Symposium 9D: Ceramics for Electricity; Advanced Superconducting Materials

Main Organizers
- Eiji Takayama-Muromachi, National Institute for Materials Science, Japan
- Hiroaki Kumakura, National Institute for Materials Science, Japan

Co-Organizers
- Wilfried Goldacker, Forschungszentrum Karlsruhe, Germany
- Eric E. Hellstrom, Florida State University, USA
- Yanwei Ma, Chinese Academy of Sciences, China
- Ken-ichi Sato, Sumitomo Electric Industries, Ltd., Japan

Oral Session

Monday, November 15

Room: 1008

14:15 - 18:00: Iron-Based Superconductors

Chairs: Eiji Takayama-Muromachi (National Institute for Materials Science, Japan) and Wilfried Goldacker (Karlsruhe Institute of Technology, Germany)

14:15 - 14:45
S9D-001 **Searching for New Superconductors in Iron Pnictides (Invited)**
Z.-A. Ren; Chinese Academy of Sciences, China

14:45 - 15:15
S9D-002 **The 11 family Iron-based Superconductors (Invited)**
Y. Takano[1,2]; [1]National Institute for Materials Science, Japan, [2]Japan Science and Technology Agency TRiP, Japan

15:15 - 15:30
S9D-003 **Revealing Electronic and Structural Phases in Iron-based Superconductors with Electron Energy-Loss Spectroscopy**
J. C. Idrobo[1,2], M. F. Chisholm[2], M. Prange[1,2], J. Tao[3], Y. Zhu[3], Z.-A. Ren[4], Z. X. Zhao[4], S. J. Pennycook[2,1], S. T. Pantelides[1,2]; [1]Vanderbilt University, USA, [2]Oak Ridge National Laboratory, USA, [3]Brookhaven National Laboratory, USA, [4]Chinese Academy of Sciences, China

15:30 - 16:00
S9D-004 **Effect of Hydroxide Incorporation on High-pressure Synthesis of LnFeAsO-based Superconductors (Ln: Lanthanoid) (Invited)**
A. Iyo[1,2,5], P. M. Shirage[1], K. Miyazawa[1,2], S. Ishida[1,3], K. Kihou[1,5], M. Nakajima[1,3], C. H. Lee[1,5], H. Kito[1,5], Y. Tomioka[1,5], T. Ito[1,5], H. Yamashita[4], H. Mukuda[4,5], K. Tokiwa[2], S. Uchida[3,5], H. Eisaki[1,5]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Tokyo University of Science, Japan, [3]University of Tokyo, Japan, [4]Osaka University, Japan, [5]Japan Science and Technology Agency, Japan

16:00 - 16:15 **Break**

16:15 - 16:30
S9D-005 **Drastic Suppression of the Superconductivity of $LaFeAsO_{085}$ by a Nonmagnetic Impurity**
Y. F. Guo, Y. G. Shi, S. Yu, A. A. Belik, K. Yamaura, E. Takayama-Muromachi; National Institute for Materials Science, Japan

16:30 - 16:45
S9D-006 **Control of Electronic and Magnetic Properties of Nitride Thin Films by Doping: The Cases of Chromium Nitride and Boron Nitride**
K. Inumaru, A. Anzai, M. Fuchigami, S. Izumi, K. Koyama, S. Yamanaka; Hiroshima University, Japan

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16:45 - 17:15
S9D-007 **Development of Iron-Based Superconducting Wires and Tapes (Invited)**
Y. Ma; Chinese Academy of Sciences, China

17:15 - 17:45
S9D-008 **Critical Current Properties of the Iron Based Pnictide Superconducting Wires (Invited)**
K. Togano, A. Matsumoto, H. Kumakura; National Institute for Materials Science, Japan

17:45 - 18:00
S9D-009 **Preparation of Iron-based Superconducting Wire Using 11 Phase**
T. Ozaki, K. Deguchi, Y. Mizuguchi, H. Kumakura, Y. Takano; National Institute for Materials Science, Japan

Tuesday, November 16

Room: 1008

9:00 - 11:45: Coated Conductors and SQUID

Chairs: Hiroaki Kumakura (National Institute for Materials Science, Japan) and
Yoshihiko Takano (National Institute for Materials Science, Japan)

9:00 - 9:30
S9D-010 **Research & Development of REBCO Superconducting Coated Conductors in Japan (Invited)**
Y. Shiohara, T. Izumi, Y. Yamada; International Superconductivity Technology Center, Japan

9:30 - 10:00
S9D-011 **Cables From HTS Coated Conductors for High DC and AC Transport Currents (Invited)**
W. Goldacker, S. I. Schlachter; Institute for Technical Physics, Germany

10:00 - 10:30
S9D-012 **Preparation of $YBa_2Cu_3O_{7-x}$ Superconducting Thick Films on Dip-Coated Y-ZrO_2 Buffered Nickel Substrates**
R. Closset[1,2], F. Boschini[1], B. Vertruyen[1], M. Dirickx[2], R. Cloots[1]; [1]University of Liège, Belgium, [2]Royal Military Academy, Belgium

10:30 - 10:45 **Break**

10:45 - 11:15
S9D-013 **Nano-SQUID Magnetometry of Nanoscale Magnetic Systems (Invited)**
E. Romans[1], S. Rozhko[1], A. Blois[1], L. Hao[2], D. Cox[2], J. Gallop[2]; [1]University College London, UK, [2]National Physical Laboratory, UK

11:15 - 11:45
S9D-014 **SQUID Probe Microscope (Invited)**
H. Itozaki[1], T. Hayashi[2], N. Watanabe[1], Y. Nakatani[1], M. Tachiki[3]; [1]Osaka University, Japan, [2]Sendai National College of Technology, Japan, [3]National Institute of Materials Science, Japan

