

PROGRAM BOOK



The 11th Pacific Rim Conference of Ceramic Societies

PACRIM 11

August 30 ~ September 4, 2015

ICC Jeju, Jeju, Korea

Organized by  Korean Ceramic Society

Supported by      

Member Societies    

Symposium 6:

Synthesis and Processing of Materials using SPS

[WeL1] Fundamentals and Modeling

Room L (3F, Samda B)

Session Chair:

Javier Garay (University of California, Riverside, USA), Takashi Goto (Tohoku University, Japan)

08:30-09:00

[WeL1-1] Recent Progress of Spark Plasma Sintering (SPS) Method and Potentials for the Manufacturing Onan Industrial Scale of Advanced Materials [Invited]

Masao Tokita
NJS Co.,Ltd., Japan

09:00-09:30

[WeL1-2] Field and Thermal Factors Affecting Field-Assisted Consolidation of Powder Materials [Invited]

Eugene Olevsky
San Diego State University, USA

09:30-09:50

[WeL1-3] Finite Element Modeling of CAPAD: The Effect Material Properties on Temperature and Stress Gradients

M Shachar, Y Kodera, C Hardin, A Dupuy, and J. E. Garay
University of California, Riverside, USA

09:50-10:20

[WeL1-4] Synthesis and Consolidation of Meta-Stable Materials using CAPAD [Invited]

Yasuhiro Kodera, Anthony Fong, and Javier E. Garay
University of California, Riverside, USA

Symposium 6:

Synthesis and Processing of Materials using SPS

[WeL2] Mechanism and Microstructure (1)

Room L (3F, Samda B)

Session Chair:

Javier Garay (University of California, Riverside, USA)

10:30-11:00

[WeL2-1] An Overlooked Phenomenon in Spark Plasma Sintering [Invited]

Zhijian Shen

Stockholm University, Sweden

11:00-11:30

[WeL2-2] Development of Electric Current Activated/Assisted Sintering (ECAS, SPS) [Invited]

Yoshio Sakka¹ and Salvatore Grasso²

¹National Institute for Materials Science, Japan, ²Queen Mary University, UK

11:30-11:50

[WeL2-3] Structure and Properties of Advanced Materials Obtained by Spark Plasma Sintering

Vladimir Chuvildeev, Maxim Boldin, Aleksey Nokhrin, Yuri Blagoveshchensky, Nikita Sakharov, Sergey Shotin, and Dmitry Kotkov
Lobachevsky State University of Nizhni Novgorod, Russia

11:50-12:10 **CANCELLED**

[WeL2-4] Flash Sintering of ZrO₂ with Y₂O₃ Dopant

Jinling Liu¹, Dianguang Liu², Yiguang Wang², and Linan An³

¹Southwest Jiaotong University, China, ²Northwestern Polytechnical University, China, ³University of Central Florida, USA

Symposium 6:

Synthesis and Processing of Materials using SPS

[WeL3] Mechanism and Microstructure (2)

Room L (3F, Samda B)

Session Chair:

Makoto Nanko (Nagaoka University of Technology, Japan)

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14:00-14:30

[WeL3-1] Mechanisms of Pore Formation During Spark Plasma Sintering of Ultra-high Hardness Metallic and Ceramic Materials [Invited]

Olivia A. Graeve and James P. Kelly

University of California, San Diego, USA

14:30-15:00

[WeL3-2] Functional Materials Processed by Spark Plasma Texturing and Sintering [Invited]

Jacques. G Noudem

CNRS, France

15:00-15:30

[WeL3-3] Mechanical Behavior of Spark Plasma Sintered Functionally Graded Nanocomposites [Invited]

Hansang Kwon¹, Akira Kawasaki², and Marc Leparoux³

¹Pukyong National University, Korea, ²Tohoku University, Japan, ³EMPA, Switzerland

Symposium 6:

Synthesis and Processing of Materials using SPS

[ThL1] Structural Non-Oxide Materials

Room L (3F, Samda B)

Session Chair:

Jacques Noudem (CNRS, France)

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08:30–09:00

[ThL1-1] Densification and Microstructural Design of Ceramics Assisted by Electric Current/Field [Invited]

Salvatore Grasso, Theo Saunders, Ben Milsom, and Michael Reece
Queen Mary, University of London, UK

09:00–09:30

[ThL1-2] Consolidation of Silicon Carbide and Nitride with Transformation without Additive by SPS [Invited]

Manshi Ohyanagi¹, Mutsuki Kaneko¹, Shotaro Yano¹, and Zuhair Munir²
¹*Ryukoku University, Japan*, ²*University of California, Davis, USA*

09:30–09:50

[ThL1-3] Effects of Aging Treatment on Phase Decomposition of TiC–ZrC Solid Solution Prepared by Spark Plasma Sintering

