

PH
P59/sj

JOURNAL OF THE PHYSICAL SOCIETY OF JAPAN

2013 **10** October

Invited Review Papers:

Topological Insulator Materials

Yoichi ANDO

Spin Current: Experimental and Theoretical Aspects

Sadamichi MAEKAWA, Hiroto ADACHI, Ken-ichi UCHIDA, Jun'ichi IEDA,
and Eiji SAITOH

VOL. 82

<http://jpsj.ipap.jp/>

JOURNAL OF THE PHYSICAL SOCIETY OF JAPAN

Volume 82, Number 10, October 2013

CONTENTS

■ INVITED REVIEW PAPERS

- 102001 Topological Insulator Materials (*32 pages*) Yoichi ANDO
102002 Spin Current: Experimental and Theoretical Aspects (*23 pages*) Sadamichi MAEKAWA, Hiroto ADACHI,
Ken-ichi UCHIDA, Jun'ichi IEDA, Eiji SAITOH

■ LETTERS

General

- 103001 Forced Synchronization of Periodic Oscillations in a Gas Column: Where is the Power Source? (*4 pages*) Takamasa YOSHIDA, Taichi YAZAKI,
Yuki UEDA, Tetsushi BIWA

Electromagnetism, optics, acoustics, heat transfer, classical mechanics, and fluid mechanics

- 103401 Chaotic Mixing in a Curved-Square Duct Flow at Very Low Reynolds Numbers (*4 pages*) Yasutaka HAYAMIZU, Shinichiro YANASE,
Kazunori NISHIDA, Kyoji YAMAMOTO

Gases, plasmas, electric discharges, and beams

- 103501 Observation of Core Toroidal Rotation Reduced by Impurity Internal Kink Modes in EAST Tokamak (*2 pages*) Liqing XU, Liquan HU

Condensed matter: electronic structure and electrical, magnetic, and optical properties

- 103701 ^{153}Eu and $^{69,71}\text{Ga}$ Zero-Field NMR Study of Antiferromagnetic State in EuGa_4 (*5 pages*) Mamoru YOGI, Saori NAKAMURA, Nonoka HIGA,
Haruo NIKI, Yusuke HIROSE,
Yoshichika ŌNUKI, Hisatomo HARIMA
103702 Current-Induced Gap Suppression in the Mott Insulator Ca_2RuO_4 (*5 pages*) Ryuji OKAZAKI, Yasuo NISHINA,
Yukio YASUI, Fumihiko NAKAMURA,
Takashi SUZUKI, Ichiro TERASAKI
103703 X-ray Diffraction by Magnetic Charges (Monopoles) (*5 pages*) Stephen William LOVESEY,
Dmitry Dmitrievich KHALYAVIN
103704 Microscopic Evidence of a Crossover to a Low-Temperature Intermediate Valence State in $\text{YbCo}_2\text{Zn}_{20}$ (*4 pages*) Takeshi MITO, Hiroki HARA, Takuma ISHIDA,
Keitaro NAKAGAWARA, Takehide KOYAMA,
Koichi UEDA, Takao KOHARA, Kenji ISHIDA,
Kazuyuki MATSUBAYASHI, Yuta SAIGA,
Yoshiya UWATOKO

■ FULL PAPERS

General

- 104001 Observation of Fluctuation in Rare Earth Nitrate Crystals (*5 pages*) Hiroshi ISODA, Riki KAWASHIMA
104002 Geometric Momentum and a Probe of Embedding Effects (*8 pages*) Q. H. LIU
104003 Canonical Ensemble Statistics of Weakly Interacting Composite Boson Condensation: Thermodynamic Properties (*14 pages*) Ming-Tsung LEE

Atomic and molecular physics

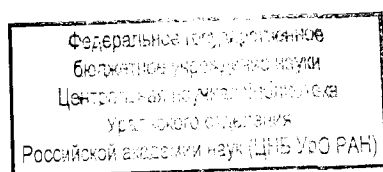
- 104301 Docking Positrophilic Electrons into Molecular Attractive Potentials of Fluorinated Methanes (*5 pages*) Xiaoguang MA, Feng WANG

