

**IMR Workshop on Advanced Materials Development and Their Applications by using Spark Plasma Sintering
19th SPS Forum**

Japan-Russia Workshop on Advanced Materials Synthesis Process and Nanostructure

Lecture hall, IMR Tohoku University, Sendai

4–5 December, 2014

4 December (Thursday)

- 10:00–10:10 Opening address
Takashi Goto *Institute for Materials Research, Tohoku University*
- 10:10–10:30 Recent Progress of SPS and SPS Production Technology
Masao Tokita *NJS Co., Ltd.*
- 10:30–10:50 Verification of Sintering Temperature
Katsuhiko Nobeta *Fuji Electronic Industrial Co., Ltd.*
- 10:50–11:10 Thermal Properties of cBN Particle Dispersed Al Matrix Composites Fabricated by SPS
Kiyoshi Mizuuchi *Osaka Municipal Technical Research Institute*
- 11:10–11:30 Electric Current Activated Sintering of Aluminum Nitride Ceramics
Toshiyuki Nishimura *National Institute for Materials Science*
- 11:30–11:50 Macroscopic Defects in Alumina Produced by PECS
Makoto Nanko *Nagaoka University of Technology*
- (Lunch)
- 13:00–13:20 The origin of microstructural non-uniformities of Spark Plasma Sintered materials
Vyacheslav Mali Lavrentyev *Institute of Hydrodynamics SB RAS*
- 13:20–13:40 Application of SPS Technique for Sintering Different Kinds of Ceramics Using Nanostructured Powders
Oleg Khasanov *National Research Tomsk Polytechnic University*
- 13:40–14:00 Electron Beam Technology for Production of Nanopowders and their Possible Use for Spark Plasma Sintering
Sergey Bardakhanov *Khristianovich Institute of Theoretical and Applied Mechanics SB RAS*
- 14:00–14:20 Comparison of the conditions of pulsed electric current sintering (PECS) of powders using single discharges and spark plasma sintering (SPS)
Alexander Anisimov *Lavrentyev Institute of Hydrodynamics SB RAS*
- 14:20–14:40 Synthesis and design of composite materials by reactive Spark Plasma Sintering
Dina Dudina *Institute of Solid State Chemistry and Mechanochemistry SB RAS*
- (Coffee break)
- 15:00–15:20 Relation between Discharge Waveform in Metal Powder and Sintering Volume
Masaaki Ishiyama *Elenix Inc.*
- 15:20–15:40 Melt-Infiltration of Aluminum–Graphite Composite by using Multi-axis Electric Current Sintering Equipment
Kenichi Sunamoto *Akane Co., Ltd.*
- 15:40–16:00 Recent Developments in Spark Plasma Sintering Technology at Sinter Land Inc.
Jabri Khaled *Sinter Land Inc.*
- 16:00–16:20 Sintering oxide nano particles via surface migration - Densification without grain growth -
Yoshiaki Kinemuchi *National Institute of Advanced Industrial Science and Technology*
- 16:20–16:40 Synthesis of (W, Mo)C ceramics by resistance-heated hot pressing and their mechanical properties
Shigeaki Sugiyama *Akita Industrial Technology Center*
- 16:40–17:00 Synthesis of High Thermal Conductive Graphite–Metal Composite by SPS
Toshiyuki Ueno *Shimane Institute for Industrial Technology*
- 17:00–17:20 Texture control of Bi₂Te₃-based thermoelectric materials by pulse-current sintering under cyclic uniaxial pressure
Hiroyuki Kitagawa *Shimane University*

(Group photo)

5 December (Friday)

- 09:00-09:20 Future Aspect of SPS and Ceramics Researches
Mamoru Omori *Tohoku University*
- 09:20-09:40 Fabrication of dense Al₂O₃/CNF/TiN composites using pulsed electric-current pressure sintering
Ken Hirota *Doshisha University*
- 09:40-10:00 Grain boundary structures in flash-sintered BaTiO₃ polycrystals
Takahisa Yamamoto *Nagoya University*
- 10:00-10:20 Fabrication of porous materials by Spark Plasma Sintering using the phase separation approach
Dina Dudina *Institute of Solid State Chemistry and Mechanochemistry SB RAS*
- 10:20-10:40 Using spark plasma sintering technology for fabrication of Ti-Al composites with intermetallic reinforcement
Daria Lazurenko *Novosibirsk State Technical University*
- 10:40-11:00 Graphitization in nickel-amorphous carbon mixtures during Spark Plasma Sintering
Arina Ukhina *Institute of Solid State Chemistry and Mechanochemistry SB RAS*
- 11:00-11:20 Spark plasma sintering of nickel-nickel aluminide laminated composites
Tatyana Sameyshcheva *Novosibirsk State Technical University*
- 11:20-11:40 Behavior of B₄C Ceramics Surface under Local Loading
Aleksei Khasanov *National Research Tomsk Polytechnic University*
- 11:40-12:00 Influence of the powder on the mechanical properties of the sintered material during the hot pressing
Artem Filippov *Khristianovich Institute of Theoretical and Applied Mechanics SB RAS*

(Lunch)

- 13:00-13:20 SPS using SiC die
Kazuyuki Kakegawa *Chiba University*
- 13:20-13:40 Application of spark-plasma-sintering process for fabricating graphite/solid electrolyte/Li₂S all-solid-state batteries
Tomonari Takeuchi *National Institute of Advanced Industrial Science and Technology*
- 13:40-14:00 Synthesis of thermoelectric Mg₂Si polycrystals by directly applied current heating
Mikio Ito *Osaka University*
- 14:00-14:20 Influence of frequency of sintering current on SPS process
Tatsuya Misawa *Saga University*
- 14:20-14:40 Influence of Sintering Condition on Fabrication of Transparent MgAl₂O₄ Spinel by means of Spark-Plasma-Sintering (SPS) Technique
Koji Morita *National Institute for Materials Science*
- 14:40-15:00 Characterization of the interfaces in diamond/metal composites
Yukio Makino *MSP Co Ltd.*
- 15:00-15:20 Spark Plasma Sintering of Diamond-based Composites
Takashi Goto *Institute for Materials Research, Tohoku University*
- 15:20-15:30 Closing address
Takashi Goto *Institute for Materials Research, Tohoku University*

Chairpersons

4 Dec	10:00-10:50	T. Goto	5 Dec	9:00-10:00	K. Kakegawa
	10:50-11:50	S. Sugiyama		<u>10:00-11:00</u>	<u>M. Tokita</u>
	13:00-14:40	T. Goto		11:00-12:00	K. Hirota
	15:00-16:20	M. Nanko		13:00-14:00	T. Misawa
	16:20-17:20	K. Mizuuchi		14:00-15:20	T. Takeuchi