

## Oral Sessions Thursday, September 22

### Plenary Lectures (World Forum Theater)

Chairperson: ten Kate, Driscoll

4-P-1 9:00 – 9:45

#### The Large Hadron Collider Project and Superconductivity

J. Virdee

*Imperial College and CERN/CMS Collaboration*

4-P-2 9:45 – 10:30

#### Comparative vortex dynamics in oxide, iron-arsenide and MgB<sub>2</sub> superconductors

L. Civale

*MPA-STC, Los Alamos National Laboratory, 87545 New Mexico, USA*

10:30 – 11:00 Coffee break

### Oral Session Electronics A (Mississippi)

#### “Novel Devices”

Chairperson: Seidel

4-EA-O1 11:00 – 11:15 (A274)

#### SQUID bootstrap circuit with a large parameter tolerance

Guofeng Zhang<sup>1,2,3</sup>, Yi Zhang<sup>2,3</sup>, Hui Dong<sup>1,2,3</sup>, Hans-Joachim Krause<sup>2,3</sup>, Xiaoming Xie<sup>1,3</sup>, Alex I. Braginski<sup>2</sup>, Andreas Offenhäusser<sup>2,3</sup>, and Mianheng Jiang<sup>1,3</sup>

<sup>1</sup>Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences (CAS), Shanghai, China, <sup>2</sup>Peter Grünberg Institute (PGI-8), Forschungszentrum Jülich (FZJ), Jülich, Germany, <sup>3</sup>Joint Research Laboratory on Superconductivity & Bioelectronics, Collaboration between CAS-Shanghai & FZJ

4-EA-O2 11:15 – 11:30 (A286)

#### Measurements on $\pi$ -shift devices with flux (phase) gain

Aleksandar Andreski, Hans Hilgenkamp

*Faculty of Science and Technology & MESA+ Institute for Nanotechnology, University of Twente, The Netherlands*

4-EA-O3                    11:30 – 11:45            (A662)

**Superconducting Integrated THz Receivers: Development and Applications.**

V.P. Koshelets<sup>1</sup>, A. B. Ermakov<sup>1</sup>, L.V. Filippenko<sup>1</sup>, A. de Lange<sup>2</sup>, G. de Lange<sup>2</sup>, N.V. Kinev<sup>1</sup>, O.S. Kiselev<sup>1</sup>, S.I. Pripozin<sup>3</sup>, M.Yu. Torgashin<sup>1</sup>, V.L. Vaks<sup>3</sup>

<sup>1</sup> *Kotel'nikov Institute of Radio Engineering and Electronics; Mokhovaya st. 11/7, 125009, Moscow; Russia;* <sup>2</sup> *SRON Netherlands Institute for Space Research; P.O. Box 800, 9700 AV Groningen, the Netherlands;* <sup>3</sup> *Institute for Physics of Microstructure RAS; Ulyanova 46, GSP-105, Nizhny Novgorod; Russia*

4-EA-O4                    11:45 – 12:00            (A465)

**Superconducting rectifier devices based on hybrid superconducting /magnetic nanostructures.**

D. Perez de Lara<sup>1,2</sup>, A. Gomez<sup>2</sup>, F. Galvez<sup>3</sup>, J. del Valle<sup>2</sup>, E. M Gonzalez<sup>2</sup>, M. A. Garcia<sup>3</sup>, J. L. Vicent<sup>1,2</sup>.

<sup>1</sup> *IMDEA-Nanociencia, Cantoblanco, 28049 Madrid (Spain),* <sup>2</sup> *Departamento Fisica de Materiales, Facultad Ciencias Fisicas, Universidad Complutense, 28040 Madrid (Spain),* <sup>3</sup> *Instituto de Ceramica y Vidrio, Consejo Superior de Investigaciones Cientificas, 28040 Madrid (Spain)*

4-EA-O5                    12:00 – 12:15            (A591)

**High-sensitive laser scanning magneto-optical imaging system**

Hironaru Murakami, Keiji Takahashi, I. Kawayama, Masayoshi Tonouchi  
*Institute of Laser Engineering, Osaka University*

4-EA-O6                    12:15 – 12:30            (A971)

**Advanced System Design for 10 Volt Programmable Josephson Voltage Standards**

A. Rüfenacht, C. J. Burroughs, P. D. Dresselhaus, S. P. Benz, D. Olaya  
*National Institute of Standards and Technology, 325 Broadway, Boulder, CO 80305 USA*

4-EA-O7                    12:30 – 12:45            (A1067)

**Physics and applications of quantum phase slip effect in superconducting nanostructures**

K. Yu. Arutyunov,<sup>1,2</sup> J. S. Lehtinen,<sup>1</sup> and K. Zakharov<sup>3</sup>

<sup>1</sup> *University of Jyväskylä, Department of Physics, NanoScience Centre, PB 35, 40014 Jyväskylä, Finland,* <sup>2</sup> *Nuclear Physics Institute, Moscow State University, 119992 Moscow, Russia,* <sup>3</sup> *Department of Physics, Moscow State University, 119992 Moscow, Russia*

4-EA-O8 12:45 – 13:00 (A1180)

**Carry look-ahead adder implemented in Reciprocal Quantum Logic**

Quentin P. Herr, Anna Y. Herr, Oliver T. Oberg, Ofer Naaman, and Steve Shauck

*Northrop Grumman Systems Corp., Baltimore, MD 21240 USA*

**13:00 – 14:00 Lunch Break**

**14:00 – 16:00 Poster Session**

**“Detectors”**

Chairperson: Goltsman

4-EA-I1 (Invited) 16:00 – 16:30 (A782)

**Recent Superconducting Nanowire Single Photon Detector Advances and Applications**

E. A. Dauler<sup>1</sup>, A. J. Kerman<sup>1</sup>, D. Rosenberg<sup>1</sup>, R. J. Molnar<sup>1</sup>, J. Yoon<sup>1</sup>, M. E. Grein<sup>1</sup>, Si Pan<sup>1</sup>, K. K. Berggren<sup>2</sup>, J. D. Moores<sup>1</sup>, and D. M. Boroson<sup>1</sup>

<sup>1</sup>Lincoln Laboratory, Massachusetts Institute of Technology, Lexington, Massachusetts 02420, USA, <sup>2</sup>Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, Massachusetts 02139, USA

4-EA-O9 16:30 – 16:45 (A267)

**Time-correlated single-photon counting with superconducting single-photon detectors**

Robert H. Hadfield, Michael G. Tanner, Chandra M. Natarajan, John A. O'Connor, Nils J Krichel, Gerald S. Buller

*Scottish Universities Physics Alliance and School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, EH14 4AS, United Kingdom*

4-EA-O10 16:45 – 17:00 (A614)

**NbN Nanowire Superconducting Single-Photon Detector for Mid-Infrared**

A. Korneev, Yu. Korneeva, I. Florya, B. Voronov, and G. Goltsman

*Moscow State Pedagogical University, 1 Malaya Pirogovskaya, 119991 Moscow, Russia*

4-EA-O11 17:00 – 17:15 (A751)

**Transport properties and photo-response experiments on proximized NiCu/NbN superconducting nanostripes**

G. P. Pepe<sup>1</sup>, N. Marrocco<sup>1</sup>, A. Capretti<sup>1</sup>, L. Parlato<sup>1</sup>, V. Pagliarulo<sup>1</sup>, G. Peluso<sup>1</sup>, A. Barone<sup>1</sup>, R. Cristiano<sup>2</sup>, M. Ejrnaes<sup>2</sup>, A. Casaburi<sup>2</sup>, N. Kashiwazaki<sup>3</sup>, T. Taino<sup>3</sup>, H. Myoren<sup>3</sup>, and Roman Sobolewski<sup>4</sup>

<sup>1</sup>CNR-SPIN Napoli and Università di Napoli "Federico II", 80126 Napoli, Italy, <sup>2</sup>CNR- Ist. Cibernetica "E. Caianiello", 80078 Pozzuoli, Italy,

<sup>3</sup>Graduate School of Science and Engineering, Saitama University, 338-8570 Saitama, Japan, <sup>4</sup>University of Rochester, Rochester, New York 14627-0231, USA

4-EA-O12 17:15 – 17:30 (A582)

**Development of multi-channel superconducting single photon detector systems for field demonstration of quantum key distribution**

Zhen Wang, Shigehito Miki, Taro Yamashita, Mikio Fujiwara, and Masahide Sasaki

*Kobe Advanced ICT Research Center, National Institute of Communications and Technology, Japan*

4-EA-O13 17:30 – 17:45 (A725)

**Vortex Fluctuations as Dominant Dissipation Mechanism in Current-Biased Superconducting Nanowires**

A. Engel<sup>1</sup>, H. Bartolf<sup>1</sup>, K. Inderbitzin<sup>1</sup>, A. Schilling<sup>1</sup>, K. Il'in<sup>2</sup>, M. Siegel<sup>2</sup>, A. Semenov<sup>3</sup>, H.-W. Hübers<sup>3</sup>

<sup>1</sup>Physics Institute, University of Zürich, Winterthurerstr. 190, 8057 Zürich, Switzerland, <sup>2</sup>Institute for Micro- and Nanoelectronic Systems, Karlsruhe Institute of Technology, Hertzstr. 16, 76187 Karlsruhe, Germany, <sup>3</sup>DLR Institute for Planetary Research, Rutherfordstr. 2, 12489 Berlin, Germany

4-EA-O14 17:45 – 18:00 (A526)

**Development of fiber coupled four-element superconducting nanowire single-photon detectors**

Shigehito Miki<sup>1</sup>, Taro Yamashita<sup>1</sup>, Hiroataka Terai<sup>1</sup>, Mikio Fujiwara<sup>2</sup>, Masahide Sasaki<sup>2</sup>, and Zhen Wang<sup>1</sup>

<sup>1</sup>Kobe Advanced Research Center, National Institute of Information and Communications Technology, <sup>2</sup>National Institute of Information and Communications Technology

## Oral Session Electronics B (Europe 1+2)

### “Device Fabrication”

Chairperson: Tafuri

4-EB-I1 (Invited) 11:00 – 11:30 (A636)

#### **An all HTS Single Electron tunneling Transistor**

D. Gustafsson, T. Bauch and F. Lombardi

*Quantum Device Physics Laboratory, Microtechnology and Nanoscience, Chalmers University of Technology, SE-41296, Göteborg, Sweden*

4-EB-O1 11:30 – 11:45 (A446)

#### **Micron-ranged supercurrents induced in the halfmetallic ferromagnet CrO<sub>2</sub>.**

M. S. Anwar and J. Aarts

*Kamerlingh Onnes Laboratory, Leiden Institute of Physics, P. O. Box 9504, 2300RA Leiden, the Netherlands*

4-EB-O2 11:45 – 12:00 (A826)

#### **Charge-transistor effect in NbSi superconducting nanowire**

T. T. Hongisto and A. B. Zorin

*Physikalisch-Technische Bundesanstalt, Bundesallee 100, 38116 Braunschweig, Germany*

4-EB-O3 12:00 – 12:15 (A164)

#### **Andreev current in highly resistive superconducting tunnel junctions**

T. Greibe, M. P.V. Stenberg, C. M. Wilson, Th. Bauch, V. S. Shumeiko, and P. Delsing

*Department of Microelectronics and Nanoscience, Chalmers University of Technology, S-41296 Göteborg, Sweden*

4-EB-O4 12:15 – 12:30 (A1078)

#### **Correlation between microstructure and electrical properties in biepitaxial YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> grain boundary junctions**

Karin Cedergren<sup>1</sup>, Henrik Pettersson<sup>2</sup>, Eva Olsson<sup>2</sup>, Thilo Bauch<sup>1</sup>, and Floriana Lombardi<sup>1</sup>

<sup>1</sup>*Quantum Device Physics Laboratory, Dept. of Microtechnology and Nanoscience, MC2, Chalmers University of Technology, Gothenburg, Sweden,* <sup>2</sup>*Microscopy and Microanalysis, Dept. of Applied Physics, Chalmers University of Technology, Gothenburg, Sweden*

4-EB-O5                      12:30 – 12:45                      (A645)

**Josephson and tunneling junctions with thin films of iron based superconductors**

Paul Seidel<sup>1</sup>, Sebastian Döring<sup>1</sup>, Stefan Schmidt<sup>1</sup>, Volker Tympel<sup>1</sup>, Frank Schmid<sup>1</sup>, Silvia Haindl<sup>2</sup>, Kazumasa Iida<sup>2</sup>, and Bernhard Holzapfel<sup>2</sup>

<sup>1</sup>*Friedrich-Schiller-Universität Jena, Institut für Festkörperphysik, Helmholtzweg 5, 07743 Jena, Germany,* <sup>2</sup>*IFW Dresden, Institute for Metallic Materials, Helmholtzstrasse 20, 01069 Dresden, Germany*

4-EB-O6                      12:45 – 13:00                      (A1033)

**Realization and characterization of a SWIFTS micro-spectrometer integrated on top of a 1D-NbN SNSPD array**

P. Cavalier<sup>1</sup>, C. Constancias<sup>2</sup>, A. Morand<sup>3</sup>, P. Feautrier<sup>4</sup>, J-C. Villegier<sup>1</sup>

<sup>1</sup>*Institute of Nanosciences and Cryogenics, SPSMS, CEA-Grenoble, 38054 Grenoble- Cedex-9, France,* <sup>2</sup>*Laboratory of Electronics and Integrated Technologies, CEA/LETI, 38054 Grenoble- Cedex-9, France,* <sup>3</sup>*Institute of Microelectronics, Electromagnetism and Photonics, 3 parvis L.Néel, 38016 Grenoble, France,* <sup>4</sup>*AstrOphysics Laboratory of Grenoble, Domaine Universitaire, 414 rue de la Piscine, 38041 Grenoble, France*

**13:00 – 14:00                      Lunch Break**

**14:00 – 16:00                      Poster Session**

**“SQUID, NMI/NMR, MCG/MEG”**

Chairperson:                      Winkler

4-EB-I2 (Invited)                      16:00 – 16:30                      (A4)

**SQUID-based Systems for Co-registration of Ultra-Low Field Nuclear Magnetic Resonance Images and Magneto-encephalography**

A.N. Matlashov, M.A. Espy, R.H. Kraus, P.L. Volegov

*Los Alamos National Laboratory, Los Alamos, NM, USA*

4-EB-O7                      16:30 – 16:45                      (A553)

**SQUID sensors for combined MEG and MRI imaging System**

J. Luomahaara<sup>1</sup>, P. T. Vesänen<sup>2</sup>, J. S. Penttilä<sup>3</sup>, L. Grönberg<sup>1</sup>, J. O. Nieminen<sup>2</sup>, M. Kiviranta<sup>1</sup>, J. Dabek<sup>2</sup>, C. J. Zevenhoven<sup>2</sup>, J. Simola<sup>4</sup>, A. Ahonen<sup>4</sup>, R. J. Ilmoniemä<sup>2</sup>, and J. Hassel<sup>1</sup>

<sup>1</sup>*VTT Technical Research Centre of Finland, Espoo, Finland,* <sup>2</sup>*Aalto University, Espoo, Finland,* <sup>3</sup>*Aivon OY, Espoo, Finland,* <sup>4</sup>*Elekta OY, Helsinki, Finland*

4-EB-O8 16:45 – 17:00 (A831)

**Towards functional magnetic resonance imaging at ultra-low fields**

P. Magnelind, J. Gomez, A. Matlashov, A. Urbaitis, P. Volegov, and M. Espy

*Los Alamos National Laboratory, P.O. Box 1663, MS-D454, Los Alamos, NM 87545, USA*

4-EB-O9 17:00 – 17:15 (A808)

**Simultaneous measurement of neural activity and cerebral hemodynamics using unshielded magnetoencephalography and optical topography**

Yusuke Seki, Tsuyoshi Miyashita, Akihiko Kandori, Atsushi Maki, and Hideaki Koizumi

*Central Research Laboratory, Hitachi, Ltd.*

4-EB-O10 17:15 – 17:30 (A674)

**Enhancement of nuclear magnetic resonance signals at ultra-low field using dynamic nuclear polarization**

Yong-Ho Lee, Seong-Joo Lee, Kiwoong Kim, Chan-Seok Kang, Seong-min Hwang, Kwon-Kyu Yu, Jin-Mok Kim and Hyukchan Kwon

*Korea Research Institute of Standards and Science*

4-EB-O11 17:30 – 17:45 (A308)

**SQUID based ultra low field nuclear magnetic resonance (NMR) relaxometry of liquids**

S. Hartwig, J. Voigt, H.-J. Scheer, H.-H. Albrecht, H. Harcken, R. Ketzler, M. Albrecht, M. Burghoff, and L. Trahms

*Physikalisch-Technische Bundesanstalt, Braunschweig and Berlin, Germany*

4-EB-O12 17:45 – 18:00 (A388)

**The DC-SQUID-based magnetocardiographic systems for clinical use**

Yu.V. Maslennikov, M.A. Primin, V.Yu. Slobodchikov, V.V. Khanin, I.V. Nedayvoda, V.A. Krymov, A.V. Okunev, E.A. Moiseenko

*CRYOTON Co.Ltd, Troitsk, Moscow Region, Russia*

## Oral Session Materials A (Amazon)

### “MgB<sub>2</sub> Bulk and Single Crystal”

Chairperson: Grasso

4-MA-I1 (Invited) 11:00 – 11:30 (A372)

