PROGRAMME

MONDAY, DECEMBER 11

Conference Hall 5F

07:45 - 08:30 Registration

08:30 - 08:40 Opening/Welcome

Innovative Applications -- Session A

Chairs: David Cardwell, and Mitsuru Izumi

08:40 – 09:05 (M1-I) Mark D. Ainslie, Univ. of Cambridge
Towards Ultra-Light Superconducting Rotating Machines for Next-Generation Transport and Power Applications: A Roadmap

09:05 – 09:30 (M2-I) Motohiro Miki, TUMSAT
Design and Construction of Synchronous Machine Using Bulk High Temperature Superconductor for Marine Application

09:30 – 09:55 (M3-I) Young Zhao, Univ. of Southwest Jiaotong University
Progress of High-T, Superconducting Maglev Vehicle in China

09:55 – 10:20 (M4-I) Ken Nagashima, RTRI
Application of REBCO Bulks and REBCO Coils for Magnetic Bearing of Flywheel Energy Storage System

10:20 - 10:40 Refreshment Break

Innovative Applications and Processing of Bulk HTS -- Session B

Chairs: Pavel Diko and Young Zhao

10:40 - 11:05 (M5-I) F. N. Werfel, GmbH (ATZ)
HTS bulk technology development required to enable commercialization

11:05 – 11:30 (M6-I) H. Teshima, Nippon Steel
Development and Recent Progress of RE-Ba-Cu-O Bulk Superconductors -QMG-in NSSMC

11:30 – 11:45 (M7-O) Xin Yao, Shanghai Jiao Tong University
High Performance REBa2Cu3O7, Superconductor Bulks

11:45 – 12:00 (M8-O) Devendra K Namburi, University of Cambridge
Dense (RE)BCO single grain bulk superconductors fabricated via top seeded infiltration and growth; an overview

12:00 - 13:00 Lunch
Lounge, 2F
13:00 - 14:20  Poster Presentation – Session -- I  
**Chairs:** Naomichi Sakai  
*Global Learning Common (GLC), 3F*

**Innovative Applications and Optimization of Bulk HTS -- Session C**  
**Chairs:** F. N. Werfel and C.-J. Kim

14:20 – 14:45  (M9-I) T. Nakamura, RIKEN  
High resolution NMR on Superconducting Bulk Magnet

14:45 – 15:10  (M10-I) M.R. Koblischka, Saarland University  
Nonwoven Nanowire Fabrics: A New Class of Bulk Superconductors

15:10 – 15:25  (M11-O) Wanmin Yang, Shaanxi Normal University  
Theoretical and Experimental Identification of seeds number on the Crystal Morphology and Physical Properties of GDBCO Bulks by GD+011 TSIG Process

15:25 – 15:40  (M12-O) P. Vanderbemden, University of Liege  
Magnetic shielding of open and semi-closed tubes made of bulk superconductors: the role of a cap

15:40 – 15:55  (M13-O) Y. Sakurai, University of Tokyo  
Design of the prototype SMB system for the space-borne polarimeter

15:55 – 16:15  **Refreshment Break**

**Characterization of Bulk HTS -- Session D**  
**Chairs:** Noudem Jacques and Hiroyuki Fujishiro

16:15 – 16:40  (M14-I) P. Diko, Slovak Academy of Sciences  
Microstructural Aspects of REBCO Bulks with Chemical Pinning

16:40 – 17:05  (M15-I) Jun-ichi Shimoyama  
Chemical approaches to enhance performance of RE123 bulks

17:05 – 17:20  (M16-O) J.H Durrell, Univ. of Cambridge  
Tensile Strength of Bulk Superconductors – Towards Higher Field

17:20 – 17:35  (M17-O) S. Pavan Kumar Naik, SIT  
Influence of processing conditions on the microstructure and physical properties in IG processed mixed REBCO bulk superconductors

17:35 – 17:50  (M18-O) Toshiteru Kii, Kyoto University  
Effect to periodic magnetic field quality of non-uniformity of $J_c$ in each piece of bulk superconductor array

***SPECIAL PLENARY LECTURE***  
**Chairs:** M.S. Ramachandra Rao

17:50 – 18:20  (M19-SP) Masato Murakami, SIT  
Potential of high temperature bulk superconductor magnets

18:30 - 21:00  **Workshop Banquet**  
*Cafeteria, 3F*
TUESDAY, DECEMBER 12
New Materials of Bulk HTS (I) & Innovative Applications -- Session E
Chairs: M. R. Koblischka and Tetsuo Oka

08:40 – 09:05 (T20-I) Sang-Im Yoo, Seoul National Univ.
Recent progress in high performance GdBCO coated conductors by RCE-DR and its applicability for the fabrication of magnetic shielding plates

