

PH
P59/SJ

JOURNAL
OF THE
PHYSICAL
SOCIETY
OF
JAPAN

2013 4 April

VOL. 82
<http://jpsj.ipap.jp/>

JOURNAL OF THE PHYSICAL SOCIETY OF JAPAN

Volume 82, Number 4, April 2013

CONTENTS

■ LETTERS

General

- 043001 Neutron Brillouin Scattering with Pulsed Spallation Neutron Source — Spin-Wave Excitations from Ferromagnetic Powder Samples — (4 pages)
043002 An Example Exempted from Thomson-Tait-Chetayev's Theorem (4 pages)

Shinichi ITOH, Yasuo ENDOH, Tetsuya YOKOO,
Daichi KAWANA, Yoshio KANEKO,
Yoshinori TOKURA, Masaki FUJITA
Abuduwaili PAERHATI, Yasuhide FUKUMOTO

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

- 043401 Experimental Determination of the Evolution Equation for Thermally Induced Acoustic Oscillations (4 pages)

Tetsushi BIWA, Fumitomo SHIMA, Taichi YAZAKI

Condensed matter: structure and mechanical and thermal properties

- 043601 First Study of Intersubband Absorption in Electrons on Helium under Quantizing Magnetic Fields (4 pages)

Denis KONSTANTINOV, Kimitoshi KONO

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

- 043701 Exponential Tail in the Luminescence Spectrum from Electron–Hole Liquid and Electron–Hole Plasma in Diamond (5 pages)
043702 Theoretical Prediction of Multiferroicity in SmBaMn₂O₆ (4 pages)
043703 Spin–Orbit Coupling in Multilayer Superconductors with Charge Imbalance (5 pages)
043704 Spin–Charge Coupling in the Molecular Conductor (DIETSe)₂FeBr₄ (4 pages)

Kazuro MURAYAMA, Ryo NATSUI, Hikari KOAMI

- 043705 Evidence of a High-Field Phase in PrV₂Al₂₀ in a [100] Magnetic Field (4 pages)
043706 Edge Dislocation Assisted Free Carrier Optical Absorption in Nitride Quantum Wells (5 pages)
043707 Well-Defined Crystal Field Splitting Schemes and Non-Kramers Doublet Ground States of *f* Electrons in PrT₂Zn₂₀ (*T* = Ir, Rh, and Ru) (5 pages)

Kunihiro YAMAUCHI

Daisuke MARUYAMA, Manfred SIGRIST,
Youichi YANASE

Mitsuhiko MAESATO, Yoshitomo FURUSHIMA,
Gunzi SAITO, Hiroshi KITAGAWA, Tatsuro IMAKUBO,
Andhika KISWANDHI, David GRAF, James S. BROOKS
Yasuyuki SHIMURA, Yasuo OHTA,
Toshiro SAKAKIBARA, Akito SAKAI, Satoru NAKATSUJI
Ratnakar G. VAIDYA, Nandkumar S. SANKESHWAR,
Basavraj G. MULIMANI

Kazuaki IWASA, Hiroki KOBAYASHI,
Takahiro ONIMARU, Keisuke T. MATSUMOTO,
Naohiro NAGASAWA, Toshiro TAKABATAKE,
Seiko OHIRA-KAWAMURA, Tatsuya KIKUCHI,
Yasuhiro INAMURA, Kenji NAKAJIMA

Mina MARUYAMA, Susumu OKADA

- 043708 Two-Dimensional Metallic Molecular Sheet of Fused C₂₆ Fullerene (4 pages)
043709 Ultralow-Dissipative Conductivity by Dirac Fermions in BaFe₂As₂ (4 pages)

Yoshinori IMAI, Fuyuki NABESHIMA,
Daisuke NAKAMURA, Takayoshi KATASE,
Hidenori HIRAMATSU, Hideo HOSONO,
Atsutaka MAEDA

- 043710 Dynamical Mean-Field Approach to Ni 2*p* X-ray Photoemission Spectra of NiO: A Role of Antiferromagnetic Ordering (5 pages)
043711 Surface Bound States and Spontaneous Current in Cyclic *d*-Wave Superconductors (5 pages)
043712 Terahertz Conductivity of the Heavy-Fermion State in CeCoIn₅ (5 pages)

Atsushi HARIKI, Yoshiyuki ICHINOZUKA,
Takayuki UOZUMI

Masaki ISHIKAWA, Yasumasa TSUTSUMI,
Masanori ICHIOKA, Kazushige MACHIDA

Marc SCHEFFLER, Thomas WEIG, Martin DRESSEL,
Hiroaki SHISHIDO, Yuta MIZUKAMI,
Takahito TERASHIMA, Takasada SHIBAUCHI,
Yuji MATSUDA

Hironori YAMAGUCHI, Asano TOHO, Kenji IWASE,
Toshio ONO, Takashi KAWAKAMI,
Tokuro SHIMOKAWA, Akira MATSUO,
Yuko HOSOKOSHI

