii and K.Akamatsu

Rapidly Solidified Titanium Aluminide-based Composite Deposits with Dispersed Nitride Particles
Produced by Reactive Plasma Spraying
Y.Hoshiyama, H.Miyake, K.Murakami and H.Nakajima

Empirical Approaches on Bulk Modulus and Phase Change of Pseudobinary Nitride Containing
Transition Metal and Aluminum
Y.Makino and S.Miyake

Preparation of Ti-Al Functionally Graded Coatings by Using High Performance Type Plasma
Spray Gun - Dependence of Spraying Particle Parameters -
K.Osaki, S.Fujimoto and O.Fukumasa

7. Nano Processing and Materials

Development of Arc Discharge Method in Organic Solvents for The Formation of DNA
Encapsulated Carbon Nanotubes
T.Okada, T.Kaneko and R.Hatakeyama

Fabrication of Electromagnetic Wave Guide of Photonic Crystals with Diamond Structure
S.Kirihara, M.W.Takeda, K.Sakoda and Y.Miyamoto

Spark Plasma Sintering of Cu-TiB₂ Nano Composites
Y.S.Kwon, H.T.Kim, J.S.Kim and D.V.Dudina

Synthesis of Fe-based Alloy/Oxide Nanocomposite Soft Magnet by Pulsed High Current Heating
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Friction Stir Welding of ODS Copper and Characterization of The Joint Microstructure
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Finite Element Analysis of SiC/SiC Composite Joints by Using a New Type Interface Potential
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Finite Element Analysis of Texture of Substrate Surface on Local Damage of Hard Coating under
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