09:05 – 09:30 (T21-I) M.S. Ramachandra Rao, IITM
Doped Diamond: Superconductivity and Quantum Computing

09:30 – 09:45 (T22-O) V.A. Vlasenko, P.N. Lebedev Physical Institute
Superconducting properties of FeSe wires fabricated by PIT method

09:45 – 10:00 (T23-O) T. Matsumura, University of Tokyo
Effect of Proton Irradiation to a Trapped Field Bulk YBCO for Use in Space

10:00 – 10:15 (T24-O) K.S. Pervakov, P.N. Lebedev Physical Institute
Production of Bulk Ni-Doped BaFe$_2$As$_2$ By Mechanical Alloying

10:15 – 10:30 (T25-O) A. Koblischka-Veneva, Saarland University
Transmission-EBSD applied to IG-processed, bulk superconductor materials

10:30 – 10:50 Refreshment Break

YOUNG INVESTIGATOR FORM – Session F
Chairs: Miryala Muralidhar and Philippe Vanderbemden

10:50 – 11:00 (T26-YI) M. Sushma, SIT/SIS
Processing, Microstructure, Critical Current Density ($J_c$) and Trapped Field of Single Grain Bulk YBa$_2$Cu$_3$O$_y$ Superconductors Grown by IG process

11:00 – 11:10 (T27-YI) K. Takahashi, Iwate University
Mechanical Stress and Strain in REBaCuO Ring Bulk Reinforced By Metal ring During Field-Cooled Magnetization

11:10 – 11:20 (T28-YI) M. Higuchi, SIT
Enhanced flux pinning in sintered bulk MgB$_2$

11:20 – 11:30 (T29-YI) E. Shaanika, TUMSAT
Core Loss Analysis of a Bulk HTS Synchronous Machine at 2 T and 3 T Rotor Magnetization

11:30 – 11:40 (T30-YI) Petra Hajdova, Slovak Academy of Sciences
Growth, microstructure and properties of GdBCO-Ag superconductors

11:40 – 11:50 (T31-YI) Jun Qian, Shanghai Jiao Tong University
Almost Complete Peritectic Reaction in YBa$_2$(Cu$_{1-x}$Fe$_x$)$_3$O$_{7-δ}$ crystallization involving Nanosized Primary Phase

11:50 – 13:00 Lunch
Lounge, 2F
Activation Techniques and Applications of Bulk HTS – Session G
Chairs: Mark D. Ainslie and Jun-ichi Shimoyama

13:00 – 13:25  (T32-I) R. Weinstein, Uof H
Sudden Giant Field Increase During Pulsed-ZFC Activation and Its Effect on Required Pulse Magnitude

Mechanical Reinforcement of REBaCuO Bulk During Field –Cooled Magnetization “Road to Achieve Trapped Field Higher than 20 Tesla”

13:50 – 14:15  (T34-I) T. Oka, Niigata University
Feasible Applications of Bulk HTS magnets and Magnetic Field-Capturing Characteristics in Their Activation Processes

14:15 - 14:35  Refreshment Break

New Materials of Bulk HTS (II) & Innovative Applications -- Session H
Chairs: Prof. Sang-Im Yoo and Prof. Xin Yao

14:35 – 15:00  (T35-I) J. Noudem, CRISMAT, CNRS /ENSICAEN-UNICAEN
Bulk superconducting cryo-magnets processed by Spark Plasma Sintering/Texturing

15:00 – 15:25  (T36-I) C.-J. Kim, Korea Atomic Energy Research Institute
Optimization of processing parameters for achieving the high critical current density in MgB$_2$ bulk superconductors

Fabrication process and vortex pinning properties of MgB$_2$ bulks prepared by infiltration method using amorphous boron powder

15:40 – 15:55  (T38-O) T. Prikhna, NASU
Correlations Between Superconducting Characteristics and Structure of MgB$_2$-based materials, Ab-initio Modeling of Boron Substitution by Oxygen and Carbon in MgB$_2$ (Electron Density and Thermodynamic Stability).

15:55 – 16:10  (T39-O) Hong Zhang, Southwest Jiaotong University
A comparison of effect of graphene and reduced graphene oxide addition on superconductivity of MgB$_2$ bulk prepared by diffusion method

16:10 – 16:30  Closing
POSTER SESSION Global Learning Commons (GLC, 3F)

Chairs: Naomichi Sakai

POSTER PRESENTATION – SESSION H (MONDAY, DECEMBER 13:00 noon)

PROCESSING, CHARACTERIZATION, SIMULATION, AND INNOVATIVE APPLICATIONS OF BULK HTS

M0P1 Bottom-seeded Infiltration and Growth for Fabrication of Single Domain GdBCO Superconducting ring
Peng-Tao Yang, Shaanxi Normal University, China