Electromagnetism, optics, acoustics, heat transfer, classical mechanics, and fluid mechanics

- 104401 Spatial Four Wave Mixing, Probe Images, and Fluorescence Signals in Dressed Three-Level System (*9 pages*) Huayan LAN, Jia SUN, Zhenkun WU, Dan ZHANG,
Yiqi ZHANG, Huaibin ZHENG, Yanpeng ZHANG

Condensed matter: structure and mechanical and thermal properties

- 104601 Negative Isotope Effect on the Superionic Transition Point and the Behavior of the SO_4 ν_1 -Internal Modes in $\text{K}_3\text{H}(\text{SO}_4)_2$ and $\text{K}_3\text{D}(\text{SO}_4)_2$ (*4 pages*) Yoshiyuki MATSUMOTO, Kentaro SHIMADA,
Kazuhiro TSURU
104602 Reliable Lateral Atom Manipulation by Thermal Activation on Metal fcc(001) Surfaces (*7 pages*) Jinhu ZHANG, Chang CHEN, Bo-Yuan NING,
Hezhu SHAO, Li ZHAO, Xi-Jing NING, Jun ZHUANG
104603 X-ray Crystal Structure Analysis and Ru Valence of $\text{Ba}_4\text{Ru}_3\text{O}_{10}$ Single Crystals (*6 pages*) Taichi IGARASHI, Yoshio NOGAMI, Yannick KLEIN,
Gwenaëlle ROUSSE, Ryuji OKAZAKI,
Hiroki TANIGUCHI, Yukio YASUI, Ichiro TERASAKI



Condensed matter: electronic structure and electrical, magnetic, and optical properties