14:15 - 17:45: Wires and Tapes

Chairs: Yanwei Ma (Chinese Academy of Sciences, China) and
Kazumasa Togano (National Institute for Materials Science, Japan)

14:15 - 14:45
S9D-015 **Recent R&D Progress on DI-BSCCO Wires with High Critical Current Propeties (Invited)**
T. Kagiyama[1], S. Kobayashi[1], K. Yamazaki[1], M. Kikuchi[1], S. Yamade[1], T. Nakashima[1], E. Shizuya[1], K. Sato[1], T. Kiss[2], H. Kitaguchi[3]; [1]Sumitomo Electric Industries, Ltd., Japan, [2]Kyushyu University, Japan, [3]National Institute for Materials Science, Japan

14:45 - 15:15

S9D-016 **Analysis of Distribution of Critical Current of Bent-Damaged Bi2223 Composite Tape**
S. Ochiai[1], H. Okuda[1], M. Sugano[1], M. Hojo[1], K. Osamura[2], T. Kuroda[3], H. Kumakura[3], H. Kitaguchi[3], K. Itoh[3], H. Wada[3]; [1]Kyoto University, Japan, [2]Research Institute for Applied Sciences, Japan, [3]National Institute for Materials Science, Japan

15:15 - 15:45

S9D-017 **Microstructures and Superconducting Properties of Bi,Pb-2223 Thin Film Fabricated by Sputtering Method**
A. Matsumoto[1], H. Kitaguchi[1], H. Kumakura[1], T. Doi[2], T. Izumi[2], Y. Hakuraku[2]; [1]National Institute for Materials Science, Japan, [2]Kagoshima University, Japan

15:45 - 16:15 **Break**

16:15 - 16:45

S9D-018 **Development of MgB_2 Superconducting Wires For Practical Applications (Invited)**
J. H. Kim[1], A. Matsumoto[2], H. Kumakura[2], M. Rindfleisch[3], M. Tomsic[3], S. X. Dou[1]; [1]University of Wollongong, Australia, [2]National Institute for Materials Science, Japan, [3]Hyper Tech Research, Incorporated, USA

16:45 - 17:15

S9D-019 **Promising Approaches to Development of MgB_2 Bulks and Tapes with High Critical Current Performance (Invited)**
J. Shimoyama[1], A. Yamamoto[1], H. Ogino[1], K. Kishio[1], S. Horii[2]; [1]University of Tokyo, Japan, [2]Kochi University of Technology, Japan

17:15 - 17:45

S9D-020 **Development of High Performance MgB_2 Wires (Invited)**
H. Kumakura[1], J. M. Hur[2], K. Togano[2], A. Matsumoto[2], H. Wada[1], K. Kimurae[2]; [1]Institute for Materials Science, Japan, [2]The University of Tokyo, Japan

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S9D-P001 **Effect of Non-Magnetic Impurity on the Optimally Carrier Doped Superconductor $BaFe_{1.87}Co_{0.13}As_2$**
J. Li[1,2], Y. F. Guo[1,3], Y. G. Shi[1,3], S. Yu[1], K. Yamaura[1,2,3], E. Takayama-Muromachi[1,2,3]; [1]National Institute for Materials Science, Japan, [2]Hokkaido University, Japan, [3]Japan Science and Technology Agency, Transformative Research-Project on Iron Pnictides, Japan

S9D-P002 **Effect of Oxygen Deficiencies in $Sr_4Sc_2O_xFe_2As_2$ Prepared Under High Pressure**
S. B. Zhang[1], Y. F. Guo[1], Y. G. Shi[1], K. Yamaura[1,2], M. Miyakawa[1,2], E. Takayama-Muromachi[1,2]; [1]National Institute for Materials Science, Japan, [2]Japan Science and Technology Agency, Japan

S9D-P003 **Preparation and Physical Properties of In0.66Nb0.33BaLaCuOy and In0.66Ta0.33BalaCuOy**
Y. Watanabe, S. Kambe, O. Ishii; Yamagata University, Japan

S9D-P004 **Current Dependence of Josephson-Vortex Flow Resistance in Underdoped $Bi_2Sr_2CaCu_2O_{8+y}$**
S. Yu, S. Ooi, T. Mochiku, K. Hirata; National Institute for Materials Science, Japan

S9D-P005 **Transport Performance of HTS Current Leads Prepared by YBCO Tapes**
Y. Ishii[1], Y. Yamada[1], K. Tachikawa[1], Y. Aoki[2], T. Koizumi[2], A. Kaneko[2], H. Tamura[3], T. Mito[3]; [1]Tokai University, Japan, [2]SWCC Showa Cable System, Japan, [3]National Institute for Fusion Science, Japan

S9D-P006 **Superconducting Properties and Workability of MgB_2 Thin Wires Sheathed with Stainless Steel**
M. Kanazawa[1], Y. Yamada[1], K. Tachikawa[1], K. Kajikawa[2], H. Kumakura[3]; [1]Tokai University, Japan, [2]Kyushu University, Japan, [3]National Institute for Materials Science, Japan

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S9D-P007 **Correlation between the Critical-current Anisotropy and the Microstructure of *ex situ* Powder-in-tube Processed MgB_2 Tapes**
T. Kuroda, T. Nakane, H. Kumakura; National Institute for Materials Science, Japan

S9D-P008 **Annealing Effects on Electrical Resistivity of $(Pb_{0.5}Fe_{0.5})Sr_2(Y_{0.5}Ca_{0.5})Cu_2O_z$**
T. Maeda, K. Yamasaki, T. Tashiro, S. Takechi, S. Isono, M. Haruta, S. Horii; Kochi University of Technology, Japan
* Presented on Tuesday, November 16.