M02P Densification of Dy123 melt-textured bulks by pre-sintering
Sato Takumi, Aoyama Gakuin University, Japan

M03P Effects of Fullerene Addition on Pinning properties and Microstructures in Melt-textured Y-Ba-Cu-O Superconductors
M. Tanichi, Shibaura Institute of Technology, Japan

M04P Size Dependence of GdBaCuO Superconducting Bulk on Trapped Field Properties By Pulsed Field Magnetization using Split Coil
F Shimoyashiki, Iwate University, Japan

M0P5 Dynamic Characteristics of the Man-Loading Hybrid Maglev Vehicle Employing PML and SML
Ruixue Sun, Southwest Jiaotong University, China

M06P Magnetic flux profile studies on Nano ceria doped YBCO Superconductors fabricated through POIG process
P. M. Swarup Raju, GITAM, India

M07P Critical Current Properties of (Y,Gd)BaCuO Superconducting Bulks Grown By Mixed Y123, Y211 and Gd211 Precursor
K. Sawada, Iwate University, Japan

M08P Mechanical Properties of Superconducting (Gd,Y)BaCuO Large Single-Grain Material Fabricated by RE Compositional Gradient Technique
A. Murakami, National Institute of Technology, Japan

M09P Flux pinning analysis of superconducting YBCO foam struts
M.R. Koblischka, Saarland University, Germany

M10P EBSD-characterization of specific microstructures in RE-BCO superconductors
A. Koblischka-Veneva, Saarland University, Germany

M11P Magnetizing performance evaluation of HTS bulk magnet using a 12 K refrigerator with high cooling capacity
K. Yokoyama, Ashikaga Institute of Technology, Japan

M12P Magnetization of Permanent Magnet Using a Superconducting Bulk magnet
Shova Hasebe, Niigata University, Japan

M13P Basic research for improving the magnetic levitation force and vertical vibration transmission characteristics of the magnetic levitation type superconducting seismic isolation system
Shuhei Sasaki, Hachinohe College, Japan

M14P Levitation performance of the second-generation HTS maglev vehicle serving in a ring test line
Wuyang Lei, Southwest Jiaotong University, China

M15P Sweep Rate Dependence of Electromagnetic and Mechanical Properties In REBaCuO Disk Bulk During Field-Cooled Magnetization Under Temperature Variation
S. Namba, Iwate University, Japan
M16P Numerical Studies on the Dynamic Responses of Multiple Levitated High-Temperature Superconductors by a Vector Potential Method
Ye Changqing, Southwest Jiaotong University, China

M17P Numerical Simulation of Trapped-Field Properties by Pulsed-Field Magnetization In Gd-Ba-Cu-O disk Bulk Modeled Under Various $J_c(B, T)$ Characteristics
T. Hirano, Iwate University, Japan

M18P Simulation and Experiment Research on the Dynamic Levitation Force and Thermal Behavior of Bulk Superconductors under a Varying External Magnetic Field
Hengpei Liao, Southwest Jiaotong University, China

M19P Magnetic separation of nickel sulfate using the superconducting bulk magnet
Hideto Sasaki, Niigata University, Japan

M20P Estimating the rotational energy loss of a superconducting magnetic bearing under no-gravity for use in space applications
Hiroaki Kanai, Yokohama National University, Japan

M21P MgB$_2$ pellets with diamond nanocomposites: superconducting properties and flux pinning
D. Longi Joseph, SIT, Japan

M22P Progress in critical current density ($J_c$) in sintered MgB$_2$ bulks
M. Muralidhar, SIT, Japan

M23P Critical current density and flux pinning in rapid thermally quenched bulk MgB$_2$
Sugiyama, SIT, Japan

M24P Flux pinning in bulk, C-added MgB$_2$
A. Wiederhold, Saarland University, Germany

M25P Doping Effects of Titanium Group Elements On the Critical Current Density for MgB$_2$
Buls Fabricated By ex-situ Spark Plasma Sintering
Y. Takashi, Iwate University, Japan

M26P Microstructure of bulk FeSe with silver addition
K. Furutani, SIT, Japan

M27P Investigation of the shielding properties of a Bi-2212 bulk superconducting tube subjected to an inhomogeneous magnetic field at various temperatures
K. Hogan, University of Liege, Belgium

M28P Lateral Stability for the side-suspended rotating system with tri-modal magnetic field guideway
Li-Feng Zhao, MSTMV, China

M29P Superconducting performance, microstructure, and trapped field of top-seeded melt processed bulk Y$_2$Ba$_2$Cu$_3$O$_x$
S. Pavan Kumar Naik, SIT, Japan

M30P Numerical analysis of spring characteristics and rotational loss of superconducting magnetic bearings for a polarization modulator
T. Shimomura, University of Tokyo, Japan