- 104701 Effect of Longitudinal Optical Phonon–Plasmon Coupling on the Transient Self-Consistent Field in GaAs p–i–n Diodes (4 pages) Dinh Nhu THAO, Nguyen Phuoc THE
- 104702 Possible Odd-Frequency Pairing in Quasi-One-Dimensional Organic Superconductors (TMTSF)₂X (5 pages) Keisuke SHIGETA, Seiichiro ONARI, Yukio TANAKA
- 104703 Magnetic and Fermi Surface Properties of EuGa₄ (10 pages) Ai NAKAMURA, Yuichi HIRANAKA, Masato HEDO, Takao NAKAMA, Yasunao MIURA, Hiroki TSUTSUMI, Akinobu MORI, Kazuhiro ISHIDA, Katsuya MITAMURA, Yusuke HIROSE, Kiyohiro SUGIYAMA, Fuminori HONDA, Rikio SETTAI, Tetsuya TAKEUCHI, Masayuki HAGIWARA, Tatsuma D. MATSUDA, Etsuji YAMAMOTO, Yoshinori HAGA, Kazuyuki MATSUBAYASHI, Yoshiya UWATOKO, Hisatomo HARIMA, Yoshichika ÔNUKI
- 104704 Emergent *p*-Wave Kondo Coupling in Multi-Orbital Bands with Mirror Symmetry Breaking (5 pages) Jun Won RHIM, Jung Hoon HAN
- 104705 Ferromagnetic Quantum Criticality Studied by Hall Effect Measurements in UCoAl (7 pages) Tristan COMBIER, Dai AOKI, Georg KNEBEL, Jacques FLOUQUET
- 104706 First-Principles Study of The Electronic Structure and Thermoelectric Properties of IrN₂ (5 pages) Xiao Jing ZHANG, Yuan Xu WANG, Yu Li YAN
- 104707 Mode-Matching Approach to Current Blocking Effect in Graphene Nanoribbons (5 pages) Hai-Yao DENG, Katsunori WAKABAYASHI, Chi-Hang LAM
- 104708 Dynamics of Fractionally Charged Phase Soliton in One-Dimensional Quarter-Filled Electron–Lattice Systems (7 pages) Kenichi HIROKAWA, Akira TERAJ, Yoshiyuki ONO
- 104709 Competition between Spin Frustration, Lattice Instability, and the Jahn–Teller Effect in *S* = 1/2 Geometrically Frustrated Double Perovskite Fluorides *A*₂*B*TiF₆ (*A* = K, Rb, Cs; *B* = Na, K, Rb) (9 pages) Masato GOTO, Hiroaki UEDA, Chishiro MICHIOKA, Kazuyoshi YOSHIMURA
- 104710 AC Susceptibility of the Dipolar Spin Ice Dy₂Ti₂O₇: Experiments and Monte Carlo Simulations (5 pages) Hiroshi TAKATSU, Kazuki GOTO, Hiromi OTSUKA, Ryuji HIGASHINAKA, Kazuyuki MATSUBAYASHI, Yoshiya UWATOKO, Hiroaki KADOWAKI
- 104711 Fluorination Effects on Electronic and Magnetic Properties of Silicene/Graphene Hybrids (6 pages) Lalla Btissam DRISSI, Fatima Zahra RAMADAN, El Hassan SAIDI, Mosto BOUSMINA, Omar FASSI-FEHRI
- 104712 Sm 4*f* Electronic State of Heavy Fermion Compound SmOs₄Sb₁₂ by Theory of High-Energy Spectroscopy (7 pages) Yūsuke NANBA, Masaichiro MIZUMAKI, KOZO OKADA
- 104713 A Generalized Ginzburg–Landau–Wilson Theory of the Kondo Lattice (11 pages) Keiichi OHARA, Katsufou HANZAWA
- 104714 Impact of Local Lattice Disorder on Spin and Orbital Orders in Ca_{2–x}Sr_xRuO₄ (4 pages) Takuya SUGIMOTO, Daiki OOTSUKI, Takashi MIZOKAWA
- 104715 Weak Ferromagnetism below 41 K and Structural Transition at 395 K in CeIr₃B₂ Single Crystal (5 pages) Kazuhiro KUBOTA, Eiichi MATSUOKA, Yusuke FUNASAKO, Tomoyuki MOCHIDA, Takahiro SAKURAI, Hitoshi OHTA, Takahiro ONIMARU, Toshiro TAKABATAKE, Hitoshi SUGAWARA
- 104716 Evidence of Spin Resonance Signal in Oxygen Free Superconducting CaFe_{0.88}Co_{0.12}AsF: An Inelastic Neutron Scattering Study (7 pages) Stephen PRICE, Yixi SU, Yinguo XIAO, Devashibhai T. ADROJA, Tatiana GUIDI, Ranjan MITTAL, Shibabrata NANDI, Satoru MATSUISHI, Hideo HOSONO, Thomas BRÜCKEL
- 104717 High-Field Magnetization of Quasi-One-Dimensional Ising-Like Antiferromagnet TiCoCl₃ (5 pages) Yoichi NISHIWAKI, Masashi TOKUNAGA, Norikazu TODOROKI, Tetsuya KATO

■ SHORT NOTES

- 105001 Bose–Einstein Condensation in Layered Lattices under Magnetic Field (2 pages) Noboru MIYAMOTO, Hiroyuki MORI
- 105002 Hellmann–Feynman Forces in the DFT+*U* Method with Ultrasoft Pseudopotentials (2 pages) Ikutaro HAMADA
- 105003 Hall Coefficient in the Superconducting and Non-Superconducting Pr₂Ba₄Cu₇O_{15–δ} Compounds with Metallic Double Chains (2 pages) Junki TADA, Michiaki MATSUKAWA, Takahisa KONNO, Satoru KOBAYASHI, Makoto HAGIWARA, Tsuyoshi MIYAZAKI, Kazuhiro SANO, Yoshiaki ÔNO, Akiyuki MATSUSHITA