

1st Asian ICMC & CSSJ 50th Anniversary Conference (1st Asian ICMC-CSSJ 50)

Journal of Physics: Conference Series Volume 897

Kanazawa, Japan
7 - 10 November 2016

Editors:

**Mitsuho Furuse
Takanobu Kiss
Jun-ichi Shimoyama**

ISBN: 978-1-5108-4867-2
ISSN: 1742-6588

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2016) by the Institute of Physics
All rights reserved. The material featured in this book is subject to
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2017)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of contents

Volume 897

1st Asian ICMC & CSSJ 50th Anniversary Conference
7–10 November 2016, Kanazawa, Japan

Accepted papers received: 11 September 2017
Published online: 21 September 2017

Preface

011001
OPEN ACCESS
[1st Asian ICMC & CSSJ 50th Anniversary Conference](#)

011002
OPEN ACCESS
[Peer review statement](#)

Cryogenic Materials

012001
OPEN ACCESS
[Development of point-contact spectrometer for spin polarization measurements](#)

M. Shiga, N. Nishimura, H. Takata, Y. Inagaki, H. Kambara, K. Tenya and T. Kawae....1

012002
OPEN ACCESS
[Low-temperature creep of austenitic stainless steels](#)

R. P. Reed and R.P. Walsh....6

012003
OPEN ACCESS
[Mechanical properties of LaFe_{11.5}Si_{1.5}/Cu negative thermal composite and its application as clamp materials for tensile test at cryogenic temperatures](#)

Y Shan, R Huang, Y Zhao, C Huang and L Li.....18

012004
OPEN ACCESS
[Properties of radiation stable insulation composites for fusion magnet](#)

Zhixiong Wu, Rongjin Huang, Chuanjun Huang and Laifeng Li.....26

012005
OPEN ACCESS
[Low-temperature abnormal thermal expansion property of Mn doped cubic NaZn₁₃-type La\(Fe, Al\)₁₃ compounds](#)

Yuqiang Zhao, Rongjin Huang, Yi Shan, Wei Wang, Jiangtao Li and Laifeng Li.....32

012006
OPEN ACCESS
[Alternating current breakdown voltage of ice electret](#)

Y Oshika, Y Tsuchiya, T Okumura and Y Muramoto.....38

012007
OPEN ACCESS
[Irradiation effect of the insulating materials for fusion superconducting magnets at cryogenic temperature](#)

Koji Kobayashi, Yoko Akiyama and Shigehiro Nishijima.....45

012008
OPEN ACCESS
[Optimization of loading ratio of ErN as regenerator of 4K-GM cryocooler](#)

T. Nakagawa, T. Miyauchi, T. Shiraishi, S. Seino, T. A. Yamamoto, Y. Fujimoto and S. Masuyama.....51

012009

OPEN ACCESS

[Low-temperature hydrogen absorption in metallic nanocontacts studied by point-contact spectroscopy measurements](#)

H. Takata, M. S. Islam, K. Ienaga, Y. Inagaki, K. Hashizume and T. Kawae.....56

Cryocooler and Cooling Systems

012010

OPEN ACCESS

[Thermal and magnetic properties of regenerator material Gd₂O₂S](#)

K Matsumoto, T Numazawa, Y Ura, T Ujiyama and S Abe.....61

012011

OPEN ACCESS

[Magnetocaloric effect, thermal conductivity, and magnetostriction of epoxy-bonded La\(Fe_{0.88}Si_{0.12}\)₁₃ hydrides](#)

K Matsumoto, D Murayama, M Takeshita, Y Ura, S Abe, T Numazawa, H Takata, Y Matsumoto and T Kuriwa.....66

012012

OPEN ACCESS

[Cryogenic Adsorption of Nitrogen and Carbon Dioxide in Activated Carbon](#)

Fuzhi Shen, Huiming Liu, Dong Xu, Hengcheng Zhang, Junfeng Lu and Laifeng Li.....72

012013

OPEN ACCESS

[The first results of He II boiling visualization experiment conducted under 4.7 seconds microgravity conditions](#)

S Takada, N Kimura, S Pietrowicz and K Grunt.....78

012014

OPEN ACCESS

[Design of High Voltage Electrical Breakdown Strength measuring system at 1.8K with a G-M cryocooler](#)