#### **Mechanically alloyed in-situ MgB<sub>2</sub>: aspects of powder preparation towards an high performance precursor**

M. Herrmann, W. Haessler, C. Rodig, M. Schubert, A. Kario, K. Nenkov, J. Scheiter, B. Holzzapfel and L. Schultz

*IFW Dresden, Institute for Metallic Materials, 01069 Dresden, Germany*

4-MA-O1 11:30 – 11:45 (A951)

#### **Superconducting properties of MgB<sub>2</sub> with addition of other AlB<sub>2</sub>-type diborides and carbon sources, prepared using high energy ball milling and HIP**

Lucas B. S. da Silva<sup>1</sup>, Vivian C. V. Metzner<sup>1</sup>, German Serrano<sup>2</sup>, Adriana Serquis<sup>2</sup>, Eric E. Hellstrom<sup>3</sup>, Durval Rodrigues Jr.<sup>1</sup>

<sup>1</sup>*Superconductivity Group, Escola de Engenharia de Lorena, Universidade de São Paulo, Lorena, SP, Brazil,* <sup>2</sup>*Centro Atômico Bariloche, Instituto Balseiro, CONICET, S. C. de Bariloche, RN, Argentina,*

<sup>3</sup>*Applied Superconductivity Center, Florida State University, Tallahassee, FL, USA*

4-MA-O2 11:45 – 12:00 (A427)

#### **Spark Plasma Sintering of rare earth oxide added MgB<sub>2</sub>**

D. Batalu<sup>1</sup>, D. Bojin<sup>1</sup>, S. Popa<sup>2</sup>, G. Aldica<sup>2</sup>, L. Miu<sup>2</sup>, M. Enculescu<sup>2</sup>, P. Badica<sup>2</sup>

<sup>1</sup>*Materials Science and Engineering Faculty, “Politehnica” University of Bucharest, Bucharest, 060042, Romania,* <sup>2</sup>*National Institute of Material Physics, Magurele, 077125, Romania*

4-MA-O3 12:00 – 12:15 (A642)

#### **Development of 3 Tesla MgB<sub>2</sub> Bulk Superconducting Magnet**

Akiyasu Yamamoto<sup>1</sup>, Atsushi Ishihara<sup>2</sup>, Masaru Tomita<sup>2</sup>, Jun-ichi Shimoyama<sup>1</sup> and Kohji Kishio<sup>1</sup>

<sup>1</sup>*University of Tokyo, Japan;* <sup>2</sup>*Railway Technical Research Institute, Japan*

4-MA-O4 12:15 – 12:30 (A320)

**Synthesis and characterization of transition and rare-earth elements doped MgB<sub>2</sub> bulk samples**

A. Figini Albisetti<sup>1</sup>, L. Saglietti<sup>1</sup>, G. Giunchi<sup>1</sup>, C. Schiavone<sup>2</sup> and A. Maspero<sup>3</sup>

<sup>1</sup>Edison S.p.A. – Research and Development Division, Via Foro Buonaparte 31, 20121 Milano (ITALY), <sup>2</sup>CNR-IENI Lecco, Corso Promessi Sposi 29, 23900 Lecco (ITALY), <sup>3</sup>Università degli Studi dell'Insubria – Sede di Como, Via Castelnovo 11, 22100 Como (ITALY)

4-MA-O5 12:30 – 12:45 (A680)

**Mg-B site doping effects on the upper critical field temperature dependence of MgB<sub>2</sub> samples with CaCO<sub>3</sub> additions**

A. Serquis<sup>1</sup>, G. Serrano<sup>1</sup>, L. Civalè<sup>2</sup>, B. Maiorov<sup>2</sup>, N. Haberkon<sup>2</sup>, and M. Jaime<sup>3</sup>

<sup>1</sup>Centro Atómico Bariloche (CNEA) - Instituto Balseiro (UNCuyo) - CONICET, Bariloche, Argentina, <sup>2</sup>MPA-STC LANL, USA, <sup>3</sup>MPA-CMMS LANL, USA

4-MA-O6 12:45 – 13:00 (A200)

**Superconductivity in multi-phase Mg-B-O compounds**

Prikhna T.<sup>1</sup>, Gawalek W.<sup>2</sup>, Eisterer M.<sup>3</sup>, Weber H.W.<sup>3</sup>, Noudem J.<sup>4</sup>, Karpets M.<sup>5</sup>, Dellith J.<sup>2</sup>, Shcmidt Ch.<sup>2</sup>, Kovylaev V.<sup>6</sup>, Borimskiy A.<sup>1</sup>

<sup>1</sup>Institute for Superhard Materials of the NASU, Kiev, Ukraine, <sup>2</sup>Institut für Photonische Technologien, Jena, Germany, <sup>3</sup>Vienna University of Technology, Atominstytut, Vienna, Austria, <sup>4</sup>CNRS/CRISMAT, Caen, France, <sup>5</sup>Institute for Problems in Material Science of the NASU, Kiev, Ukraine

13:00 – 14:00 Lunch Break

14:00 – 16:00 Poster Session

**“MgB<sub>2</sub> and LTS Films and Multilayers”**

Chairperson: M. Izumi

4-MA-I2 (Invited) 16:00 – 16:30 (A742)

**MgB<sub>2</sub> thin films on metallic and dielectric substrates for microwave electronic and SRF applications**

D. E. Oates<sup>1</sup>, Y. D. Agassi<sup>2</sup>, and B. H. Moeckly<sup>3</sup>

<sup>1</sup>MIT Lincoln Laboratory, Lexington MA, USA, <sup>2</sup>Naval Surface Warfare Center, Carderock Division, Bethesda MD, USA, <sup>3</sup>STI Inc. Santa Barbara, CA, USA

4-MA-O7 16:30 – 16:45 (A430)

**Studies on thin film coatings of MgB<sub>2</sub> and other superconductors for SRF cavities**

T. Tajima<sup>1</sup>, N.F. Haberkorn<sup>1</sup>, L. Civale<sup>1</sup>, D.J. Devlin<sup>1</sup>, M.E. Hawley<sup>1</sup>, R.K. Schulze<sup>1</sup>, Y. Zhang<sup>1</sup>, J. Guo<sup>2</sup>, V.A. Dolgashev<sup>2</sup>, D.W. Martin<sup>2</sup>, S.G. Tantawi<sup>2</sup>, C.G. Yoneda<sup>2</sup>, B.H. Moeckly<sup>3</sup>, T. Proslie<sup>4</sup>, M. Pellin<sup>4</sup>, A. Matsumoto<sup>5</sup>, E. Watanabe<sup>5</sup>

<sup>1</sup>Los Alamos National Laboratory, Los Alamos, NM 87545 U.S.A.

<sup>2</sup>SLAC National Accelerator Laboratory, Menlo Park, CA 94025 U.S.A.

<sup>3</sup>Superconductor Technologies Inc., Santa Barbara, CA 93111 U.S.A.

<sup>4</sup>Argonne National Laboratory, Argonne, IL 60439 U.S.A., <sup>5</sup>National Institute for Materials Science, Tsukuba, Ibaraki 305-0047 Japan

4-MA-O8 16:45 – 17:00 (A703)

**Electron Tunneling Spectroscopic Measurements on Al-doped MgB<sub>2</sub> thin films**

A.G. Zaitsev<sup>1</sup>, R. Schneider<sup>1</sup>, O. de la Peña-Seaman<sup>1,2</sup>, R. de Coss<sup>2</sup>, R. Heid<sup>1</sup>, K.-P. Bohnen<sup>1</sup> and J. Geerk<sup>1</sup>

<sup>1</sup>Karlsruher Institut für Technologie, Institut für Festkörperphysik, D-76021 Karlsruhe, Germany, <sup>2</sup>Departamento de Física Aplicada, Centro de Investigación y de Estudios Avanzados del IPN, Cordemex 97310 Mérida, Yucatán, Mexico

4-MA-O9 17:00 – 17:15 (A884)

**MgB<sub>2</sub> superconducting strands and thin films: a comparison of doping, pinning, and connectivity**

M.A. Susner, S.D. Bohnenstiehl, M.D. Sumption, and E.W. Collings

Center for Superconducting & Magnetic Materials (CSMM), Department of Materials Science & Engineering, The Ohio State University, Columbus, OH 43210 USA

4-MA-O10 17:15 – 17:30 (A784)

**Microwave properties of Nb/PdNi/Nb trilayers: penetration depth and vortex state.**

E. Silva<sup>1</sup>, C. Attanasio<sup>2</sup>, C. Cirillo<sup>2</sup>, E. A. Ilyina<sup>2</sup>, C. Meneghini<sup>1</sup>, N. Pompeo<sup>1</sup>, S. Sarti<sup>3</sup>, K. Torokhtii<sup>1</sup>

(1) Dip. di Fisica "E. Amaldi" and CNISM, Università Roma Tre, Via della Vasca Navale 84, 00146 Roma, Italy, (2) CNR-SPIN and Dip. di Fisica "E. R. Caianiello", Università degli Studi di Salerno, 84084 Fisciano (SA), Italy, (3) Dip. di Fisica, Università "La Sapienza", 00185 Roma, Italy

4-MA-O11 17:30 – 17:45 (A505)

**Superconducting  $RE_2CuO_4$ : a case study**

H. Yamamoto<sup>1</sup>, Y. Krockenberger<sup>1</sup>, O. Matsumoto<sup>2</sup>, K. Yamagami<sup>1</sup>, M. Mitsuhashi<sup>1</sup>, M. Naito<sup>2</sup>

<sup>1</sup>*NTT Basic Research Labs., NTT Corporation,* <sup>2</sup>*Tokyo Univ. of Agriculture and Technology*

4-MA-O12 17:45 – 18:00 (A194)

**Superconductivity at 42 K in sulfur doped amorphous carbon thin films**

Israel Felner, Omri Wolf and Oded Millo

*Racah Institute of Physics, The Hebrew University of Jerusalem, Jerusalem, 91904, Israel*

## Oral Session Materials B (Kilimanjaro)

### “Pnictides Bulk and Other Forms”

Chairperson: Ikuta

4-MB-I1 (Invited) 11:00 – 11:30 (A904)

#### **Exploring Fe-based superconductor potential for power application**

Marina Putti

*University of Genova and CNR-SPIN Via Dodecaneso, 33 - I16146 Genova, Italy*

4-MB-O1 11:30 – 11:45 (A976)

#### **Effect of the isoelectronic substitution in iron based arsenide and chalcogenide superconductors on structural, magnetic and superconducting properties**

P. Toulemonde\*<sup>1</sup>, S.J.E. Karlsson<sup>1</sup>, G. Garbarino<sup>2</sup>, M. Nunez-Regueiro<sup>1</sup>, P. Strobel, A. Sulpice<sup>1</sup>, J. Marcus<sup>1</sup>, S. Pairis<sup>1</sup>, F. Levy-Bertrand<sup>1</sup>, C. Marcenat<sup>3</sup>, V. Nassif<sup>4</sup>, T. Hansen<sup>4</sup>

<sup>1</sup> Institut Néel, CNRS and UJF, F-38042 Grenoble, France, <sup>2</sup> ESRF, F-38043 Grenoble, France, <sup>3</sup> SPSMS, UMR-E9001, CEA-INAC UJF-Grenoble 1, F-38054 Grenoble, France, <sup>4</sup> Institut Laue Langevin, F-38042 Grenoble, France

4-MB-O2 11:45 – 12:00 (A569)

#### **Electron overdoping through hydrogen-for-oxygen substitution in 1111 type layered iron arsenides**

Taku Hanna,<sup>1</sup> Yoshinori Muraba,<sup>1</sup> Satoru Matsuishi,<sup>1</sup> and Hideo Hosono<sup>1,2</sup>

<sup>1</sup> Materials and Structures Laboratory, Tokyo Institute of Technology, 4259 Nagatsuta-cho, Midori-ku, Yokohama 226-8503, Japan, <sup>2</sup> Frontier Research Center, Tokyo Institute of Technology, 4259 Nagatsuta-cho, Midori-ku, Yokohama 226-8503, Japan

4-MB-O3 12:00 – 12:15 (A988)

#### **Electrical and magnetic properties in ZrCuSiAs type Mn-based pnictides**

Gihun Ryu<sup>1</sup>, Satoru Matsuishi<sup>1</sup>, SungWng Kim<sup>2</sup> and Hideo Hosono<sup>1,2</sup>

<sup>1</sup> Materials and Structures Laboratory, Tokyo Institute of Technology, 4259 Nagatsuta-cho, Midori-ku, Yokohama 226-8530, Japan, <sup>2</sup> Frontier Research Center, Tokyo Institute of Technology, 4259 Nagatsuta-cho, Midori-ku, Yokohama 226-8530, Japan

4-MB-O4 12:15 – 12:30 (A574)

**High Efficient Synthesis of Iron-based Superconductors**

Ai-Hua Fang<sup>1,2</sup>, Fu-Qiang Huang<sup>2</sup>, Xiao-Ming Xie<sup>1</sup>, Mian-Heng Jiang<sup>1</sup>

<sup>1</sup> State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences (CAS), Shanghai, China, <sup>2</sup> CAS Key Laboratory of Materials for Energy Conversion, Shanghai Institute of Ceramics, Shanghai, China

4-MB-O5 12:30 – 12:45 (A854)

**Alcohol beverage induce superconductivity in Fe(Te,S)**

Yoshihiko Takano

National Institute for Materials Science (NIMS), Tsukuba 305-0047 Japan

4-MB-O6 12:45 – 13:00 (A1171)

**Transport properties and microstructure of Sr<sub>0.6</sub>K<sub>0.4</sub>Fe<sub>2</sub>As<sub>2</sub> superconductor made by powder-in-tube method**

Xianping Zhang<sup>1,2</sup>, Yanwei Ma<sup>1</sup>, Lei Wang<sup>1</sup>, Yanpeng Qi<sup>1</sup>, Chunlei Wang<sup>1</sup>, Chao Yao<sup>1</sup>, Zhaoshun Gao<sup>1</sup>, Dongliang Wang<sup>1</sup>, Satoshi Awaji<sup>2</sup>, Kazuo Watanabe<sup>2</sup>

<sup>1</sup> Key Laboratory of Applied Superconductivity, Institute of Electrical Engineering, Chinese Academy of Sciences, PO Box 2703, Beijing, China, <sup>2</sup> High Field Laboratory for Superconducting Materials, Institute for Materials Research, Tohoku University, Sendai, Japan

**13:00 – 14:00 Lunch Break**

**14:00 – 16:00 Poster Session**

**“Mechanical Properties and Strain Effects”**

Chairperson: Hampshire

4-MB-I2 (Invited) 16:00 – 16:30 (A1065)

**Longitudinal and transverse mechanical properties of Cu stabilized PLD-GdBa<sub>2</sub>Cu<sub>3</sub>O<sub>y</sub> coated conductor**

G. Nishijima and H. Kitaguchi

National Institute for Materials Science, Tsukuba 305-0047, Japan

4-MB-O7 16:30 – 16:45 (A999)

**Anisotropic reversible strain effect on the critical current and flux pinning force in REBCO coated conductors**

D.C. van der Laan<sup>1,2</sup>, C.C. Clickner<sup>2</sup>, T.C. Stauffer<sup>2</sup>, L.F. Goodrich<sup>2</sup>, D. Abraimov<sup>3</sup>, A.A. Polyanski<sup>3</sup>, D.C. Larbalestier<sup>3</sup>, and R. Semerad<sup>4</sup>

<sup>1</sup> University of Colorado, Department of Physics, Boulder, CO 80309, USA, <sup>2</sup> National Institute of Standards and Technology, Boulder, CO 80305, USA, <sup>3</sup> National High Magnetic Field Laboratory, Florida State University, Tallahassee, FL 32310, USA, <sup>4</sup> Theva Dunnschichttechn. GmbH, D-85737 Ismaning, Germany

4-MB-O8 16:45 – 17:00 (A585)

**Low temperature flux pinning and mechanical properties of PLD-Gd123 coated conductors.**

Satoshi Awaji<sup>1</sup>, Takumi Suzuki<sup>1</sup>, Kazuhiro Minegishi<sup>1</sup>, Hidetoshi Oguro<sup>1</sup>, Kazuo Watanabe<sup>1</sup>, Masateru Yoshizumi<sup>2</sup>, Akira Ibi<sup>2</sup>, Tetsuo Izumi<sup>2</sup> and Yuh Shiohara<sup>2</sup>

<sup>1</sup> High Field Laboratory for Superconducting Materials, IMR, Tohoku University, <sup>2</sup> SRL-ISTEC

4-MB-O9 17:00 – 17:15 (A1045)

**Angular, Temperature and Strain Dependencies of the Critical Current of DI-BSCCO Tapes in High Magnetic Fields**

Prapaiwan Sunwong and Damian P. Hampshire

Centre for Materials Physics, Superconductivity Group,

Department of Physics, Durham University, DH1 3LE, UK

4-MB-O10 17:15 – 17:30 (A928)

**Reversible effect of strain on transport critical current found in Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>8+x</sub> superconducting wires: A modified descriptive strain model**

N. Cheggour<sup>a,b</sup>, X. F. Lu<sup>a,b</sup>, T. G. Holesinger<sup>c</sup>, T. C. Stauffer<sup>a</sup>, J. Jiang<sup>d</sup>, and L. F. Goodrich<sup>a</sup>