- 043713 Two-Dimensional Honeycomb Lattice Consisting of a New Organic Radical 2-Cl-6-F-V (5 pages)

Kazuhito UCHIDA, Ryu YAMAGUCHI,
Takako KONOIKE, Toshihito OSADA, Woun KANG
Hiroki NAKANO, Syngé TODO, Tôru SAKAI

- 043714 Angle-Dependent Magnetoresistance Oscillations and Charge Density Wave in the Organic Conductor α -(BEDT-TTF)₂KHg(SCN)₄ (4 pages)
043715 Long-Range Order of the Three-Sublattice Structure in the *S* = 1 Heisenberg Antiferromagnet on a Spatially Anisotropic Triangular Lattice (5 pages)



■ FULL PAPERS

General

- 044001 Coherent Manipulation of Optical Waves with Microwave Quantum Interference (*4 pages*) Jian Qi SHEN
044002 Resonant Interactions of Collective Modes in a Quasi-One-Dimensional Attractive Bose–Einstein Condensate (*7 pages*) Chenxu LI, Xiaodong MA,
Yong-Li MA, Guoxiang HUANG
044003 New Integrable Dynamical Systems Derived from the Lie Algebraic Structure of the Homogeneous Lotka–Volterra Ladder Equation (*7 pages*) Kenji IMAI
044004 Exact Solutions of Space Dependent Korteweg–de Vries Equation by The Extended Unified Method (*4 pages*) Hamdy I. ABDEL-GAWAD, Nasser S. ELAZAB,
Mohamed OSMAN
044005 Classical Energy Spectrum of the Hirota Nonlinear Oscillator (*7 pages*) Denis V. LAPTEV
044006 Generic Evaluation of Relaxation Time for Quantum Many-Body Systems: Analysis of the System Size Dependence (*5 pages*) Takaaki MONNAI

Nuclear physics

- 044201 Relation between Interaction Distance and Coulomb Barrier Height (*4 pages*) Woonyoung SO, Taehyung KIM, Manseok HAN,
Hyungug CHO, Byeongyeon MOON,
Sungjoong KIM, Kyungsik KIM
044202 Nuclear γ Rays from Stopped Muon Capture Reactions for Nuclear Isotope Detection (*5 pages*) Hiroyasu EJIRI, Izyan H. HASHIM, Yuko HINO,
Yoshitaka KUNO, Yuki MATSUMOTO,
Kazuhiko NINOMIYA, Hideyuki SAKAMOTO,
Akira SATO, Tatsushi SHIMA, Atsushi SHINOHARA,
Keiji TAKAHISA, Nam H. TRAN

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

- 044401 Inverse Transverse Migration of Small Bubbles in Turbulence (*14 pages*) Mitsuru TANAKA
044402 Highly Efficient and Accurate Calculation of Local Density of States in Two-Dimensional Photonic Crystals (*3 pages*) Jing-Feng LIU, Ling-Yan LI,
Yong-Yao LI, Hao-Xiang JIANG

Condensed matter: structure and mechanical and thermal properties

- 044601 Dynamical Behavior of Prewavy Pattern near Nematic–Isotropic Transition (*3 pages*) Yusril YUSUF, Yoshiki HIDAKA, Shoichi KAI

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

- 044701 Stress Formulation in the All-Electron Full-Potential Linearized Augmented Plane Wave Method: II. Accuracy Check in the Generalized Gradient Approximation (*10 pages*) Naoyuki NAGASAKO, Tamio OGUCHI
044702 First-Principles Calculations of Hydrogen Monomers and Dimers Adsorbed in Graphene and Carbon Nanotubes (*7 pages*) Mohammad Shafiq ALAM, Fahdzi MUTTAQIEN,
Agung SETIADI, Mineo SAITO
044703 A New Type of Incommensurate Phase Transition Caused by Parabolic Splitting of Degenerate Modes (*5 pages*) Yoshihiro ISHIBASHI, Makoto IWATA
044704 Bulk Electronic State of Superconducting Topological Insulator (*11 pages*) Tatsuki HASHIMOTO, Keiji YADA, Ai YAMAKAGE,
Masatoshi SATO, Yukio TANAKA
044705 Resonating Hartree–Fock Studies on the Electronic Structures of the Two-Dimensional Hole-Doped Hubbard Model (*7 pages*) Shuji WATANABE, Masahiko KATOH,
Norikazu TOMITA
044706 A Superparamagnetic State Induced by a Spin Reorientation Transition in Ultrathin Magnetic Films (*5 pages*) Yousuke NORIZUKI, Munetaka SASAKI
044707 Resolution of Entropy $\ln \sqrt{2}$ by Ordering in Two-Channel Kondo Lattice (*9 pages*) Shintaro HOSHINO, Junya OTSUKI, Yoshio KURAMOTO
044708 Dependence of Atomic Arrangement on Length of Flat Bands in Zigzag BC₂N Nanoribbons (*11 pages*) Tomoaki KANEKO, Kikuo HARIGAYA
044709 Zero-Gap State in α -(BEDT-TTF)₂I₃ under Hydrostatic Pressure (*5 pages*) Yoshikazu SUZUMURA, Akito KOBAYASHI
044710 Theoretical Analysis of Experimental Valence and Magnetization Data around the Field- and Temperature-Induced Valence Transitions of EuNi₂(Si_{0.18}Ge_{0.82})₂: Unified Interpretation for the Results from Soft X-ray Absorption, Its Magnetic Circular Dichroism, and Magnetostatic Measurements (*9 pages*) Akio KOTANI, Tetsuya NAKAMURA
044711 Electronic Structure and Noncentrosymmetric Superconductivity in Three-Orbital t_{2g} Model with Spin–Orbit Coupling: Sr₂RuO₄ near [001] Surface/Interface (*9 pages*) Youichi YANASE
044712 Superconducting Symmetry Studied from Impurity Effects in Single-Crystal Fe_{1-y}M_ySe_{0.3}Te_{0.7} (M = Co, Ni, Zn) (*7 pages*) Takuya INABE, Takayuki KAWAMATA,
Takashi NOJI, Tadashi ADACHI, Yoji KOIKE
044713 Coexistence of Ising and XY Spin Systems on a Single Tb Atom in TbCoGa₅ (*7 pages*) Naoyuki SANADA, Yuta AMOU, Ryuta WATANUKI,
Kazuya SUZUKI, Isao YAMAMOTO,
Hiroyuki MITAMURA, Toshiro SAKAKIBARA,
Mitsuhiko AKATSU, Yuichi NEMOTO, Terutaka GOTO