Jian Li, Rongjin Huang, Xu Li, Dong Xu, Huiming Liu and Laifeng Li.....84

012015

OPEN ACCESS

[Commissioning of the JT-60SA helium refrigerator](#)

Koji Kamiya, Kyohei Natsume, Kiichi Otsu, Makoto Oishi, Atsushi Honda, Yoshitoshi Kashiwa, Kaname Kizu, Yoshihiko Koide, Christine Hoa, Frederic Michel, Pascal Roussel, Valerie Lamaison, Francois Bonne, Enrico Dipietro, Antonino Cardella, Manfred Wanner, Jerome Legrand, Vincent Pudys and Baptiste Langevin.....90

012016

OPEN ACCESS

[A Mechanical Thermal Switch for Conduction-cooled Cryogenic System](#)

Monan Li, Lifeng Li and Dong Xu.....97

Magnet, Power Device and Systems

012017

OPEN ACCESS

[The influence of winding direction of two-layer HTS DC cable on the critical current](#)

V S Vyatkin, K Kashiwagi, Y V Ivanov, E S Otabe and S Yamaguchi.....104

012018

OPEN ACCESS

[Study on Separation of Structural Isomer with Magneto-Archimedes method](#)

T Kobayashi, T Mori, Y Akiyama, F Mishima and S Nishijima.....109

012019

OPEN ACCESS

[Complete Fabrication of a Traversable 3 \$\mu\$ m Thick NbN Film Superconducting Coil with Cu plated layer of 42m in Length in a Spiral Three-Storied Trench Engraved in a Si Wafer of 76.2 mm in Diameter Formed by MEMS Technology for a Compact SMES with High Energy Storage Volume Density](#)

Yasuhiro Suzuki, Nobuhiro Iguchi, Kazuhiro Adachi, Akihisa Ichiki, Tatsumi Hioki, Che-Wei Hsu, Ryoto Sato, Shinya Kumagai, Minoru Sasaki, Joo-Hyong Noh, Yuusuke Sakurahara, Kyohei Okabe, Osamu Takai, Hideo Honma, Hideo Watanabe, Hitoshi Sakoda, Hiroaki Sasagawa, Hideyuki Doy, Shuliang Zhou, H. Hori, Shigeaki Nishikawa, Toshihiro Nozaki, Noriaki Sugimoto and Tomoyoshi Motohiro.....117

012020

OPEN ACCESS

[Removal of Iron Oxide Scale from Feed-water in Thermal Power Plant by Using Magnetic Separation](#)

Motohiro Nakanishi, Saori Shibatani, Fumihito Mishima, Yoko Akiyama and Shigehiro Nishijima.....124

012021

OPEN ACCESS

[Study on AC loss measurements of HTS power cable for standardizing](#)

Shinichi Mukoyama, Naoyuki Amemiya, Kazuo Watanabe, Yasuhiro Iijima, Nobuhiro Mido, Takao Masuda, Toshiya Morimura, Masayoshi Oya, Tetsutaro Nakano and Kiyoshi Yamamoto.....132

012022

OPEN ACCESS

[Design and Performance Test of Superconducting Transport Solenoid for D-Line at J-PARC Muon Science Facility](#)

Yasuyuki Tanaka, Tomoyuki Semba, Shotaro Nakajima, Yoshiaki Hagiwara, Shuichi Kido, Yukihiko Murata, Ken-ichi Sasaki, Koichiro Shimomura, Naritoshi Kawamura, Patrick Strasser, Yasuhiro Makida, Hirokatsu Ohhata, Noriyuki Kurosawa and Yasuhiro Miyake.....140

012023

OPEN ACCESS

[Design Optimization for Superconducting Bending Magnets using Pareto Front Curve](#)

Yukihiko Murata, Mitsushi Abe and Ryuya Ando.....147

012024

OPEN ACCESS

[Magnetic Separation Using HTS Bulk Magnet for Cs-Bearing Fe precipitates](#)

T Oka, K Ichiju, S Sasaki, J Ogawa, S Fukui, T Sato, M Ooizumi, K Yokoyama, S Aoki and N Ohnishi.....157