<sup>a</sup> Electromagnetics Division, National Institute of Standards and Technology, Boulder, Colorado 80305, USA, <sup>b</sup> Department of Physics, University of Colorado, Boulder, Colorado 80309, USA,

<sup>c</sup> Superconductivity Technology Center, Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA, <sup>d</sup> Applied Superconductivity Center, National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida 32310, USA

4-MB-O11 17:30 – 17:45 (A30)

**Mechanical behavior of second generation superconducting bulk materials as a function of the temperature and the processing method**

K. Konstantopoulou<sup>1</sup>, J. Y. Pastor<sup>1</sup>, J. J. Roa<sup>2</sup>, M. Segarra<sup>2</sup>

<sup>1</sup> *Departamento de Ciencia de Materiales, CISDEM, E. T. S. de Ingenieros de Caminos, Canales y Puertos, Universidad Politécnica de Madrid, Madrid, Spain,* <sup>2</sup> *Departamento de Ciencia de Materiales e Ing. Metalúrgica, Universidad de Barcelona, Facultad de Química, Barcelona, Spain*

4-MB-O12 17:45 – 18:00 (A471)

**The effect of Cu, Ta, and Ti additions on the strain sensitivity of bulk Niobium-Tin**

M.G.T. Mentink<sup>1,2</sup>, M.M.J. Dhalle<sup>2</sup>, D.R. Dietderich<sup>1</sup>, A. Godeke<sup>1</sup>, W. Goldacker<sup>3</sup>, F. Hellman<sup>4</sup>, M.D. Sumption<sup>5</sup>, M.A. Susner<sup>5</sup>, and H.H.J. ten Kate<sup>2</sup>

<sup>1</sup> *Lawrence Berkeley National Laboratory, Berkeley, CA, USA,*

<sup>2</sup> *University of Twente, Enschede, the Netherlands,* <sup>3</sup> *Karlsruhe Institute of Technology, Karlsruhe, Germany,* <sup>4</sup> *University of California, Berkeley, CA, USA,* <sup>5</sup> *Ohio State University, Columbus, OH, USA*

## Oral Session Large Scale A (Yangtze 1)

### **“Energy Applications, System Studies”**

Chairperson: Noe

4-LA-I2 (Invited) 11:00 – 11:30 (A1132)

#### **System study on interaction of HTS cables with power grids**

Irina Melnik (1), Alex Geschiere (1), Haniyeh Ahmadian (1), Roy Zuijderduin (2), Dag Willén (3)

1 - *Alliander, Duiven, the Netherlands*, 2 - *Technical University of Delft, the Netherlands*, 3 - *nkt cables, Broendby, Denmark*

4-LA-O2 11:30 – 11:45 (A791)

#### **Novel grid concepts for urban area power supply**

M. Stemmler<sup>1</sup>, F. Merschel<sup>2</sup>, L. Hofmann<sup>3</sup>, M. Noe<sup>4</sup> and A. Hobl<sup>5</sup>

<sup>1</sup> *Nexans Deutschland GmbH, Hannover, Germany*, <sup>2</sup> *RWE Deutschland AG, Essen, Germany*, <sup>3</sup> *Leibniz University of Hannover, Hannover, Germany*, <sup>4</sup> *Karlsruhe Institute of Technology, Karlsruhe, Germany*, <sup>5</sup> *Nexans SuperConductors GmbH, Hürth, Germany*

4-LA-O3 11:45 – 12:00 (A921)

#### **Ways to integrate HTS components in the future grid of the Netherlands**

Roy Zuijderduin<sup>1</sup>, Oleg Chevtchenko<sup>1</sup>, Johan Smit<sup>1</sup>

<sup>1</sup> *Delft University of Technology, The Netherlands*

4-LA-O5 12:00 – 12:15 (A178)

#### **Prospective of Applications of Superconducting Fault Current Limiters in Chinese Power Grids**

Z. L. Chen<sup>1</sup>, W. Z. Gong<sup>1</sup>, A. L. Ren<sup>1</sup>, M. R. Zi<sup>2</sup>, Z. Q. Xiong<sup>2</sup>, D. J. Si<sup>2</sup>, and F. Ye<sup>2</sup>

<sup>1</sup> *Innopower Superconductor Cable Co., Ltd., Longsheng Industrial Park, Beijing Economic & Technological Development Area, Beijing 100176, China*, <sup>2</sup> *Yunnan Power Grid, Co., 49 Tuodong Rd., Kunming, Yunnan 650011, China*

4-LA-O6 12:15 – 12:30 (A417)

**The prospects of DC superconducting cables use in electrical networks of megapolises**

A. Kovalenko, A. Kiselev, D. Rimorov, V. Sytnikov, Yu. Shakarian, O. Frolov\*

*"R&D Center for Power Engineering", Moscow, Russia*

*\*\*"NIIPT", St. Petersburg, Russia*

4-LA-O7 12:30 – 12:45 (A837)

**Feasibility and Prospect of Superconducting Energy Storage Techniques**

**for Smart Grid**

Jianxun Jin, Xiaoyuan Chen

*Center of Applied Superconductivity and Electrical Engineering, University of Electronic Science and Technology of China, Chengdu 611731, China*

4-LA-O8 12:45 – 13:00 (A1060)

**Application of Superconducting Power Cables to DC Electric Railway Systems**

Hiroyuki Ohsaki<sup>1</sup>, Zhen Lv<sup>1</sup>, Masaki Sekino<sup>2</sup>, Masaru Tomita<sup>3</sup>

*<sup>1</sup>Graduate School of Frontier Sciences, The University of Tokyo, Kashiwa 277-8561, Japan, <sup>2</sup>Graduate School of Engineering, The University of Tokyo, Kashiwa 277-8561, Japan, <sup>3</sup>Railway Technical Research Institute, Kokubunji 185-8540, Japan*

**13:00 – 14:00 Lunch Break**

**14:00 – 16:00 Poster Session**

**"Fault Current Limiters"**

Chairperson: Martini

4-LA-I1 (Invited) 16:00 – 16:30 (A489)

**Development of 220kV/300MVA superconductive fault current limiter**

Y.Xin<sup>1</sup>, W.Z.Gong<sup>1</sup>, H.Hong<sup>1,3</sup>, Y.Q.Gao<sup>2</sup>, X.Y.Niu<sup>1</sup>, J.Y.Zhang<sup>1</sup>, J.Z.Wang<sup>1</sup>, Y.W.Sun<sup>1,3</sup>, A.L.Ren<sup>1</sup>, H.Z.Wang<sup>1</sup>, L.F.Zhang<sup>1</sup>, Q.Li<sup>1</sup>, Z.Q.Wei<sup>1</sup>, L.Z.Wang<sup>1</sup>, J.B.Cui<sup>1</sup>, G.J.Niu<sup>1</sup>, and Z.Q.Xiong<sup>1</sup>

*1. Innopower Superconductor Cable Co., Ltd., Beijing Economic & Technological Development Area, Beijing 100176, China, 2. Tianjin Machinery & Electric Industry Holding Group Company Co., Tianjin 300100, China, 3. Tianjin University, 92 Weijin Road, Tianjin 300072, China*

4-LA-O9 16:30 – 16:45 (A892)

**Fabrication of an SFCL for demonstration in a real grid**

Hye-Rim Kim<sup>1</sup>, Seong Eun Yang<sup>1</sup>, Seung-Duck Yu<sup>1</sup>, Heesun. Kim<sup>1</sup>, Woo-Seok Kim<sup>1</sup>, Choong-Yeol Park<sup>1</sup>, Seong-Woo Yim<sup>1</sup>, Kwon-Bae Park<sup>2</sup>, Jungwook Sim<sup>2</sup>, Young-Geun Kim<sup>2</sup>, and Ok-Bae Hyun<sup>1</sup>

<sup>1</sup>KEPCO Research Institute, KEPCO, <sup>2</sup>LS Industrial Systems

4-LA-O10 16:45 – 17:00 (A318)

**Superconducting fault current limiter development based on coated conductors within the project ECCOFLOW – system aspects**

A. Hobl<sup>1</sup>, J. Bock<sup>1</sup>, J. Schramm<sup>1</sup>, S. Krämer<sup>1</sup>, C. Jänke<sup>1</sup>, S. Elschner<sup>2,3</sup>, M. Noe<sup>2</sup>, A. Kudymov<sup>2</sup>, W. Goldacker<sup>2</sup>, B. Dutoit<sup>4</sup>, L. Martini<sup>5</sup>, M. Bocchi<sup>5</sup>, P. Stoeber<sup>6</sup>, P. Tixador<sup>7</sup>

<sup>1</sup>Nexans SuperConductors GmbH, Hürth, Germany, <sup>2</sup>Karlsruhe Institute for Technology, ITeP, Karlsruhe, Germany, <sup>3</sup>University of Applied Science, Mannheim, Germany, <sup>4</sup>Ecole Polytechnique Fédérale de Lausanne, Switzerland, <sup>5</sup>RSE Spa, Milano, Italy, <sup>6</sup>RWE Rhein-Ruhr Netzservice GmbH, Germany, <sup>7</sup>Grenoble INP, France

4-LA-O11 17:00 – 17:15 (A387)

**Development, testing and installation of a Superconducting Fault Current Limiter for medium voltage distribution networks**

L. Martini<sup>1</sup>, M. Bocchi<sup>1</sup>, M. Ascade<sup>1</sup>, A. Valzasina<sup>1</sup>, C. Ravetta<sup>2</sup>

<sup>1</sup> RSE Spa, Milano, Italy, <sup>2</sup> A2A Reti Elettriche Spa, Milano, Italy

4-LA-O12 17:15 – 17:30 (A945)

**SFCL using bulk YBCO for protection of a Emergency Generator in Power Plants**

M. A. Neves<sup>1</sup>, M. A. P. Rosario<sup>1</sup>, E. P. da Silva<sup>1</sup>, Máximo Ferreira da Silveira<sup>2</sup>, V.S. Andrade<sup>3</sup>, S. E. M. De Oliveira<sup>3</sup>

<sup>1</sup>LMDS – DEFIS, ICE, UFRRJ, BR-465 Km 7, CxP. 74547, CEP: 23890-000 - Seropédica, RJ, Brazil, <sup>2</sup>LabMAT – IF-UFRJ, Rio de Janeiro - RJ, Brazil, <sup>3</sup>DEE-EP+PEE-COPPE – UFRJ, Rio de Janeiro - RJ, Brazil

4-LA-O13 17:30 – 17:45 (A373)

**Current limiting properties of a superconducting coil wound non-inductively using a wind-and-react MgB<sub>2</sub> cable – experiments and FEM modeling**

M. Majoros<sup>1</sup>, M. D. Sumption<sup>1</sup>, M. A. Susner<sup>1</sup>, C. Myers<sup>1</sup>, E. W. Collings<sup>1</sup>, M. Tomsic<sup>2</sup>, M. Rindfleisch<sup>2</sup>, J. Phillips<sup>2</sup>, D. Lyons<sup>2</sup> and J. Yue<sup>2</sup>

<sup>1</sup>Superconducting Technology Center, The Ohio State University, Columbus, OH 43210 U.S.A., <sup>2</sup>Hyper Tech Research Inc., Columbus, OH 43210 USA

**Superconducting Fault Current Limiter for Transmission Voltage**

Hans-Peter Kraemer<sup>1</sup>, Wolfgang Schmidt<sup>1</sup>, Hong Cai<sup>2</sup>, Bruce Gamble<sup>2</sup>, David Madura<sup>2</sup>, Tim MacDonald<sup>2</sup>, Joe McNamara<sup>2</sup>, Walther Romanosky<sup>2</sup>, Greg Snitchler<sup>2</sup>, Nicolas Lallouet<sup>3</sup>, Frank Schmidt<sup>4</sup>, Syed Ahmed<sup>5</sup>

<sup>1</sup> Siemens AG, Erlangen, Germany; <sup>2</sup> American Superconductor, De-  
vens, USA; <sup>3</sup> Nexans, Calais, France; <sup>4</sup> Nexans, Hannover, Germany;

<sup>5</sup> Southern California Edison, Rosemead, USA

## Oral Session Large Scale B (Yangtze 2)

### **“MRI, Current Leads, Magnet Arrays”**

Chairperson: Wada

4-LB-I1 (Invited) 11:00 – 11:30 (A1147)

#### **Development of Superconducting Magnets for MRI in China**

Zanming Wang, Johannes M. van Oort, Mark X. Zou

*Alltech Medical Systems, 201 TianQin Road, High-Tech Industrial Zone (West Park), Chengdu, P.R. China 611731*

4-LB-O1 11:30 – 11:45 (A304)

#### **1.5T dedicated MRI scanner**

E. Demikhov, V. Lysenko, E. Kostrov, N. Piskunov, T. Demikhov, V. Tarasov, B. Shumm

*RTI, Cryomagnetic Systems, Moscow, Russia*

4-LB-O2 11:45 – 12:00 (A1047)

#### **Persistent mode behaviour in coated conductors at 77K – measurements and implications for Coated Conductor Cylinders in NMR, MRI and SMES**

E F Maher, L Tian, P J Hirst, I L McDougall, P Hanley;

*3-Cs Ltd, Malvern Hills Science Park, Geraldine Road, Malvern. WR14 3SZ. United Kingdom*

4-LB-O3 12:00 – 12:15 (A909)

#### **Current leads based on coated conductors.**

G. A. Levin<sup>1</sup>, W. A. Jones<sup>1</sup>, and M. Sumption<sup>2</sup>

*<sup>1</sup>Air Force Research Laboratory, Wright-Patterson Air Force Base, OH 45433 USA, <sup>2</sup>Superconducting Technology Center, The Ohio State University, Columbus, OH 43210 U.S.A.*

4-LB-O4 12:15 – 12:30 (A88)

#### **Design and Manufacture of 20 kA HTS Current Leads for a Hybrid Magnet System**

S. March<sup>1</sup>, R. Wesche<sup>1</sup>, P. Bruzzone<sup>1</sup>, H. Ehmler<sup>2</sup>, P. Smeibid<sup>2</sup>, M. Vogel<sup>1</sup>

*<sup>1</sup>Ecole Polytechnique Fédérale de Lausanne (EPFL), Centre de Recherches en Physique des Plasmas (CRPP), Association Euratom – Confédération Suisse, 5232 Villigen PSI, <sup>2</sup>Helmholtz Zentrum Berlin, Institut für komplexe magnetische Materialien, Hahn-Meitner-Platz 1, 14109 Berlin, Germany*

4-LB-O5 12:30 – 12:45 (A503)

**Development of ITER HTS current lead at ASIPP**

Kaizhong Ding, Yanfang Bi, Hansheng Fen, Xiongyi Huang, Chenglian Liu, Qing Ni, Guang Shen, Tingzhi Zhou, Jia Tang, Yuntao Song

*Institute of Plasma Physics, Chinese Academy of Science*

4-LB-O6 12:45 – 13:00 (A357)

**Programmable magnet arrays using HTS bulks**

T. A. Coombs, M. Zhang, W. Wang, C.H. Hsu, K. Matsuda, O. Haderl

*Engineering Department, University of Cambridge, UK*

**13:00 – 14:00 Lunch Break**

**14:00 – 16:00 Poster Session**

**“Magnetic Levitation”**

Chairperson: Park

4-LB-I2 (Invited) 16:00 – 16:30 (A1121)

**SupraTrans II – research facility for large scale HTS applications**

L. Schultz<sup>1</sup>; L. Kuehn<sup>1,2</sup>; O. de Haas<sup>1,2</sup>; D. Berger<sup>1</sup>; B. Holzapfel<sup>1,2</sup>

<sup>1</sup> *IFW Dresden, Leibniz-Institute for Solid State and Materials Research, Helmholtzstr. 20, 01069 Dresden, Germany*

<sup>2</sup> *evico GmbH, Großenhainer Str. 101, 01127 Dresden, Germany*

4-LB-O7 16:30 – 16:45 (A305)

**High force magnetic levitation using magnetized superconducting bulks as a field source for bearing applications**

A Patel<sup>1</sup>, G Giunchi<sup>2</sup>, A Figini Albisetti<sup>2</sup>, Y Shi<sup>3</sup>, S C Hopkins<sup>1</sup>, R Palka<sup>4</sup>, D A Cardwell<sup>3</sup>, B A Glowacki<sup>1,5</sup>

<sup>1</sup> *Applied Superconductivity and Cryoscience Group, Department of Materials Science and Metallurgy, University of Cambridge, Cambridge CB2 3QZ, UK,* <sup>2</sup> *Edison Spa, Foro Buonaparte, 31 – 20121 Milan, Italy*

<sup>3</sup> *Bulk Superconductivity Group, Engineering Department, University of Cambridge, Cambridge CB2 1PZ, UK,* <sup>4</sup> *Department of Power Systems and Electrical Drives, West Pomeranian University of Technology, Sikorskiego 37, 70-313 Szczecin, Poland,* <sup>5</sup> *Institute of Power Engineering, Augustówka 6, 02-981 Warsaw, Poland*

4-LB-O8 16:45 – 17:00 (A198)

**Operational Tests of a Full Scale Superconducting MagLev Vehicle Unit**

G. G. Sotelo<sup>1</sup>, D. H. N. Dias<sup>1</sup>, O. J. Machado<sup>2</sup>, M. D. A. dos Santos<sup>2</sup>, A. C. Ferreira<sup>2</sup>, R. de Andrade Jr.<sup>2</sup> and R. M. Stephan<sup>2</sup>