044714 Spin-State Transition, Magnetism and Local Crystal Structure in $\text{Eu}_{1-x}\text{Ca}_x\text{CoO}_{3-\delta}$ (8 pages)

Alexander N. VASILIEV, Tatyana M. VASILCHIKOVA, Olga S. VOLKOVA, Anton A. KAMENEV, Andrey R. KAUL, Tatyana G. KUZMOVA, Dmitry M. TSYMBARENKO, Kirill A. LOMACHENKO, Alexander V. SOLDATOV, Sergey V. STRELTSOV, Jiunn-Yuan LIN, Cheng-Nan KAO, Jin-Ming CHEN, Mahmoud ABDEL-HAFIEZ, Anja WOLTER, Rüdiger KLINGELER

044715 Gap-Dependent Quasiparticle Dynamics and Coherent Acoustic Phonons in CaFe_2As_2 across Spin Density Wave Phase Transition (9 pages)

Sunil KUMAR, Luminita HARNAGEA, Sabine WURMEHL, Bernd BUCHNER, A. K. SOOD

Cross-disciplinary physics and related areas of science and technology

044801 Extended X-ray Absorption Fine Structure Thermal Factor Analysis of Rattling in Filled Skutterudites $\text{RT}_4\text{Sb}_{12}$ (R: La, Ce, Pr, Nd, and Sm; T: Fe, Ru, and Os) (5 pages)

Kiyofumi NITTA, Yusuke OMORI, Takafumi MIYANAGA, Katsuhiko TAKEGAHARA, Hitoshi SUGAWARA, Daisuke KIKUCHI, Hideyuki SATO

044802 High-Field Magnetization Measurements of Fe_2MnSi (4 pages)

Takuo SAKON, Keiichi KOYAMA, Osamu KAMIYA, Satoshi AWAI, Shintaro NAKAMURA, Tsutomu NOJIMA, Hiroyuki NOJIRI, Kazuo WATANABE, Masahiko HIROI

044803 Group-Separation Effect in Cell-Size Distribution of *Origami* Crease Patterns (7 pages)

Ken YAMAMOTO, Yoshihiro YAMAZAKI

044804 Fabrication of Single-Crystalline Iron Oxide Fe_3O_4 Nanowires from an Oxidized Fe Plate Subjected to Bending Stress (4 pages)

Hironori TOHMYOH, Akihito WATANABE

■ SHORT NOTES

045001 Stark Effect of the $4f^{14}6s^2 \ ^1S_0 - 4f^{14}6s6p \ ^1P_1$ Transition in Yb I (2 pages)

Masayuki KAWAMURA, Wei-Guo JIN, Nichika KOBAYASHI, Shutaro KANNO, Tatsuya MINOWA

045002 Synthesis of New Layered Oxypnictides $\text{Sr}_2\text{CrO}_2(\text{FeAs})_2$ (2 pages)

Naoya EGUCHI, Fumihiro ISHIKAWA, Michihiro KODAMA, Takeshi WAKABAYASHI, Atsuko NAKAYAMA, Ayako OHMURA, Yuh YAMADA

■ ERRATA

048001 Erratum: “Microscopic Derivation of Ginzburg–Landau Equations for Coexistent States of Superconductivity and Magnetism” (1 page)

Kazuhiro KUBOKI, Keiji YANO