東北大学金属材料研究所 研究部共同研究ワークショップ「通電焼結技術による新材料開発と実用化」
Japan-Russia Workshop on Advanced Materials Synthesis Process and Nanostructure
第 19 回通電焼結研究会

会期 : 12 月 4 日 (木) ～ 12 月 5 日 (金)　会場 : 東北大学金属材料研究所 講堂

12 月 4 日 (木)

10:00–10:10　開会の挨拶　通電焼結研究会会長 後藤 孝 (東北大学金属材料研究所)

10:10–10:30　最近の SPS 情報および SPS 法による量産技術
○ 鴇田正雄 (株式会社エヌジェーエス)

10:30–10:50　SPS 焼結温度について
○ 延田勝彦 (富士電波工機株式会社)

10:50–11:10　SPS 成形した cBN 粒子分散型 Al 基複合材料の熱物性
○ 水内 潔 (大阪市立工業研究所)

11:10–11:30　窒化アルミニウムセラミックスの通電活性化焼結
○ 西村聡之 (物質・材料研究機構)

11:30–11:50　PECS で作製したアルミナ中のマクロ欠陥
○ 南口 誠 (長岡技術科学大学)

(昼食)

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)

(休憩)

15:00–15:20　金属粉体中に於ける放電波形と焼結量の関係
○ 石山正明 (株式会社エレニックス)

15:20–15:40　通電焼結機による溶浸複合材
○ 砂本健市 (株式会社アカネ)

15:40–16:00　(株) シンターランドにおける最新の放電プラズマ焼結技術の展開
○ ジャブリ・カレッド (株式会社シンターランド)

16:00–16:20　酸化物ナノ粒子の表面焼結ー粒成長のない緻密化
○ 杵鞭義明 (産業技術総合研究所)

16:20–16:40　通電加圧焼結による(W, Mo)C 系セラミックスの合成と機械的性質
○ 杉山重彰 (秋田県産業技術センター)

16:40–17:00　高熱伝導率を有する黒鉛-金属複合材の SPS 合成
○ 上野敏之 (島根県産業技術センター)

17:00–17:20　周期的一軸圧力下でのパルス通電焼結による Bi_2Te_3 系熱電材料の組織制御
○ 北川裕之 (島根大学)

(集合写真)

12 月 5 日 (金)

09:00-09:20 SPS とセラミックス研究の一つの方向
○ 大森 守 (東北大学)

09:20-09:40 パルス通電加圧焼結による高密度 Al_2O_3/CNF/TiN 系コンポジットの作製
○ 廣田 健 (同志社大学)

09:40–10:00 Flash 焼結 $BaTiO_3$ 多結晶体の粒界構造解析
○ 山本剛久 (名古屋大学)

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 reinforsment
○ 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 B_4C 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)

(昼食)

13:00–13:20 SiC ダイを用いた SPS
○ 掛川一幸 (千葉大学)

13:20–13:40 通電焼結法を用いた全固体電池(黒鉛／固体電解質／Li_2S)の作製
○ 竹内友成 (産業技術総合研究所)

13:40–14:00 直接通電焼結法による Mg_2Si 系熱電材料の合成
○ 井藤幹夫 (大阪大学)

14:00–14:20 SPS 焼結プロセスにおける焼結電流の周波数の影響
○ 三沢達也 (佐賀大学)

14:20–14:40 放電プラズマ焼結 (SPS) 法を用いた透明スピネル創製における焼結条件の影響
○ 森田孝治 (物質・材料研究機構)

14:40–15:00 ラマン分光法による高熱伝導性ダイヤモンド／金属複合体の界面状態解析
○ 巻野勇喜雄 (有限会社 MSP)

15:00–15:20 ダイヤモンド基コンポジットの SPS 焼結
○ 後藤 孝 (東北大学金属材料研究所)

15:20–15:30 閉会の挨拶　通電焼結研究会会長 後藤 孝 (東北大学金属材料研究所)

座長

12 月 4 日	10:00–10:50	後藤　孝	12 月 5 日	9:00–10:00	掛川一幸
	10:50–11:50	杉山重彰		10:00–11:00	鴇田正雄
	13:00–14:40	後藤　孝		11:00–12:00	廣田　健
	15:00–16:20	南口　誠		13:00–14:00	三沢達也
	16:20–17:20	水内　潔		14:00–15:20	竹内友成

Revised

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 Progrress 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
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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 Bi_2Te_3-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 Unviersity*
09:20-09:40	Fabrication of dense Al_2O_3/CNF/TiN composites using pulsed electric-current pressure sintering **Ken Hirota** *Doshisha University*
09:40–10:00	Grain boundary structures in flash-sintered $BaTiO_3$ polycrytals **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 reinforsment **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 B_4C 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/Li_2S all-solid-state batteries **Tomonari Takeuchi** *National Institute of Advanced Industrial Science and Technology*
13:40–14:00	Synthesis of thermoelectric Mg_2Si 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 $MgAl_2O_4$ 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		10:00–11:00	M. Tokita
	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