<sup>1</sup>Fluminense Federal University – UFF, <sup>2</sup>Federal University of Rio de Janeiro – UFRJ

4-LB-O9 17:00 – 17:15 (A733)

**Method to reduce levitation drift of the HTS maglev vehicle when operating at a slope**

Siting Pan<sup>1,2</sup>, Suyu Wang<sup>1</sup>, Wei Liu<sup>1,2</sup>, JiaSu Wang<sup>1</sup>

<sup>1</sup> Applied Superconductivity Laboratory, Southwest Jiaotong University (ASCLab), Chengdu 610031, Sichuan, China, <sup>2</sup> Traction Power Key Laboratory State, Southwest Jiaotong University, Chengdu 610031, Sichuan, China

4-LB-O10 17:15 – 17:30 (A102)

**Bulk Superconductors in Mobile Application**

F. N. Werfel, U. Floegel- Delor, T. Riedel, D. Wippich, B. Goebel, R. Rothfeld, P. Schirrmeister

Adelwitz Technologiezentrum GmbH (ATZ), Arzberg - Adelwitz, Germany

4-LB-O11 17:30 – 17:45 (A402)

**Development of flywheel energy storage systems for on-land applications**

K.L.Kovalev, V.N.Poltavets, D.S.Dezhin, R.I.Ilyasov, L.K.Kovalev, K.A.Modestov

Moscow Aviation Institute (State Technical University), Moscow, Russia

4-LB-O12 17:45 – 18:00 (A63)

**Application of High-Field Superconducting Magnet to Protein Crystallization**

Hitoshi Wada<sup>1</sup>, Noriyuki Hirota<sup>1</sup>, Motosuke Kiyohara<sup>2</sup>, Masaru Tanokura<sup>3</sup>, Akiko Kita<sup>4</sup>, and Ei-ichiro Suzuki<sup>5</sup>

<sup>1</sup>National Institute for Materials Science, Sengen, Tsukuba, 305-0047 Japan, <sup>2</sup>Kiyohara Optics Inc., Shinjuku, Tokyo, 160-0022 Japan, <sup>3</sup>Dept. Applied Biological Chemistry, University of Tokyo, Yayoi, Tokyo, 113-8657 Japan, <sup>4</sup>Research Reactor Institute, Kyoto University, Asashironishi, Sennan, 590-0494 Japan, <sup>5</sup>Institute for Innovation, Ajinomoto Co., Inc., Suzuki-cho, Kawasaki, 210-8681 Japan

## Oral Session Wires & Tapes (Everest 1+2)

### “Processing HTS”

Chairperson: Macmanus, Driscoll

4-WT-O1 11:00 – 11:15 (A1114)

#### **New Material Requirements for Superconductor Grid Technology**

A. P. Malozemoff,

*American Superconductor, 64 Jackson Rd., Devens MA 01434 USA*

4-WT-O2 11:15 – 11:30 (A229)

#### **Quality assurance inspection of 2G-wires grown by a dual chamber-growth evaporation method: a combined study with laser-induced thermal effects and Raman scattering imaging**

G. Kim<sup>a</sup>, W. Jo<sup>a</sup>, D. Y. Park<sup>b</sup>, H. Cheong<sup>b</sup>, H. S. Ha<sup>c</sup>, S.-S. Oh<sup>c</sup>, and T. Kiss<sup>d</sup>

<sup>a</sup> Department of Physics, Ewha Womans University, Seoul, 120-750, Korea, <sup>b</sup> Department of Physics, Sogang University, Seoul, 121-742, Korea, <sup>c</sup> The Korea Electrotechnology Research Institute (KERI), Changwon, 641-120, Korea, <sup>d</sup> Department of Electrical Engineering, Kyushu University, Fukuoka, 819-0395, Japan.

4-WT-O3 11:30 – 11:45 (A444)

#### **Development of non-magnetic biaxially textured tape and MOCVD processes for coated conductor fabrication**

A.R.Kaul, S.V.Samoilenkov, V.A.Amelichev, A.V.Blednov, S.A.Ibragimov, A.A.Kamenev, A.S.Mankevich, A.V.Markelov, A.I.Kuchaev, A.P.Vavilov

*SuperOx, Ilyinskoe shosse, 9, Arkhangelskoe, 143420 Moscow region, Russia*

4-WT-O4 11:45 – 12:00 (A802)

#### **Novel inkjet printing methodologies for YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> film growth and patterning**

M.Vilardell<sup>1</sup>, S.Ricart<sup>1</sup>, X.Granados<sup>1</sup>, T.Puig<sup>1</sup>, X.Obradors<sup>1</sup>, M.Bäcker<sup>2</sup>, S.C.Hopkins<sup>3</sup>, B.A.Glowacki<sup>3,4</sup>, J.Feys<sup>5</sup>, I.Van Driessche<sup>5</sup>

<sup>1</sup>Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain; <sup>2</sup>Zenergy Power GmbH, Rheinbach, Germany; <sup>3</sup>Department of Materials Science and Metallurgy, University of Cambridge, UK, <sup>4</sup>Institute of Power Engineering, Warsaw, Poland, <sup>5</sup>Ghent University, SCRiPTS, Belgium

4-WT-O5 12:00 – 12:15 (A952)

**YBCO superconductor wire based on IBAD-textured templates:  
Design, performance and cost possibilities**

Vladimir Matias<sup>1</sup> and Robert H. Hammond<sup>2</sup>

<sup>1</sup>*Superconductivity Technology Center, Los Alamos National Laboratory, USA*

<sup>2</sup>*Geballe Laboratory for Advanced Materials, Stanford University, USA*

4-WT-O6 12:15 – 12:30 (A646)

**Solution design for CSD-MOD route to nanostructured YBCO thin film superconductors**

S.Ricart<sup>1</sup>, X.Palmer<sup>1</sup>, E.Solano<sup>1,2</sup>, M. Nasui<sup>3</sup>, L. Ciontea<sup>3</sup>, J.Ros<sup>2</sup>, R. Yañez<sup>2</sup>, P.Roura<sup>4</sup>, J.Farjas<sup>4</sup>, A.Palau<sup>1</sup>, R.Guzman<sup>1</sup>, J. Albiol<sup>1</sup>, X.Obradors<sup>1</sup>, T.Puig<sup>1</sup>

<sup>1</sup>*Institut de Ciència de Materials de Barcelona (CSIC), Campus UAB, 08193 Cerdanyola, Spain,* <sup>2</sup>*Departament de Química, Universitat Autònoma de Barcelona, Campus UAB, Cerdanyola, Spain,* <sup>3</sup>*University of Cluj-Napoca, 15, Cluj-Napoca, Romania,* <sup>4</sup>*Departament de Física, Universitat de Girona, Girona, Spain.*

4-WT-O7 12:30 – 12:45 (A163)

**Growth behavior of DyBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> thin films deposited by inclined substrate deposition for coated conductors**

Z. Aabdin<sup>1</sup>, M. Durrschnabel<sup>1</sup>, M. Bauer<sup>2</sup>, R. Semerad<sup>2</sup>, W. Prusseit<sup>2</sup> and O. Eibl<sup>1</sup>

<sup>1</sup>*Institute of Applied Physics, Auf der Morgenstelle 10, D-72076 Tübingen, Germany,* <sup>2</sup>*THEVA Dünnschichttechnik GmbH, Rote-Kreuz-Str. 8, D-85737 Ismaning, Germany*

4-WT-O8 12:45 – 13:00 (A389)

**Inkjet printing, pyrolysis and crystallisation of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> layers for fully chemical solution deposited YBCO coated conductors**

M. Mosiadz<sup>1</sup>, K. L. Juda<sup>1,2</sup>, K. Vandaele<sup>1,3</sup>, S. C. Hopkins<sup>1</sup>, A. Patel<sup>1</sup>, B. A. Glowacki<sup>1,4</sup>, I. Van Driessche<sup>3</sup>, J. Soloduch<sup>2</sup>, M. Falter<sup>5</sup>, M. Baecker<sup>5</sup>

<sup>1</sup>*Dept of Materials Science and Metallurgy, University of Cambridge, UK,* <sup>2</sup>*Dept of Chemistry, Wrocław University of Technology, Poland,* <sup>3</sup>*Dept of Inorganic and Physical Chemistry, Ghent University, Belgium,* <sup>4</sup>*Institute of Power Engineering, Warsaw, Poland,* <sup>5</sup>*Zenergy Power GmbH, Rheinbach, Germany*

13:00 – 14:00 Lunch Break

14:00 – 16:00 Poster Session

### “Pinning and Characterization”

Chairperson: Civale

4-WT-I1 (Invited) 16:00 – 16:30 (A955)

#### **Novel vortex pinning mechanism of solution-derived YBCO nano-composites driven by local lattice strains**

T. Puig<sup>1</sup>, X. Obradors<sup>1</sup>, A. Palau<sup>1</sup>, A. Llordés<sup>1</sup>, R. Vlad<sup>1</sup>, M. Coll<sup>1</sup>, J. Arbiol<sup>1</sup>, J. Gazquez<sup>1</sup>, R. Guzmán<sup>1</sup>, A. Pomar<sup>1</sup>, P. Abellan<sup>1</sup>, F. Sandiumenge<sup>1</sup>, S. Ricart<sup>1</sup>, V. Rouco<sup>1</sup>, F. Martínez<sup>1</sup>, S. Ye<sup>1</sup>, D. Chataigner<sup>2</sup>, M. Varela<sup>3</sup>, G. Deutscher<sup>4</sup>, J. Vanacken<sup>5</sup>, J. Gutierrez<sup>5</sup>, V. V. Moshchalkov<sup>5</sup>

<sup>1</sup> Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Campus UAB, 08193 Bellaterra, Spain, <sup>2</sup> Laboratoire de Cristallographie et Sciences des Matériaux, CRISMAT, 6 boulevard Maréchal Juin, 4050 Caen Cedex 4, France, <sup>3</sup> Condensed Matter Sciences Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831, USA, <sup>4</sup> School of Physics and Astronomy, Tel Aviv University, Tel Aviv 69978, Israel, <sup>5</sup> INPAC-Institute for Nanoscale Physics and Chemistry, Pulsed Field Group, K.U.Leuven, Celestijnenlaan 200 D, B-3001 Leuven, Belgium

4-WT-O9 16:30 – 16:45 (A983)

#### **Very high magnetic field, low temperature properties of recent IBAD-MOCVD coated conductors relevant to magnet construction**

V Braccini<sup>1</sup>, A Xu<sup>1</sup>, J Jaroszynski<sup>1</sup>, D. Abraimov<sup>1</sup>, Y Xin<sup>1</sup>, D C Larba-lestier<sup>1</sup>, Y Chen<sup>2</sup>, G Carota<sup>2</sup>, J Dackow<sup>2</sup>, I Kesgin<sup>3</sup>, Y Yao<sup>3</sup>, A Guevara<sup>3</sup>, T Shi<sup>3</sup> and V Selvamanickam<sup>3</sup>

<sup>1</sup> National High Magnetic Field Laboratory, 2031 E. Paul Dirac Dr., Tallahassee, FL 32310, <sup>2</sup> SuperPower Inc., 450 Duane Ave., Schenectady, NY 12304, <sup>3</sup> Department of Mechanical Engineering and the Texas Center for Superconductivity at the University of Houston, 4800 Calhoun Rd, Houston, TX 77204

4-WT-O10 16:45 – 17:00 (A1127)

#### **TFA-MOD derived BaHfO<sub>3</sub> nano-composites in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> thin films: nanostructure and spatial distribution**

L. Molina<sup>1</sup>, M. Erbe<sup>2</sup>, E. Biermans<sup>1</sup>, H. Tan<sup>1</sup>, S. Bals<sup>1</sup>, J. Verbeeck<sup>1</sup>, T. Freudenberg<sup>2</sup>, B. Holzapfel<sup>2</sup>, G. Van Tendeloo<sup>1</sup>

<sup>1</sup> EMAT, University of Antwerp Groenenborgerlaan 171, BE-2020 Antwerp, Belgium, <sup>2</sup> Leibniz Institute for Solid State and Materials Research Dresden, Helmholtzstrasse 20, D-01069 Dresden, Germany

4-WT-O11                    17:00 – 17:15            (A883)

**The challenging microstructure of trifluoroacetate-YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> nanocomposites**

Jaume Gazquez<sup>1</sup>, Jordi Arbiol<sup>1</sup>, Roger Guzman<sup>1</sup>, Maria Varela<sup>2</sup>, Roxana Vlad<sup>1</sup>, Anna Llordes<sup>1</sup>, Susagna Ricart<sup>1</sup>, Teresa Puig<sup>1</sup>, Xavier Obradors<sup>1</sup>

<sup>1</sup>*Institut de Ciència de Materials de Barcelona, CSIC, Campus de la UAB, 08193 Bellaterra, Spain,* <sup>2</sup>*Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN 37831, USA*

4-WT-O12                    17:15 – 17:30            (A49)

**Three-dimensional nanoscale characterization of various pinning centers in GdBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub>-type superconductors**

K. Kaneko (1)\*, T. Nishiyama (1), K. Yamada (1), T. Kato (2), T. Matsu-shita (3), Y. Yamada (4), T. Izumi (4) and Y. Shiohara (4)

*(1) Dept. of Materials Science and Engineering, Kyushu University, Fukuoka, Japan, (2) Japan Fine Ceramics Center, 2-4-1 Mutsuno, Atsuta, Nagoya, Japan, (3) Dept. of Computer Science and Electronics, Kyushu Institute of Tech., Fukuoka, Japan, (4) SRL, Div. of Superconducting Tapes and Wires, ISTEK, Koto, Tokyo, Japan*

4-WT-O13                    17:30 – 17:45            (A1082)

**Spatial homogeneity in YBCO coated conductors deposited on clad-type textured substrate**

Arkadiy Matsekh<sup>1</sup>, Takanobu Kiss<sup>1</sup>, Masayoshi Inoue<sup>1</sup>, Yoshihiro Honda<sup>2</sup>, Kazuya Ohmatsu<sup>2</sup>

<sup>1</sup>*Department of Electrical Engineering, Kyushu University, Fukuoka 819-0395, Japan,* <sup>2</sup>*Sumitomo Electric Industries, Ltd., Osaka, 554-0024 Japan*

4-WT-O14                    17:45 – 18:00            (A765)

**Novel solution-derived YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>-Ba<sub>2</sub>YTaO<sub>6</sub> nanocomposites for enhanced flux pinning in coated conductors**

M. Coll, S. Ye, V. Rouco, R. Guzman, J. Gazquez, A. Palau, J. Arbiol, X. Obradors, T. Puig

*Institut de Ciència de Materials de Barcelona, ICMAB-CSIC, Campus UAB, 08193 Bellaterra, Spain*

## Poster Session Thursday, September 22

14:00 – 16:00

### Electronics: Devices and Fabrication III

Chairperson: Gunnarson, Yang

4-EA-P1 (A483)

#### Radio-frequency Shot Noise Measurement at Low Temperature in an Al-AIO<sub>x</sub>-Al Tunnel Junction for Noise Thermometry.