Ying Li, Hirokazu Katsui, and Takashi Goto
Tohoku University, Japan

Symposium 6:

Synthesis and Processing of Materials using SPS

[ThL2] Functional Oxide and Non-Oxide Materials

Room L (3F, Samda B)

Session Chair:

Michael Reece (Queen Mary, University of London, UK)

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10:30-11:00

[ThL2-1] Fabrication of Dense Eu^{2+} Doped CaSiAlN_3 Ceramics by Spark Plasma Sintering [Invited]

Junichi Tatami¹, Kentaro Iwai¹, Motoyuki Iijima¹, and Takuma Takahashi²

¹Yokohama National University, Japan, ²Kanagawa Academy of Science and Technology, Japan

11:00-11:30

[ThL2-2] Densification Behaviors of Electrically Conductive Powders Sintered by Directly Applied Current Heating Process [Invited]

Mikio Ito

Symposium 6:

Synthesis and Processing of Materials using SPS

[ThL3] Property and Microstructure, Oxide Materials (1)

Room L (3F, Samda B)

Session Chair:

Junichi Tatami (Yokohama National University, Japan)

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14:00-14:30

[ThL3-1] Pulsed Electric-Current Pressure Sintering of $ZrO_2(Y_2O_3)-Al_2O_3$ Solid Solution Powders Prepared by the Neutralization Co-Precipitation Method [Invited]

Ken Hirota¹, Kenta Yamamoto¹, Koki Sasai¹, Masaki Kato¹, Hideki Taguchi¹, Hideo Kimura², Masayuki Takai², and Masao Terada²
¹Doshisha University, Japan, ²Daiichi Kigenso Kagaku Kogyo, Japan

14:30-15:00

[ThL3-2] Consolidation of Iron Oxides by using Pulsed Electric Current Sintering [Invited]

Makoto Nanko
Nagaoka University of Technology, Japan

15:00-15:20

[ThL3-3] Electric Field Effects on Spinel Structure

Shai Meir and Shmuel Hayun
Ben-Gurion University of the Negev, Israel

15:20-15:40

[ThL3-4] Fabrication of Electrically Conductive Alumina Doped with a Novel Type of Alumina Nanofibers Coated with Few Layers of Graphene

Maria Drozdova¹, Domingo Pérez-Coll², Marina Aghayan¹, Roman Ivanov¹, Miguel Angel Rodríguez², and Irina Hussainova¹
¹Tallinn University of Technology, Estonia, ²Institute of Ceramics and Glass (ICV-CSIC), Spain

15:40-16:00

[ThL3-5] Densification, Structure and Dielectric Properties of $0.7CaTiO_3-0.3NdAlO_3$ Based Microwave Ceramics by Spark Plasma Sintering

Lijin Cheng, Shaowen Jiang, and Shaojun Liu

Symposium 6:

Synthesis and Processing of Materials using SPS

[FrL1] Property and Microstructure, Oxide Materials (2)

Room L (3F, Samda B)

Session Chair:

Koji Morita (National Institute for Materials Science, Japan)

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08:30-08:50

[FrL1-1] Carbon Contamination in Oxide Ceramics Fabricated by Spark-Plasma-Sintering (SPS) Processing

Koji Morita, Byung-Nam Kim, Hidehiro Yoshida, Keijiro Hiraga, and Yoshio Sakka
National Institute for Materials Science, Japan

08:50-09:20

[FrL1-2] How Spark Plasma Sintering (SPS) can be used to Tune the Ferroelectric/Dielectric Composites Properties? [Invited]

Claude Estournes¹, Romain Epherre¹, Gilles Philippot², Marjorie Albino², Julie Lesseur², U-Chan Chung², Geoffroy Chevallier¹, Alicia Weibel¹, Alain Peigney¹, Liliana Mitoseriu³, Mario Maglione², Cyril Aymonier², Doninique Bernard², and Catherine Elissalde²
¹CIRIMAT, France, ²ICMCB, France, ³University "Alexandru Ioan Cuza", Rumania

09:20-09:50

[FrL1-3] Unusual Grain Growth during Spark Plasma Sintering of Alumina [Invited]

Byung-Nam Kim
National Institute for Materials Science, Japan

09:50-10:10 **CANCELLED**

[FrL1-4] Quasi-Intrinsic Colossal Permittivity in Nb and In Co-Doped Rutile TiO₂ Nanoceramics Synthesized through Oxalate Chemical-Solution Route Combined with Spark Plasma Sintering

Hyuksu Han¹, Dufor Pascal¹, Sungwook Mhin², Christophe Tenailleau¹, and Sophie Guillemet-Fritsch¹
¹CIRIMAT, France, ²Korea Institute of Industrial Technology, Korea