Yonuk Chong<sup>1,\*</sup>, Jung Hwan Park<sup>1,2</sup>, Mushtaq Rehman<sup>1,3</sup>, Woon Song<sup>1</sup>, Jung Suk Choi<sup>1</sup>, Dong-Gwang Ha<sup>1</sup>, Zheong G. Khim<sup>2</sup>, Sang-Wan Ryu<sup>3</sup>

<sup>1</sup>Korea Research Institute of Standards and Science, Daejeon 305-340, Korea, <sup>2</sup>Department of Physics and Astronomy, Seoul National University, Seoul 151-742, Korea, <sup>3</sup>Department of Physics, Chonnam National University, Gwangju 500-757, Korea

4-EA-P2 (A785)

#### Shapiro step response of intrinsic Josephson junctions of (Bi<sub>1-x</sub>Pb<sub>x</sub>)<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>y</sub> at elevated temperatures

G Oya, T Miyasaka, M Kitamura and A Irie

*Department of Electrical and Electronic Systems Engineering, Utsunomiya University, Utsunomiya, 321-8585, Japan*

4-EA-P3 (A972)

#### NbSi Nanowires for a Current Standard based on Quantum Phase Slip

C.H. Webster<sup>1</sup>, J.C. Fenton<sup>1,2</sup>, N.G.N. Constantino<sup>2</sup> and P.A. Warburton<sup>2</sup>

<sup>1</sup>National Physical Laboratory, Hampton Road, Teddington, TW11 0LW, United Kingdom, <sup>2</sup>London Centre for Nanotechnology, University College London, 17-19 Gordon Street, London, WC1H 0AH, United Kingdom

4-EA-P4 (A1116)

#### Phase Fluctuations in Anisotropic Superconductors

Grzegorz Litak

*Department of Mechanics, Technical University of Lublin, Poland*

Day 4

Posters - Thursday, September 22

4-EA-P5 (A774)

**Series arrays of SNS Josephson junctions for AC voltage standards**

Johannes Kohlmann, Oliver Kieler, Detlef Schleußner, Thomas Scheller, Luis Palafox, Ralf Behr

*Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, 38116 Braunschweig, Germany*

4-EA-P6 (A856)

**FLUXONICS Foundry RSFQ technology update**

Juergen Kunert<sup>1,4</sup>, Ludwig Fritzsche<sup>1,4</sup>, Olaf Wetzstein<sup>1,4</sup>, Hannes Toepfer<sup>2,4</sup>, Thomas Ortlepp<sup>3,4</sup>, Hans-Georg Meyer<sup>1,4</sup>

<sup>1</sup>*Dep. Quantum Detection, Inst. of Photonic Technology, Jena, Germany,* <sup>2</sup>*Dep. Advanced Electromagnetics, Ilmenau Univ. of Technology, Germany,* <sup>3</sup>*Dep. Electrical Engineering and Computer Science, Univ. of California at Berkeley, USA,* <sup>4</sup>*FLUXONICS-Foundry, www.fluxonics-foundry.de*

4-EA-P7 (A929)

**Tunnel barriers in annealed aluminum-aluminum oxide-aluminum tunnel junctions**

J. Talvacchio and N. S. McCoy

*Northrop Grumman Electronic Systems, Baltimore, Maryland, USA*

4-EA-P8 (A1071)

**A clear increase in SQUID inductance using Fe<sub>3</sub>O<sub>4</sub> nanoparticles**

T. Okumura, S. Yano, H. Akaike and A. Fujimaki

*Department of Quantum Engineering, Nagoya University, Nagoya, Japan*

4-EA-P9 (A700)

**YBCO grain boundary Josephson junctions at the nanoscale**

D. Gustafsson, B. Iandolo, T. Bauch and F. Lombardi

*Department of Microtechnology and Nanoscience, Chalmers University of Technology, S-412 96 Göteborg, Sweden*

4-EA-P10 (A1139)

**GENERALIZED HUBBARD MODEL APPLIED TO THE SUPERCONDUCTING SPINTRONICS**

J. Samuel Millán<sup>1</sup>, Mohamed Abatal<sup>1</sup>, Luis A. Pérez<sup>2</sup>, and Chumin Wang<sup>3</sup>

<sup>1</sup>*Facultad de Ingeniería, Universidad Autónoma del Carmen, Cd. del Carmen, 24180, Campeche, México.,* <sup>2</sup>*Instituto de Física, Universidad Nacional Autónoma de México (UNAM), A.P. 20-364, 01000, D.F., México.* <sup>3</sup>*Instituto de Investigaciones en Materiales, UNAM, A.P. 70-360, 04510, D.F., México.*

4-EA-P11 (A203)

**The Super M conductivity: The vanishing magneto resistance of polyacetylene nanofibers**

Ajeong Choi, Kyung Ho Kim, Sung Joo Hong, and Yung Woo Park

*Department of Physics and Astronomy Seoul National University, Seoul, 151-747, Korea*

## Electronics: Circuits and Systems III

Chairperson: Filipov

4-EA-P12 (A420)

**Zero static power dissipation TDC/ADC for detector readout**

Alex F. Kirichenko and Saad Sarwana

*HYPRES, Inc., Elmsford, NY 10523, USA*

4-EA-P13 (A433)

**MAGIC Cells and Circuits**

Vasili K. Semenov

*Stony Brook University, Department of Physics and Astronomy, Stony Brook, NY 11794-3800, USA*

4-EA-P14 (A1064)

**Experimental Demonstration of an Operand Routing Network Prototype Employing Clock Control and Data Synchronization Scheme.**

Irina Kataeva<sup>1,4</sup>, Hiroyuki Akaike<sup>1,4</sup>, Akira Fujimaki<sup>1,4</sup>, Nobuyuki Yoshikawa<sup>2,4</sup>, Naofumi Takagi<sup>3,4</sup>

<sup>1</sup> Dept. of Quantum Electronics, Nagoya University, <sup>2</sup> Dept. of Electrical and Computer Engineering, Yokohama National University, <sup>3</sup> Graduate School of Informatics, Kyoto University, <sup>4</sup> CREST-JST

4-EA-P15 (A209)

**A Low-Power High-Speed Josephson Junction to CMOS Level Translator**

Stephen R. Whiteley, Hoki Kim, Thomas Ortlepp, Daniel Wei, Lizhen Zheng, and Theodore Van Duzer

*Department of Electrical Engineering and Computer Sciences, University of California, Berkeley USA*

4-EA-P16 (A688)

**Access Time Measurement of Josephson-CMOS Hybrid Memory Systems with an SFQ Bit-Serial Data-Input Port**

H. Jin<sup>1</sup>, K. Yaguchi<sup>1</sup>, Y. Yamanashi<sup>1</sup>, N. Yoshikawa<sup>1</sup> and T. V. Duzer<sup>2</sup>

<sup>1</sup>*Yokohama National University*, <sup>2</sup>*University of California, Berkeley*.

4-EA-P17 (A1118)

**Signal Processing for a Neutron Diffractometer Prototype with 16 Nanowire Detectors**

S. Miyajima, T. Kusumoto, H. Matsuoka, and Akira Fujimaki

*Nagoya University*

4-EA-P18 (A1123)

**Superconductive current comparator system with sub-microampere resolution**

Yuki Yamanashi<sup>1</sup>, Thomas Ortlepp<sup>2</sup>

<sup>1</sup>*Interdisciplinary Research Center, Yokohama National University*,

<sup>2</sup>*Department of Electrical Engineering and Computer Sciences, University of California, Berkeley*

4-EA-P19 (A997)

**Study of YBCO strip-line inductances connected to nano-Josephson junctions**

Th. Wolf<sup>1</sup>, N. Bergeal<sup>1</sup>, J. Lesueur<sup>1</sup>, C.J. Fourie<sup>2</sup>, G. Faini<sup>3</sup>, C. Ulysse<sup>3</sup> and P. Febvre<sup>4</sup>

<sup>1</sup>*LPEM UMR8213 – ESPCI-CNRS-UPMC Paris – France*, <sup>2</sup>*Department of Electrical and Electronic Engineering – Stellenbosch University – South Africa*,

<sup>3</sup>*LPN CNRS UPR20 – Marcoussis – France*, <sup>4</sup>*IMEP-LAHC CNRS UMR5130 – University of Savoie – France*

4-EA-P20 (A675)

**Investigation of the relationship between the gray zone and the clock frequency of a Josephson comparator**

T Haddad<sup>1</sup>, O Wetzstein<sup>2</sup>, S Engert<sup>1</sup>, H Toepfer<sup>1</sup> and T Ortlepp<sup>3</sup>

<sup>1</sup>*Ilmenau University of Technology, Germany*, <sup>2</sup>*Institute of Photonic Technology, Jena, Germany*, <sup>3</sup>*University of California Berkeley, USA*

## Electronics: Quantum Information Processing II

Chairperson: Shumeiko

4-EA-P21 (A243)

### Developing superconducting flux qubit by using epitaxial NbN/AlN/NbN junctions

Wei Qiu, Hirotaka Terai, Zhen Wang

*Kobe Advanced ICT Research Center, National Institute of Information and Communications Technology, Iwaoka-cho, Nishi-ku, Kobe 651-2492 Japan*

4-EA-P22 (A426)

### Informational approach application to Josephson quantum systems

N. V. Klenov, A. V. Sharafiev, S. V. Bakursky, V. K. Kornev

*Physics Department, Moscow State University, Moscow 119991, Russia*

4-EA-P23 (A819)

### Nonlinear effects in a driven flux qubit – oscillator system

Gregor Oelsner<sup>1</sup>, Pascal Macha<sup>1</sup>, Oleg Astafiev<sup>2</sup>, Evgeni Il'ichev<sup>1</sup> and H.G. Meyer<sup>1</sup>

*<sup>1</sup>Institute of Photonic Technology, P.O. Box 100239, D-07702 Jena, Germany, <sup>2</sup>NEC Nano Electronics Research Laboratories, Tsukuba, Ibaraki, 305-8501, Japan*

4-EA-P24 (A1177)

### Elimination of Crosstalk for Phase Qubits

Ahmad Sadeghi, Sina Khorasani, Hesam Zandi

*School of electrical engineering, Sharif University of Technology, P. O. Box 11365-9363, Tehran, Iran*

## Electronics: System Integration and Applications II

Chairperson: Spoor

4-EA-P25 (A1107)

**Cancelled**

4-EA-P26 (A1106)

**Implementation of a 4.2 K pulse tube cryocooler system for superconducting integrated circuit measurements with PC based electronics**

Ali Bozbey<sup>1</sup>, Celal Alp Tunc<sup>2</sup>, Shigeyuki Miyajima<sup>3</sup>, Akira Fujimaki<sup>3</sup>

<sup>1</sup>*Department of Electrical and Electronics Eng., TOBB Economy and Technology University, 06560, Ankara, Turkey,* <sup>2</sup>*Ankara Research and Technology Laboratory, ARTLAB Ltd, Ankara, Turkey,* <sup>3</sup>*Department of Quantum Engineering, Nagoya University, Nagoya 464-8603, Japan*

4-EA-P27 (A692)

**Development of energy-efficient digital data cables based on HTS films**

Alexey V. Pan<sup>1</sup>, Sergey Fedoseev<sup>1</sup>, Olga V. Shcherbakova<sup>1</sup>, Shi X. Dou<sup>1</sup>, Robert Webber<sup>2</sup>, Oleg A. Mukhanov<sup>2</sup>

<sup>1</sup>*Institute for Superconducting and Electronic Materials, University of Wollongong, Wollongong, NSW 2522, Australia,* <sup>2</sup>*HYPRES, 175 Clearbrook Road, Elmsford, NY 10523, USA*

## **Electronics: SQUIDS II**

Chairperson: Hassel, Krause

4-EA-P28 (A91)

**Investigation of current noise in underdamped Josephson devices by switching current measurements**

C Granata<sup>1</sup>, R. Russo<sup>1</sup>, A Vettoliere<sup>1\*</sup>, L. Longobardi<sup>°</sup>, P. Silvestrini<sup>°</sup>, M. Russo<sup>1</sup> and B. Ruggiero<sup>1</sup>

<sup>1</sup>*Istituto di Cibernetica "E. Caianiello" del CNR, Pozzuoli (Napoli), Italy,* <sup>\*</sup>*Università degli studi di Napoli "Federico II", Italy,* <sup>°</sup>*Seconda Università degli studi di Napoli, Italy*

4-EA-P29 (A171)

**Characteristics of High-Tc SQUID with variable nano-thickness bridges**

Chiu-Hsien Wu<sup>1,2\*</sup>, Fong-Jyun Jhan<sup>1</sup>, Jau-Han Chen<sup>3</sup>, Jen-Tzong Jeng<sup>4</sup> and H. C. Yang<sup>5</sup>

<sup>1</sup>*Institute of nanoscience, National Chung Hsing University, Taichung 402, Taiwan,* <sup>2</sup>*Department of Physics, National Chung Hsing University, Taichung 402, Taiwan,* <sup>3</sup>*Department of Electrical Engineering, Da-Yeh University, Changhwa 515, Taiwan,* <sup>4</sup>*Department of Mechanical Engineering, National Kaohsiung University of Applied Sciences, Kaohsiung 807, Taiwan,* <sup>5</sup>*Department of Physics, National Taiwan University, Taichung 116, Taiwan*

4-EA-P30 (A820)

**Double rf-SQUIDs operating in a non-adiabatic regime: a dream comes true?**

Boris Chesca

*Department of Physics, Loughborough University, LE11 3TU, United Kingdom*

4-EA-P31 (A530)

**Niobium dc SQUIDs with nanobridge junctions**

E. E. Mitchell and S. K. H. Lam

*CSIRO Materials Science and Engineering, 2070, Australia*

4-EA-P32 (A978)

**Fabrication and Characterization of Nanoscale YBCO Bicrystal DC SQUIDs Patterned by Electron Beam Lithography**

F Kitaplı<sup>1</sup>, A Kilic<sup>2,3</sup>, B Cui<sup>3</sup>, M Yavuz<sup>1,3</sup>

<sup>1</sup> *Department of Mechanical Engineering, University of Waterloo, Ontario, Canada,* <sup>2</sup> *Department of Physics, Nigde University, Nigde, Turkey,* <sup>3</sup> *Department of Electrical and Computer Engineering, University of Waterloo, Ontario, Canada*

4-EA-P33 (A541)

**Cancelled**

4-EA-P34 (A266)

**Environmental magnetic field improved ULF-NMR Measurements in an unshielded environment using a Low-Tc SQUID**

Longqing Qiu<sup>1,3</sup>, Chao Liu<sup>1,2,3</sup>, Hui Dong<sup>1,3</sup>, Lu Xu<sup>1,3</sup>, Yi Zhang<sup>2,3</sup> Xiaoming Xie<sup>1,3</sup> and Mianheng Jiang<sup>1,3</sup>

<sup>1</sup>*Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences(CAS), Shanghai, China,* <sup>2</sup>*Peter Grünberg Institute(PGI-8), Forschungszentrum Jülich(FZJ), Jülich, Germany,* <sup>3</sup>*Joint Research Laboratory on Superconductivity & Bioelectronics, Collaboration between CAS-Shanghai & FZJ*

4-EA-P35 (A531)

**A compact and sensitive SQUID-detected nuclear magnetic resonance spectrometer in magnetically unshielded environment**

Hsin-Hsien Chen<sup>a</sup>, Hong-Chang Yang<sup>b,\*</sup>, Heng-er Horng<sup>a,\*</sup>, Shu-Hsien Liao<sup>b</sup>, Shieh Yueh Yang<sup>a,c</sup>, Kai-Wen Huang<sup>d</sup>, and L.M. Wang<sup>b</sup>

<sup>a</sup> *Institute of Electro-optical Science and Technology, National Taiwan Normal University, Taipei 11677, Taiwan*, <sup>b</sup> *Graduate Institute of Applied Physics/Department of Physics, National Taiwan University, Taipei 11677, Taiwan*, <sup>c</sup> *MagQu Co. Sindian City, Taipei County, 231, Taiwan 231, Taiwan*, <sup>d</sup> *Department of Surgery and Angiogenesis Center, National Taiwan University Hospital and National Taiwan University College of Medicine, 7 Chung-Shan South Rd., Taipei, 1002, Taiwan*

4-EA-P36 (A231)

**Signal integrity Evaluation for fetal magnetocardiography**

Shulin Zhang, Jia Zeng, Yangbo Liu, Yongliang Wang, Xiangyan Kong, Xiaoming Xie

*State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China, 200050*

4-EA-P37 (A215)

**Metabolism Study of Magnetic Nano-particles in animals**

H.E. Horng<sup>1</sup>, J. J. Chieh<sup>1</sup>, W. K. Tseng<sup>1</sup>, C. Y. Hong<sup>2</sup>, H.C. Yang<sup>3</sup>, C.C. Wu

<sup>1</sup> *Institute of Electro-optical Science and Technology, National Taiwan Normal University*, <sup>2</sup> *Graduate Institute of Biomedical Engineering, National Chung Hsing University*, <sup>3</sup> *Department of Physics, National Taiwan University*, <sup>4</sup> *Departments of Internal Medicine and Primary Care Medicine, National Taiwan University*

4-EA-P38 (A397)

**Noninvasive Examination of Magnetic-labeled Tumors with Magnetic Nano-particles by Scanning SQUID Biosusceptometry**

J. J. Chieh<sup>1</sup>, S.Y. Yang<sup>1</sup>, H.E. Horng<sup>1</sup>, C. Y. Hong<sup>2</sup>, H.C. Yang<sup>3</sup>, K.W. Huang<sup>4</sup>, C.C. Wu<sup>5</sup>

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4-EA-P39 (A766)

**Experimental study of low frequency noise performance of nano-SQUIDs in external magnetic fields**

S. Roshko<sup>1</sup>, A. Blois<sup>1</sup>, L. Hao<sup>2</sup>, J.C. Gallop<sup>2</sup>, D. Cox<sup>2</sup> and E.J. Romans<sup>1</sup>

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4-EA-P40 (A469)

**STM-SQUID Probe Microscope for Cooled Samples**

Tadayuki Hayashi<sup>1,2,3</sup>, Norimichi Watanabe<sup>2</sup>, Minoru Tachiki<sup>2,3</sup>, Dong-feng He<sup>2,3</sup>, and Hideo Itozaki<sup>2,3</sup>

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4-EA-P41 (A579)

**Laser SQUID microscope for the evaluation of solar cell**

Yoshihiro Nakatani<sup>1</sup>, Tadayuki Hayashi<sup>2</sup> and Hideo Itozaki<sup>1</sup>

<sup>1</sup> Graduate School of Engineering Science, Osaka University, <sup>2</sup> Sendai National College of Technology

4-EA-P42 (A11)

**Performance of pickup coil made of Litz wire and coupled to HTS SQUID**

K. Enpuku<sup>1</sup>, R. Momotomi<sup>1</sup>, M. Matsuo<sup>1</sup>, T. Yoshida<sup>1</sup>, A. Kandori<sup>2</sup>, K. Tanabe<sup>3</sup>, S. Adachi<sup>3</sup>, and A. Tsukamoto<sup>3</sup>

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4-EA-P43 (A189)

**RF measurements of wideband VHF-UHF Amplifier based on bi-SQUID Arrays**

G. V. Prokopenko<sup>1</sup>, O. A. Mukhanov<sup>1</sup>, A. Leese de Escobar<sup>2</sup>

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4-EA-P44 (A1004)

### **Development of Compact DC Magnetic Susceptibility Meter using HTS-SQUID**

Kenji Sakai, Mawarudei Mohamado, Toshihiko Kiwa, Akira Tsukamoto, Seiji Adachi, Keiichi Tanabe, Akihiko Kandori, Keiji Tsukada<sup>1</sup>

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4-EA-P45 (A671)

### **Current sensitivity of the quantizer of a digital SQUID magnetometer**

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<sup>3</sup> *University of California at Berkeley, USA*

## **Electronics: Detectors and Readout Circuits III**

Chairperson: Semenov, Noguchi

4-EA-P46 (A409)

### **Single-Photon Detectors Based on Ultra-Narrow Superconducting Nanowires**

F. Marsili<sup>1</sup>, F. Najafi<sup>1</sup>, E. Dauler<sup>2</sup>, F. Bellei<sup>1</sup>, X. Hu<sup>1</sup>, R. Molnar<sup>2</sup>, K. K. Berggren<sup>1</sup>

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4-EA-P47 (A735)

### **Magnetic penetration depth in aluminum superconducting resonators**

P. Diener<sup>1</sup>, P. Rodiere<sup>2</sup>, S. J. C. Yates<sup>1</sup> and J. J. A. Baselmans<sup>1</sup>

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4-EA-P48 (A823)

**Single-flux quantum multiplexer for multi-pixel superconducting single-photon detector arrays**

M. Hofherr<sup>1</sup>, K. Ilin<sup>1</sup>, D. Rall<sup>1,6</sup>, O. Wetzstein<sup>2</sup>, L. Fritsch<sup>2</sup>, S. Engert<sup>3</sup>, Th. Ortlepp<sup>4</sup>, A. Semenov<sup>5</sup>, H.-W. Hübers<sup>5</sup>, H.-G. Meyer<sup>2</sup>, H. Toepfer<sup>3</sup> and M. Siegel<sup>1,6</sup>

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4-EA-P49 (A864)

**Position-dependent far-infrared detector based on heavy-ion irradiated YBCO films**

R. Gerbaldo<sup>1</sup>, G. Ghigo<sup>1</sup>, L. Gozzelino<sup>1</sup>, F. Laviano<sup>1</sup>, E. Mezzetti<sup>1</sup>, A. Rovelli<sup>2</sup>

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4-EA-P50 (A974)

**Thermal depinning of Abrikosov vortices in a Nb polycrystalline bulk absorber for gamma-ray superconducting detector**

M.P.Lisitskiy<sup>1,2</sup>, A.P.Volodin<sup>3</sup>, A. Bruno<sup>4,1</sup>, C. Van Haesendonck<sup>3</sup>

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4-EA-P51 (A1066)

**Quasiparticle number fluctuations in superconducting microwave resonators**

P.J. de Visser,<sup>1,2</sup> J.J.A. Baselmans,<sup>1</sup> P. Diener,<sup>1</sup> S.J.C. Yates,<sup>1</sup> A. Endo,<sup>2</sup> and T.M. Klapwijk<sup>2</sup>

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4-EA-P52 (A1103)

**Characterization of optical photon detectors by complex impedance measurements**

E. Monticone<sup>a</sup>, C. Portesi<sup>a</sup>, R. Rocci<sup>a</sup>, M. Rajteri<sup>a</sup>, E. Taralli<sup>a</sup>, L. Lolli<sup>a,b</sup>

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4-EA-P53 (A147)

**Ultra-thin TaN film nanowires for single-photon detection**

K. Il'in<sup>1</sup>, D. Rall<sup>1,4</sup>, M. Hofherr<sup>1</sup>, M. Siegel<sup>1,4</sup>, A. Semenov<sup>2</sup>, H.-W. Hübers<sup>2</sup>, A. Engel<sup>3</sup>, K. Inderbitzin<sup>3</sup>, A. Aeschbacher<sup>3</sup>, A. Schilling<sup>3</sup>

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4-EA-P54 (A588)

**Readout operation using single-flux-quantum circuit implemented with superconducting nanowire single-photon detector in a same refrigerator**

Hiroataka Terai, Shigehito Miki, Taro Yamashita, Kazumasa Makise and Zhen Wang

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4-EA-P55 (A836)

**Integrated superconducting nanowire single photon detector and amplifier**

S. Pagano<sup>1</sup>, A. Casaburi<sup>1,2</sup>, N. Martucciello<sup>1</sup>, R. Cristiano<sup>2</sup>, M. Ejrnaes<sup>2</sup>, R. Leoni<sup>3</sup>, A. Gaggero<sup>3</sup>, F. Mattioli<sup>3</sup>, J.C. Villegier<sup>4</sup>, and P. Cavalier<sup>4</sup>

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4-EA-P56 (A100)

**Development of LEKID multi-pixel arrays at 4.2 K**

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4-EA-P57 (A117)

**Fast superconducting detector for analysing jitter of THz synchrotron radiation pulses**

A. Pohl<sup>1</sup>, P. Probst<sup>2</sup>, A. Scheuring<sup>2</sup>, K. Il'in<sup>2</sup>, A. Semenov<sup>3</sup>, H.-W. Hübers<sup>1,3</sup>, M. Siegel<sup>2</sup>, A. Hoehl<sup>4</sup>, R. Müller<sup>4</sup>, G. Wüstefeld<sup>4</sup>, G. Ulm<sup>4</sup>

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4-EA-P58 (A249)

**Terahertz transmission through superconducting metamaterials and its possible device applications**

Jingbo Wu, Biaobing Jin, Yuhua Xue, Caihong Zhang, Hao Dai, Labao Zhang, Chunhai Cao, Jian Chen, Lin Kang, Weiwei Xu, and Peiheng Wu

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4-EA-P59 (A265)

Low Loss Superconducting Terahertz Metamaterial

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4-EA-P60 (A276)

**Broadband Tunnel Junction Bolometers for Passive THz-imaging at 4 K**

Andrey Timofeev, Leif Grönberg, Panu Helistö, Arttu Luukanen, Heikki Seppä, and J. Hassel

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4-EA-P61 (A425)

**High performance superconducting THz waveguide mixers on thin membrane substrates with beam lead contacts for radio astronomy**

P. Pütz, S. Andree, C.E. Honingh, K. Jacobs, M. Justen, S. Selig, M. Schultz, M.-P. Westig, S. Wulff, and J. Stutzki

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4-EA-P62 (A858)

**HTSc Josephson nanoJunctions made by ion irradiation for High Frequency operation**

J. Lesueur<sup>1</sup>, T. Wolf<sup>1</sup>, N. Bergeal<sup>1</sup>, M. Sirena<sup>1</sup>, G. Faini<sup>2</sup>, R. Bernard<sup>3</sup>, J. Briatico<sup>3</sup>, P. Febvre<sup>4</sup>

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4-EA-P63 (A538)

**Development of HTS step-edge Josephson junction detector array for THz imaging**

J. Du<sup>(1)</sup>, A. D. Hellicar<sup>(2)</sup>, K. E. Leslie<sup>(1)</sup>, S. M. Hanham<sup>(3)</sup>, N. Nikolic<sup>(2)</sup>, L. Li<sup>(2)</sup>, J. C. Macfarlane<sup>(1)</sup>, C. J. Lewis<sup>(1)</sup>, and C. P. Foley<sup>(1)</sup>

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4-EA-P64 (A875)

**SYNCHRONIZATION OF SELF-HEATED JOSEPHSON JUNCTIONS BY A SUPERCONDUCTING RESONATOR**

Alexander Grib<sup>1,2</sup> and Paul Seidel<sup>1</sup>

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## **Electronics: Microwave Divices and Applications II**

Chairperson: Kroug

4-EA-P65 (A21)

**Pico pulse response analysis of HTS microstrip line using two dimensional time dependent Ginzburg-Landau equation**

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4-EA-P66 (A182)

**Quasi Static Modeling of Weak Nonlinearity in Superconducting Transmission Lines with Sub-wavelength Non-Uniformity**

S. Mohammad Hassan Javadzadeh<sup>\*</sup>, Zahra Mardy Mamaghani<sup>\*</sup>, Fourohar Farzaneh<sup>\*</sup>, Khashayar Mehrany<sup>\*</sup>, and Mehdi Fardmanesh<sup>\*</sup>

<sup>\*</sup>*Department of Electrical Engineering, Sharif University of Technology, Tehran, Iran.*

4-EA-P67 (A227)

**A HTS balun on lanthanum aluminate substrate**

Xueqiang Zhang, Xiaofeng He, Bian yongbo, Wangjia, Wangxu, Sunliang, Guoqiang Li, Qiang Zhang, Chunguang Li, Hong Li, Yusheng He

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4-EA-P68 (A437)

**Reducing Transmitter Power of Mobile Terminals by Applying a High-Temperature Superconducting Filter to Mobile Base Station Receivers**

Kei Satoh<sup>†‡</sup>, Yuta Takagi<sup>†</sup>, Shoich Narahashi<sup>†</sup>, and Toshio Nojima<sup>‡</sup>

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4-EA-P69 (A65)

**Improvement of Power Handling Capability of Superconducting Microstrip Lines for Microwave Devices**

S. Ohshima, M. Endo, K. Takeda, K. Nakagawa, T. Honma, S. Sato, S. Takahashi, Y. Tanaka, A. Saito

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4-EA-P70 (A32)

**Secure communication application of Josephson Tetrode in THz region**

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4-EA-P71 (A218)

### **Study of quasi-voltage-biased SQUID Bootstrap Circuit (SBC)**

Hui Dong<sup>1,3</sup>, Yongliang Wang<sup>1,3</sup>, Guofeng Zhang<sup>1,2,3</sup>, Yi Zhang<sup>2,3</sup>, Xiaoming Xie<sup>1,3</sup>, Hans-Joachim Krause<sup>2,3</sup>, Anderas Offenhäusser<sup>2,3</sup>

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4-EA-P72 (A307)

### **Bias reversal technique in SQUID Bootstrap Circuit (SBC) scheme**

Liangliang Rong<sup>1,3</sup>, Guofeng Zhang<sup>1,2,3</sup>, Hui Dong<sup>1,3</sup>, Longqing Qiu<sup>2,3</sup>, Yi Zhang<sup>2,3</sup>, Xiaoming Xie<sup>1,3</sup>, Hans-Joachim Krause<sup>2,3</sup>, Andreas Offenhäusser<sup>2,3</sup>

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## **Electronics: Novel Devices and Applications II**

Chairperson: Hilgenkamp

4-EA-P73 (A1061)

### **The Quantum Current Mirror Based 10-time Current Multiplier**

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4-EA-P74 (A1159)

### **Design of an integrated cryogenic current comparator with an improved current sensitivity**

T. Yamada<sup>1</sup>, M. Maezawa<sup>1</sup>, M. Maruyama<sup>1</sup>, T. Oe<sup>1</sup>, C. Urano<sup>1</sup>, N. Kaneko<sup>1</sup>, M. Hidaka<sup>2</sup>, T. Satoh<sup>2</sup>, S. Nagasawa<sup>2</sup> and K. Hinode<sup>2</sup>

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4-EA-P75 (A761)

### **Coupling superconductors to topological insulators**

Menno Veldhorst<sup>1,\*</sup>, Marcel Hoek<sup>1</sup>, Marieke Snelder<sup>1</sup>, Xiaolin Wang<sup>2</sup>, Hans Hilgenkamp<sup>1,3</sup>, Alexander Brinkman<sup>1</sup>

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<sup>2</sup>*Institute for Superconducting and Electronic Materials, University of Wollongong, Wollongong, NSW, Australia*

<sup>3</sup>*Leiden Institute of Physics, Leiden University, 2300 RA Leiden, The Netherlands*

4-EA-P76 (A1077)

### **At the interface between p-type and n-type high- $T_c$ superconductors**

M. Hoek<sup>1</sup>, F. Coneri<sup>1</sup>, D.P. Leusink<sup>1</sup> and H. Hilgenkamp<sup>1,2</sup>

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4-EA-P77 (A1172)

### **Superconductivity in small and inhomogeneous superconductors**

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## **Materials: Critical Currents and Flux Pinning**

Chairperson: Iida, Senatore, Speller, Glowacki

4-MA-P1 (A340)

### **Current Transfer Mechanisms in Polycrystalline Forms of Bi-2212**

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4-MA-P2 (A770)

### **Critical current density in RE-123 thin films**

Alexey V. Pan, Igor Golovchanskii, Olga V. Shcherbakova, Sergey Fedoseev, and Shi X. Dou

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4-MA-P3 (A1050)

**Enhancement of critical current density,  $J_c$ , of  $MgB_2$  superconductors in magnetic field at 20K by co-doping of Al and C nano particles.**

M. Shahabuddin, Kismat Shaikh, and Nasser S. Alzayed

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4-MA-P4 (A790)

**Fe(Te,Se) melted samples with enhanced global transport critical current**

M. Tropeano<sup>1</sup>, A. Palenzona<sup>1</sup>, M.R. CIMBERLE<sup>2</sup>, M. Palombo<sup>1</sup>, C. FERDEGHINI<sup>1</sup>, A. Martinelli<sup>1</sup>, M. Putti<sup>1</sup>, A. Polyanskii<sup>3</sup>, J. Jiang<sup>2</sup>, F. Kametani<sup>2</sup>, E. Hellstrom<sup>2</sup>, D. Larbalestier<sup>2</sup>

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4-MA-P5 (A242)

**Enhancement of flux pinning in  $YBa_2Cu_3O_{7-\delta}$  + Ag nanocomposites**

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4-MA-P6 (A905)

**Vortex dynamics in a Corbino disk in the presence of a magnetic dipole**

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4-MA-P7 (A1137)

**Superconducting vortex state in a semicircular prism: Ginzburg-Landau model**

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4-MA-P8 (A797)

**Pinning enhancement at microwave frequencies in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}/\text{BaZrO}_3$  thin films deposited by PLD and MOD-CSD**

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4-MA-P9 (A366)

**FLUX PINNING PROPERTIES OF  $\text{REBa}_2\text{Cu}_3\text{O}_y$  FILMS FABRICATED BY A METAL-ORGANIC DEPOSITION USING MRTAL-NAPHTHENATES AND METAL-OCTHENATES**

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4-MA-P10 (A571)

**Vortex dynamics in iron-pnictide single crystals**

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4-MA-P11 (A723)

**Point Contact Based Method to Measure Critical Current Density of Superconductor Bulk**

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4-MA-P12 (A283)

**The effect of Pr-doping on grain-boundary critical current density  $J_c^{gb}$  in pulsed laser deposited  $\text{Y}_{1-x}\text{Pr}_x\text{BCO}$  thin films**

M. Irjala<sup>1,2</sup>, H. Huhtinen<sup>1</sup>, V. P. S. Awana<sup>3</sup>, M. Falter<sup>4</sup> and P. Paturi<sup>1</sup>

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4-MA-P13 (A1161)

**Enhanced flux pinning in MOD-YBCO films with combination of BaZrO<sub>3</sub> and Y<sub>2</sub>O<sub>3</sub> nanostructures**

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4-MA-P14 (A55)

**Properties of multilayers of Pr- and BaZrO<sub>3</sub>-doped YBCO thin films**

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4-MA-P15 (A771)

**Magnetic Pinning Induced by Proximity in YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub> /La<sub>0.67</sub>Sr<sub>0.33</sub>MnO<sub>3</sub> Heterostructure**

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4-MA-P16 (A511)

**Field and angular dependence of the critical current and the n-value for MgB<sub>2</sub> thin films**

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4-MA-P17 (A216)

**The effect of temperature on the vortex motion and the origins of noise in single crystal YBaCuO films near to temperature of transition**

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4-MA-P18 (A544)

**Critical Current Properties of c-axis oriented Bi(Pb)2223 Bulks Sintered under High Gas Pressures**

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4-MA-P19 (A68)

**Angular dependence of critical current of YBCO films including a-axis oriented grains**

M Suzuki<sup>1</sup>, K Kiguchi<sup>1</sup>, T Kashio<sup>1</sup>, M Abe<sup>1</sup> and T Kashiwakura<sup>2</sup>

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4-MA-P20 (A352)

**Evidence for a two steps vortex matter melting in an irradiated Bi-2212 single crystal**

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4-MA-P21 (A358)

**Experimental study on plasticity of current-driven vortex lattices interacting with disorder in  $Bi_2Sr_2Ca_1Cu_2O_{8+\delta}$  single crystals**

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4-MA-P22 (A476)

**Flux pinning properties of  $YBa_2Cu_3O_{7-\delta}$  thin films doped with magnetic alloy particles**

Young-Jae Lee<sup>1</sup>, Kyeong-Eun Ko<sup>1</sup>, Jaeun Yoo<sup>1</sup>, Kyeongdal Choi<sup>2</sup>, Chan Park<sup>1</sup>

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4-MA-P23 (A480)

**Enhancement of critical current density in  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  films incorporating magnetic nano particles**

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4-MA-P24 (A548)

**Correlations between critical current density profiles and microstructures in various coated conductors**

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4-MA-P25 (A753)

**Striation of metal-organic deposition coated conductors: limiting effects of grain boundaries**

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4-MA-P26 (A775)

**ENHANCED FLUX PINNING PROPERTIES DUE TO MAGNETIC INHOMOGENETIES IN  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}/\text{La}_{0.67}\text{Sr}_{0.33}\text{MnO}_3$  BILAYERS**

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4-MA-P27 (A880)

**Microstructural and superconducting properties of PLD YBCO films with  $\text{BaZrO}_3$ ,  $\text{BaTiO}_3$  and  $\text{BaGeO}_3$  artificial pinning sites**

V. Galluzzi<sup>1</sup>, F. Fabbri<sup>1</sup>, A. Augieri<sup>1</sup>, A. Rufoloni<sup>1</sup>, A. Mancini<sup>1</sup>, A. Angrisani Armenio<sup>1</sup>, G. Celentano<sup>1</sup>, E. Silva<sup>2</sup>, N. Pompeo<sup>2</sup>, A. Vannozzi<sup>1</sup>

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4-MA-P28 (A1037)

**Improvement of the intergranular pinning energy in the  $(\text{BiPb})_2\text{Sr}_2\text{Ca}_2\text{Cu}_3\text{O}_{10+\delta}$  superconductors doped with high valancy cations**

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4-MA-P29 (A1063)

**Engineering aspects of YBCO tapes used for coil design:  $I_c$  characterization and modeling; junction between pancakes under magnetic field study.**

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4-MA-P30 (A275)

**Flux jumping in external magnetic fields above the full penetration field**

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4-MA-P31 (A653)

**Nonequilibrium phenomena in electron and phonon subsystems of wide low-temperature superconducting films with phase slippage**

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4-MA-P32 (A963)

**Thermally assistant Flux avalanches**

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4-MA-P33 (A666)

**The influence of trapped magnetic flux orientation on the critical state stability and avalanche dynamics**

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4-MA-P34 (A889)

**Quasiparticle scattering time by flux-flow instability in superconducting NbN strips**

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4-MA-P35 (A52)

**Three-dimensional simulation of magnetic flux dynamics and temperature rise in HTSC bulk during pulsed field magnetization**

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4-MA-P36 (A72)

**Modelling flux pinning in columnar pinning sites in high kappa superconductors using an energy minimization approach**

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4-MA-P37 (A130)

**Condensation Energy Density Properties of Ba-122 Pnictide Superconductor with Columnar Defects Introduced by Heavy-Ion Irradiation**

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4-MA-P38 (A134)

**Flux Creep in Quasi-1D Superconducting Carbide Sc<sub>3</sub>CoC<sub>4</sub>**

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4-MA-P39 (A314)

**Structural phase transition in the mixed state of thin superconducting films in a parallel magnetic field**

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4-MA-P40 (A371)

**The dynamic aspects of individual massive vortex motion**

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4-MA-P41 (A500)

**Critical current densities and force-displacement characteristics of fluxoids in Ba<sub>1-x</sub>K<sub>x</sub>Fe<sub>2</sub>As<sub>2</sub> single crystals**

<sup>1,4</sup>Baorong Ni, <sup>1</sup>Jun Ge, <sup>2,4</sup>Masaru Kiuchi, <sup>2,4</sup>Edmund Soji Otabe, <sup>2</sup>Teruo Matsushita, <sup>3</sup>Chunlei Wang, <sup>3</sup>Dongliang Wang, <sup>3,4</sup>Yanwei Ma

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4-MA-P42 (A1170)

### **DETERMINATION OF THE PINNED VORTEX FRACTION IN TYPE II SUPERCONDUCTORS**

A.Hafid, M. Boudhira, A. Taoufik, M. Bghour, A. Bouaaddi, H. El hamidi, B.Elmouden, A.Tirbiyine, A.Ramzi, H.Elouaddi

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4-MA-P43 (A619)

### **Vortex Properties of $\text{FeTe}_{0.7}\text{Se}_{0.3}$ Superconductor**

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4-MA-P71 (A1179)

### **Model of reversible strain dependencies of critical current in YB-CO-based coated conductors and epitaxial PLD films**

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## **Materials: Stability**

Chairperson: Iida, Senatore, Speller, Glowacki

4-MB-P44 (A13)

### **Behavior of a Class of Superconductors near the Critical Temperature**

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4-MB-P45 (A332)

### **Recovery behavior of coated conductors near contact areas**

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## Materials: Pnictide Bulk

Chairperson: Iida, Senatore, Speller, Glowacki

4-MC-P46 (A987)

### Superconductivity in the ternary silicide $\text{Nb}_4\text{NiSi}$ with $\text{CuAl}_2$ -type structure

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4-MC-P47 (A456)

### Direct observation of local K variation and its correlation to electronic inhomogeneity in $(\text{Ba}_{1-x}\text{K}_x)\text{Fe}_2\text{As}_2$ Pnictide

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4-MC-P48 (A536)

### Anisotropy in upper critical field in superconducting single crystals of $\text{BaFe}_2\text{As}_2$ : temperature dependence and effect of chemical substitutions

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4-MC-P49 (A559)

### Hydride ion in 1111 type $\text{CaFeAsF}_{1-x}\text{H}_x$ : template of anion vacancy to induce superconductivity

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4-MC-P50 (A1042)

**As-vacancies, local moments and the Pauli limiting field in  $\text{LaO}_{0.9}\text{F}_{0.1}\text{FeAs}_{1.5}$  superconductors**

V. Grinenko<sup>1</sup>, K. Kikoin<sup>1,2</sup>, S.-L. Drechsler<sup>1</sup>, G Fuchs<sup>1</sup>, K. Nenkov<sup>1</sup>, B. Holzapfel<sup>1</sup>, F. Hammerath<sup>1</sup>, G. Lang<sup>1</sup>, H.-J. Grafe<sup>1</sup> and B. Büchner<sup>1</sup>

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4-MC-P51 (A610)

**Physical properties of layered pnictide oxide with thick perovskite-type blocking layers**

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4-MC-P52 (A1041)

**Coexistence of superconductivity and short range magnetic order in Ce-based pnictides**

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4-MC-P54 (A219)

**Effects on superconductivity of Ag doping in  $\text{FeSe}_{0.5}\text{Te}_{0.5}$**

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4-MC-P55 (A347)

**Microstructure and properties of FeSe superconductor**

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4-MC-P56 (A549)

**Synthesis of New Layered Iron Pnictide ( $\text{Fe}_2\text{P}_2$ )( $\text{Sr}_3\text{Sc}_2\text{O}_5$ ) by High-Pressure Synthesis Method**

Yasuaki Shimizu<sup>1,3</sup>, Hiraku Ogino<sup>1,3</sup>, Akiyasu Yamamoto<sup>1,3</sup>, Kohji Kishio<sup>1,3</sup>, Jun-ichi Shimoyama<sup>1,3</sup>, H. Eisaki<sup>2,3</sup>, A. Iyo<sup>2,3</sup>, H. Kito<sup>2,3</sup>

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4-MC-P57 (A550)

**New layered pnictide oxides with ( $M_2\text{Pn}_2$ )( $\text{AE}_4\text{M}'_3\text{O}_y$ ) structure and their physical properties**

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4-MC-P58 (A641)

**Inverse Iron Isotope effect in  $\text{FeSe}_{0.35}\text{Te}_{0.65}$**

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4-MC-P59 (A647)

**Fabrication of Dense Polycrystalline  $\text{K}_x\text{Fe}_{2-x/2}\text{Se}_2$  by High Temperature Melting Process**

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4-MC-P60 (A918)

**Influence of interstitial atoms doping on the FeSe superconductor.**

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4-MC-P61 (A78)

**Development of Iron Pnictide Superconducting Wires and Tapes**

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4-MC-P62 (A79)

**Superconducting properties and wire fabrication of 11- and 12-type Fe chalcogenides**

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4-MC-P63 (A1162)

**Multiband Features of Superconducting Properties in  $\text{BaFe}_2(\text{As}_{1-x}\text{Px})_2$**

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## Materials: Theory

Chairperson: Iida, Senatore, Speller, Glowacki

4-MD-P64 (A74)

**RTSC with in-plane Ginzburg sandwich in cuprate- and pnictide-like compounds**

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4-MD-P65 (A1163)

**Nonlocal electrodynamics effect on surface superconductivity**

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4-MD-P66 (A54)

**Investigation of the BCS gap equation for (d + i d) hole-doped cuprates**

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4-MD-P67 (A949)

**Charge fluctuations, the pairing, phase separation and pseudogap in high-temperature superconductors**

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4-MD-P68 (A1109)

**Method of the complex quantitative analysis of the electron transport phenomena in doped Y-based HTSC**

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4-MD-P69 (A120)

**The Electronic Structure of Crystalline and Amorphous Bismuth. Its relevance for the superconductivity of the amorphous phase**

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4-MD-P70 (A1174)

**Electron-Phonon Interactions and Superconductivity in the Negatively Charged Picene**

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**Large Scale: Fault Current Limiter**

Chairperson: Tixador, Grilly, Elschner, Granados, Schacherer

4-LA-P1 (A378)

**Design and Test Results of a 1MVA Resistive Type Fault Current Limiter**

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4-LA-P2 (A317)

**ENSYSTROB – a HTS fault current limiter based on coated conductors for a power plant auxiliary supply**

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4-LA-P3 (A730)

**Comparison of single and double 2G YBCO tapes for usage in resistive fault current limiters**

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4-LA-P4 (A270)

**Impact of Inhomogeneities in HTS Coated Conductors used as Resistive SFCLs in a Power Grid Experimenting Various Electrical Transients**

Daniele Colangelo<sup>1</sup>, Steeve Memiaghe<sup>2</sup>, Christian Lacroix<sup>3</sup>, Frédéric Sirois<sup>2</sup> and Bertrand Dutoit<sup>1</sup>

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4-LA-P5 (A287)

**Measurements of the YBCO/substrate thermal conductance in coated conductors**

L. Antognazza<sup>\*1</sup>, A. Badel<sup>1</sup>, M. Abplanalp<sup>2</sup>, C. Schacherer<sup>2</sup> and M. Decroux<sup>1</sup>

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4-LA-P6 (A414)

**The process of limiting the short circuit currents by inductive type of superconducting fault current limiters including the influence of changes in their impedance**

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4-LA-P7 (A294)

**Hybrid modelization of quench propagation in Coated Conductors**

A. Badel<sup>1\*</sup>, L. Antognazza<sup>1</sup>, M. Abplanalp<sup>2</sup>, C. Schacherer<sup>2</sup> and M. Decroux<sup>1</sup>

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4-LA-P8 (A36)

**Investigation of Current Distribution in Multi-Tape HTS Samples.**

M.S. Novikov, V.E. Keilin, V.V. Lobyntsev, S.I. Novikov, V.I. Shcherbakov

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4-LA-P9 (A992)

**An engineering theoretical model of free-stabilized, externally-shunted 2G superconducting tapes for SFCL applications**

Pilar Suárez, Alfredo Álvarez, José-María Ceballos, Belén Pérez and Fátima Méndez

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4-LA-P10 (A15)

**Study on Recovery Performance of High T<sub>c</sub> Superconducting Tapes for Resistive type Superconducting Fault Current Limiter Applications**

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4-LA-P11 (A519)

**Study on Resistance Increase Trends and Recovery Characteristics of Resistive Type SFCLs with Insulation Layer**

Ho Ik Du<sup>1</sup>, Byoung Sung Han<sup>2</sup>, Sang Seob Song<sup>3</sup>, Jong Su Lee<sup>3</sup>, Sang-Chul Han<sup>4</sup> and Jeong-Phil Lee<sup>4</sup>

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4-LA-P12 (A99)

**Study on introduction of SN transition type FCL into looped distribution system**

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4-LA-P14 (A338)

**2 Dimensional Temperature Distributions on YBCO Thin Film at S/N Transition Period**

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4-LA-P15 (A813)

**Short-Circuit Tests and Simulations with a SCFCL Modular Assembly**

W.T.B. de Sousa<sup>1,2</sup>, A. Polasek<sup>1</sup>, R. Dias<sup>1</sup>, F.A. Silva<sup>1</sup>, F.C. Lopes<sup>1</sup>, O. Orsino Filho<sup>1</sup> and R. de Andrade Jr.<sup>2</sup>

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4-LA-P16 (A991)

**Study of the core for a Resistive-Inductive SFCL**

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4-LA-P17 (A150)

**Modeling and Simulation of Inductive Fault Current Limiters**

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4-LA-P18 (A509)

**Observation of Transient behavior of Magnetic flux in Inductive-type Fault Current Limiter with YBCO Thin Film Disc**

Kosuke Higuchi, Masashi Yasuda, Yin Guan, Yasunobu Yokomizu and Toshiro Matsumura

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4-LA-P19 (A712)

**Novel 3-Phase Inductive Fault Current Limiter**

Janos Kosa

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4-LA-P20 (A14)

**Superconductors for Direct and Alternating Fault Current Limiters**

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4-LA-P21 (A330)

**Superconducting dc current limiting vacuum circuit breaker**

D.F. Alferov, M.R. Akhmetgareev, A.I. Budovskii, R.A. Bunin, P.N. Degtyarenko, L.M. Fisher, V.P. Ivanov, V.A. Sidorov, E.V. Tshai, I.F. Voloshin, D.V. Yevsin

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4-LA-P22 (A184)

**Comparative analysis of various superconducting and non-superconducting fault current limiting devices designed for operation in a 110 kV/100 MW power network**

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4-LA-P23 (A142)

**Analysis on the Novel Fusion Technology of a Commercial Transformer and SFCL**

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4-LA-P24 (A993)

**The HTS power cable technology: economical perspective, impact on Corporate Social Responsibility, necessary progressions**

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4-LA-P25 (A607)

**Dynamic model of an HTS cable for power grid simulation**

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4-LA-P26 (A1100)

**AC Loss Measurements on 2G Superconductor Rings in Axial and Radial Magnetic Fields**

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4-LA-P27 (A502)

**Current limiting and recovery characteristics under load of transformer type SFCL with rewind structure using BSCCO wire in a laboratory scale power system**

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## Large Scale: Cable Design

Chairperson: Tixador, Grilly, Elschner, Granados, Schacherer

4-LB-P28 (A1039)

### Low AC loss in a 3 kA single phase model of HTS cable for the Dutch project

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4-LB-P29 (A473)

### Experimental validation of the effectiveness of overlapping the tapes to reduce AC losses in HTS power transmission cables

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4-LB-P30 (A490)

### A discussion on current distribution in multilayer ac HTS cables – proximity effect

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4-LB-P31 (A577)

### Critical current distributions of BSCCO tapes in the multi-layer HTS conductors

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4-LB-P32 (A494)

**Current-feeding test of the 200-m superconducting DC transmission power cable test facility**

Makoto Hamabe<sup>1</sup>, Toshio Kawahara<sup>1</sup>, Hirofumi Watanabe<sup>1</sup>, Yury Ivanov<sup>1</sup>, Jian Sun<sup>1</sup>, Makoto Sugino<sup>2</sup>, Hidetaka Yamada<sup>2</sup>, Satarou Yamaguchi<sup>1,2</sup>

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4-LB-P33 (A475)

**Superconducting Fault Current Limiting Cable (SFCLC) with Current Limiting and Recovery Function**

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4-LB-P34 (A917)

**Design of a MW-class Superconducting Power Transmission Cable for Airborne Applications**

Timothy J. Haugan<sup>1</sup>, Joshua N. Reichart<sup>1</sup>, Mary A. Sebastian<sup>1</sup>, Jack L. Burke<sup>2</sup>, and Eric L. Brewster<sup>1</sup>

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4-LB-P35 (A747)

**A High  $T_c$  DC Superconducting Cable for Railways**

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4-LB-P36 (A133)

**Recent Progress in Electrical Insulation Techniques for HTS Power Apparatus**

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4-LB-P37 (A1049)

### **Electrical and Thermal Characteristics of Helium Gas Cooled 2G HTS Cables**

Jae-Ho Kim<sup>1</sup>, Chul Han Kim<sup>1</sup>, Danny Crook<sup>1</sup>, Sastry Pamidi<sup>1</sup>, and Steinar Dale<sup>1</sup>, David Knoll<sup>2</sup>, Jerry Tolbert<sup>2</sup>, Dag Willen<sup>2</sup>, Carsten Thidemann<sup>2</sup>, and Heidi Lentge<sup>2</sup>

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4-LB-P38 (A1038)

### **Low friction cryostat for HTS AC power cable of Amsterdam project**

Oleg Chevtchenko<sup>1</sup>, Roy Zuijderduin<sup>1</sup>, Johan Smit<sup>1</sup>, Dag Willén<sup>2</sup>, Heidi Lentge<sup>2</sup>, Carsten Thidemann<sup>2</sup>, Chresten Traeholt<sup>3</sup>

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4-LB-P39 (A290)

### **Recent progress of Liquid nitrogen cooling system (LINCS) for Yokohama HTS cable project**

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4-LB-P40 (A45)

### **Losses in Power Cables Made of 2G HTS Wires with Different Substrates**

V.S. Vysotsky, A.A. Nosov, S.S. Fetisov, V.V. Zubko, N.V. Polyakova  
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## **Large Scale: Magnetic Separation**

Chairperson: Tixador, Grilly, Elschner, Granados, Schacherer

4-LC-P41 (A521)

### **CHARACTERISTICS MAGNETIC ACTIVATED CARBON FOR WATER PURIFICATION USING SUPERCONDUCTING MAGNETIC SEPARATOR**

M. Yamguchi, O. Miura, H. Izawa

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4-LC-P42 (A522)

**Removal and Recycling of Phosphate from Waste Water with Zirconium Ferrite Adsorbent by Superconducting Magnetic Separation**

Katsuya Shimizu<sup>1</sup>, Koji Hosomi<sup>1</sup>, Osuke Miura<sup>1</sup>, Shinya Saito<sup>2</sup>

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4-LC-P43 (A651)

**Removal of iron oxides particles from condenser water in thermal power station by superconducting magnetic separation**

D.W. Ha<sup>a,\*</sup>, J.M. Kwon<sup>a</sup>, S. K. Baik<sup>a</sup>, Y. J. Lee<sup>a</sup>, K. S. Han<sup>b</sup>, R. K. Ko<sup>a</sup>, M. H. Sohn<sup>a</sup>

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## Large Scale: Miscellaneous

Chairperson: Tixador, Grilly, Elschner, Granados, Schacherer

4-LD-P44 (A19)

**Design parameters of a HTS flux pump**

C. Hoffmann<sup>1</sup>, D. Pooke<sup>2</sup>, E. Karrer-Müller<sup>1</sup>, R. Walsh<sup>1</sup>

<sup>1</sup> Industrial Research Ltd., Lower Hutt, New Zealand, <sup>2</sup> HTS-110 Ltd., Lower Hutt, New Zealand

4-LD-P45 (A315)

**Studies of breakdowns in liquid nitrogen at different pressures between Rogowski electrodes**

Michael Blaz, Michael Kurrat

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4-LD-P46 (A627)

**Electrical characterization of YBCO Roebel cables**

J.Fleiter, A.Ballarino, L.Bottura, P.Tixador

4-LD-P47 (A385)

**First electrical characterization of prototype 600 A multi-cable HTS link developed for application to accelerator technology**

A.Ballarino<sup>1</sup>, C.Beduz<sup>2</sup> and Y.Yang<sup>2</sup>

<sup>1</sup> CERN, <sup>2</sup> University of Southampton

4-LD-P48 (A386)

**Assembly and tests of coaxial HTS 6 kA range cables for use in superconducting links for powering accelerator magnets**

A.Ballarino, J.Fleiter, G.Willering, M.Sitko

CERN

4-LD-P49 (A1030)

**Superconducting basis of Hydrogen Economy**

P. Mikheenko

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## Large Scale: Cooling Systems

Chairperson: Tixador, Grilly, Elschner, Granados, Schacherer

4-LE-P50 (A778)

**A dual operational refrigerator/ flow cryostat with wide bore medium field magnet for application demonstration.**

E.A. Young, W.O.S. Bailey, M. K. Al-Mosawi, C. Beduz, Y. Yang, S. Chappell, A. Twin

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4-LE-P51 (A683)

**Solid Cryogen Technology as Applied to NMR and MRI Magnets**

Juan Bascañán, Seungyong Hahn, Dong Keun Park, and Yukikazu Iwasa

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4-LE-P52 (A1122)

**Main design principles of the cold beam pipe in the fast ramped superconducting accelerator magnets for the Heavy Ion Synchrotron SIS100**

A. Mierau, P. Schnizer, E. Fischer, J. Macavei, S. Wilfert, B. Schnizer, T. Weiland, R. Kurnishov, P. Shcherbakov

4-LE-P53 (A421)

**Thermal conductivity of solid hydrogen as the method of superconductivity study**

Zholonko N.N.

*Cherkasy National Bogdan Khmelnytsky University*

4-LE-P54 (A532)

**Forced convection heat transfer of liquid hydrogen through a 200-mm long heated tube**

H. Tatsumoto<sup>1</sup>, Y. Shirai<sup>2</sup>, M. Shiotsu<sup>2</sup>, K. Hata<sup>3</sup>, Y. Naruo<sup>4</sup>, H. Kobayashi<sup>4</sup>, Y. Inatani<sup>4</sup>, K. Kinoshita<sup>5</sup>.

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4-LE-P55 (A551)

**Operation Experience and Failure Analysis of SLRI Cryogenic System**

S. Srichan, V. Sooksrimuang, Ch. Thamtong, S. Srikhongmak, K. Takkrathoke, S. Rujirawat\*, and P. Songsiriritthigul\*

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*\*and School of Physics, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima, Thailand*

4-LE-P56 (A561)

**Cooling of the 200 m superconducting DC power transmission system at Chubu University**

Hirofumi Watanabe<sup>1</sup>, Yury Ivanov<sup>1</sup>, Jian Sun<sup>1</sup>, Makoto Hamabe<sup>1</sup>, Toshio Kawahara<sup>1</sup>, Satarou Yamaguchi<sup>1,2</sup>

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4-LE-P57 (A567)

**Design study of LN<sub>2</sub> circulation in a long SC power transmission lines**

Yury Ivanov<sup>1</sup>, Hirofumi Watanabe<sup>1</sup>, Makoto Hamabe<sup>1</sup>, Toshio Kawahara<sup>1</sup>, Jian Sun<sup>1</sup>, Satarou Yamaguchi<sup>1,2</sup>

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*2 Department of Electric Engineering, Chubu University, Kasugai, Aichi, 487-8501, Japan*

4-LE-P58 (A734)

**The Effect of Cooling Methods on the Performance of Solid Nitrogen Thermal Batteries**

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4-LE-P59 (A967)

**Over Current Properties of HTC Superconducting wire Cooled by Liquid Hydrogen**

Yasuyuki Shirai\*, Hiroto Kobayashi\*, Taiki Takegami\*, Kyosuke Hikawa\*, Masahiro Shiotsu\*, Hideki Tatsumoto\*\*, Yoshihiro Naruo\*\*\*, Hirooaki Kobayashi\*\*\* and Yoshifumi Inagaki\*\*\*

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4-LE-P60 (A1020)

**Equation of DNB heat flux for upward forced flow of cryogenic liquids**

M. Shiotsu<sup>1</sup>, H. Tatsumoto<sup>2</sup>, Y. Shirai<sup>1</sup>, K. Hata<sup>3</sup>, Y. Naruo<sup>4</sup>, H. Kobayashi<sup>4</sup>, Y. Inatani<sup>4</sup>, K. Kinoshita<sup>5</sup>.

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4-LE-P61 (A486)

**Proposal of a New Type of Superconducting Level Sensor for Liquid Hydrogen with MgB<sub>2</sub> Wires**

Kazuhiro Kajikawa<sup>1</sup>, Takuro Inoue<sup>1</sup>, Kazuki Watanabe<sup>1</sup>, Yutaka Yamada<sup>2</sup> and Itsuo Aoki<sup>3</sup>

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**Wires & Tapes: BiSrCaCuOx-, MgB<sub>2</sub>- and Pnictide-Wires II**

Chairperson: Dhalle, Schlachter

4-WT-P1 (A183)

**Analysis of the Heating Effects Caused by the Defects in HTS Wire in Magnets**

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4-WT-P2 (A895)

**Preparation and characterization of superconductor wires by PIT using powder obtained from polymeric precursor process**

E. J. de Souza, C. L. Carvalho, R. Zadorosny e G. B. Torsoni, J.B. Silveira, H. A. de Aquino, V. C. S. Reynoso.

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4-WT-P3 (A463)

**Theoretical simulation studies on pulse critical current measurements of composite superconducting wires using commercial software ANSYS.**

S. Krosny, B. Grzesik,

*Silesien University of Technology, Gliwice, Poland*

4-WT-P4 (A595)

**Fabrication of Multifilament Bi-2212 Superconductors by the Melt-solidification Process**

S.N. Zhang\*, C.S. Li, Q.B. Hao, X.M. Xiong, P.X. Zhang

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4-WT-P5 (A756)

**Improved critical current density in Bi-2212 round wires by densification**

Jianyi Jiang<sup>1</sup>, Muriel Hannion<sup>1</sup>, Fumitake Kametani<sup>1</sup>, Andrea Malagoli<sup>1</sup>, Tengming Shen<sup>1</sup>, Ulf P. Trociewitz<sup>1</sup>, Eric E. Hellstrom<sup>1</sup>, David C. Larbaletier<sup>1</sup>, Christian Scheuerlein<sup>2</sup>, Marco Di Michiel<sup>3</sup> and Mario Scheel<sup>3</sup>

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4-WT-P6 (A37)

**An Approach for Manufacturing MgB<sub>2</sub> Wires for Application in Health Care**

W. Häßler<sup>1</sup>, M. Herrmann<sup>1</sup>, C. Rodig<sup>1</sup>, J. Scheiter<sup>1</sup>, M. Schubert<sup>1</sup>, B. Holzapfel<sup>1</sup>, L. Schultz<sup>1</sup>, A. Aubele<sup>2</sup>, B. Sailer<sup>2</sup>, V. Abächerli<sup>2</sup>, K. Schlenga<sup>2</sup>

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4-WT-P7 (A681)

**Quench propagation measurements on wires and pancake coils of different stabilized MgB<sub>2</sub> tapes.**

J. Pelegrin<sup>1</sup>, G. Romano<sup>2</sup>, S. Brisigotti<sup>3</sup>, D. Nardelli<sup>4</sup>, E. Martinez<sup>1</sup>, L.A. Angurel<sup>1</sup>

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4-WT-P8 (A401)

**Improvement of the critical current of *in situ* Cu-sheathed MgB<sub>2</sub> wires by copper additions and toluene doping**

M Woźniak<sup>1</sup>, S C Hopkins<sup>1</sup>, D Gajda<sup>2</sup> and B A Glowacki<sup>1,3</sup>

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4-WT-P9 (A1009)

**Preparation and properties of isotropic J<sub>c</sub> multifilamentary *ex situ* MgB<sub>2</sub> tapes**

A Kario<sup>1</sup>, W Häßler<sup>1</sup>, C Rodig<sup>1</sup>, M Schubert<sup>1</sup>, P Kováč<sup>2</sup>, T Melišek<sup>2</sup>, R Nast<sup>3</sup>, W Goldacker<sup>3</sup>, B Holzapfel<sup>1</sup>, L Schultz<sup>1</sup>

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4-WT-P10 (A95)

**The effect of yttrium acetate doping on the superconducting properties of MgB<sub>2</sub> tapes**

Dongliang Wang<sup>1</sup>, Zhaoshun Gao<sup>1</sup>, Xianping Zhang<sup>1</sup>, Chao Yao<sup>1</sup>, Chengduo Wang<sup>1</sup>, Shuxia Zhang<sup>1</sup>, Yanwei Ma<sup>1</sup>, Satoshi Awaji<sup>2</sup> and Kazuo Watanabe<sup>2</sup>

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4-WT-P11 (A415)

**Influence of Cold Densification on the reaction process in malic acid doped MgB<sub>2</sub> wires**

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4-WT-P12 (A685)

**Selection of Dopant Concentration for Critical Current Density Optimization in Grain-Boundary-Pinned MgB<sub>2</sub> – Influence of Irreversibility Field and Connectivity**

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4-WT-P13 (A597)

**Optimization of Bi-2212 Superconductor Powders for Thick Films Preparation**

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4-WT-P14 (A914)

**Improvement of texturing in monofilamentary BSSCO superconducting tapes using optimized heat treatment profile and addition of nanometric ZrO<sub>2</sub>**

Antonio Renato Bigansolli<sup>1</sup>, Marcelo Azevedo Neves<sup>1</sup>, Máximo Ferreira da Silveira<sup>2</sup>, Everton Rangel Bispo<sup>3</sup>, Fernando Cosme Rizzo Assunção<sup>3</sup>, Durval Rodrigues Jr.<sup>4</sup>

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4-WT-P15 (A44)

**Study of spliced HTS 1-G tapes**

Fetisov S.S.<sup>1</sup>, Sotnikov D.V.<sup>1</sup>, Radchenko I.P.<sup>1</sup>, Vysotsky V.S.<sup>1</sup>,

Osabe G.<sup>2</sup>, Kinoshita K<sup>2</sup>, Fujikami J<sup>2</sup>, Kobayashi S<sup>2</sup>, Yamazaki K<sup>2</sup>

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4-WT-P16 (A61)

**An effective process of producing (Bi,Pb)<sub>2</sub>Sr<sub>2</sub>Ca<sub>2</sub>Cu<sub>3</sub>O<sub>10</sub> superconducting precursor powder**

Rui Bao<sup>1</sup>, Xiuhua Song<sup>1</sup>, Shanshan Chen<sup>1</sup>, Kaite Huang<sup>2</sup>, Zhenghe Han<sup>2</sup>

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4-WT-P17 (A94)

**AC loss properties of Ag-sheathed Bi-2223 multifilamentary tapes with weak connections among filaments in perpendicular magnetic field**

Kazuo Funaki, Motohiro Kawasaki, Tatsuro Yahiro, Masahiro Kurawaki, Masataka Iwakuma, Naoki Ayai\*, Shin-ich Kobayashi\*, Masashi Kikuchi\*, Kazuhiko Hayashi\*

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4-WT-P18 (A763)

**Fabrication and characterization of Bi-2223/Ag round wires**

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4-WT-P19 (A817)

**Phase Study of Melt-Processed Bi-2223**

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4-WT-P21 (A507)

**Fabrication and superconducting properties of PIT-processed MgB<sub>2</sub> tapes using Mg(BH<sub>4</sub>)<sub>2</sub> powder**

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## Wires & Tapes: Coated Conductors II

Chairperson: Puig, Rupich

4-WT-P22 (A53)

### **Specific heat and thermal diffusivity of YBCO coated conductors**

Tomoyuki Naito<sup>1</sup>, Hiroyuki Fujishiro<sup>1</sup>, Yasuhisa Yamamura<sup>2</sup>, Kazuya Saito<sup>2</sup>, Hiroshi Okamoto<sup>3</sup>, Hidemi Hayashi<sup>3</sup>, Yoshihiro Goshō<sup>4</sup>, Takeshi Ohkuma<sup>4</sup>, and Yuh Shiohara<sup>4</sup>

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4-WT-P23 (A160)

### **Pressure effects on the critical current of commercially available second generation superconducting Re-BCO coated conductor wire**

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4-WT-P24 (A310)

### **Moved to 1-WT-P17**

4-WT-P25 (A445)

### **YBCO coated conductor joints in dependence of uniaxial pressures**

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4-WT-P26 (A599)

### **Study of modified TFA-MOD method for YBCO film growth**

L.H. Jin<sup>a,b</sup>, P.X. Zhang<sup>a</sup>, C.S. Li<sup>a</sup>, Z.M. Yu<sup>a</sup>, Y. Wang<sup>a</sup>, Y.F. Lu<sup>a</sup>, J.Q. Feng<sup>a</sup>

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4-WT-P27 (A626)

**Progress in Coated Conductor Development by Hot-Wall Type MOCVD**

Tomonori Watanabe<sup>a</sup>, Naoji Kashima<sup>a</sup>, Mitsuhiro Naruse<sup>a</sup>, Toshio Katagiri<sup>a</sup>, Shigeo Nagaya<sup>a</sup>, Hisaki Sakamoto<sup>b</sup>, Akinobu Nakai<sup>b</sup>, Masayasu Kasahara<sup>b</sup>, Ryusuke Nakasaki<sup>b</sup>, Hiroyuki Fukushima<sup>b</sup>

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4-WT-P28 (A793)

**Current distribution in wide YBCO tapes**

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4-WT-P29 (A821)

**Large area bi-axially textured buffer layers for metallic tape based coated conductors: optimisation and up-scale of ABAD process**

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4-WT-P30 (A859)

**Coated conductors with advanced electrical protection**

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4-WT-P31 (A1059)

**Low temperature calcinations for fluorine free metal organic decomposition methods**

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4-WT-P32 (A1086)

**Influence of gas flow and improvement of homogeneity on the distribution of critical current density in YBCO coated conductor processed by TFA-MOD method**

Kei Shiohara<sup>1</sup>, Kohei Higashikawa<sup>1</sup>, Teppei Kawaguchi<sup>1</sup>, Masayoshi Inoue<sup>1</sup>, Takanobu Kiss<sup>1</sup>, Masateru Yoshizumi<sup>2</sup>, Teruo Izumi<sup>2</sup>

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4-WT-P33 (A51)

**Effect of rare-earth substitution on the critical current of  $\text{YBa}_2\text{Cu}_3\text{O}_7$  films prepared by fluorine-free metal organic deposition**

H. Matsui, K. Tsukada, M. Sohma, I. Yamaguchi, T. Manabe, T. Kumagai

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4-WT-P34 (A721)

**Low fluorine based precursors for fast pyrolysis  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$  film growth**

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4-WT-P35 (A757)

**Stress Relief and Crystallization Characteristic of TFA-MOD  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$  Thin Films**

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4-WT-P36 (A871)

**Growth of chemical solution deposited YBCO nanocomposite films with  $\text{Ba}_2\text{YTaO}_6$  nanoparticles**

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4-WT-P37 (A881)

**Flourine free coating solution for  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$  thin films for coated conductors applications**

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4-WT-P39 (A116)

**DyBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-x</sub> thick films deposited on coated conductors with  $I_c$  exceeding 1000 A/cm**

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4-WT-P40 (A118)

**Microstructure of BZO-doped DyBCO coated conductors deposited by inclined substrate deposition**

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4-WT-P41 (A143)

**Electrical and Superconducting Properties in Lap Joints for YBCO Tapes**

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4-WT-P42 (A625)

**Bending characteristics of RE123 wires for practical use**

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4-WT-P43 (A12)

**Excimer laser technology up to the kilowatt-class: Cornerstone of high-throughput PLD processing of long-length coated conductors**

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**High rate deposition of SmBCO film on IBAD-MgO template for SmBCO coated conductor fabricated by reactive co-evaporation method.**

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