PHYSICAL REVIEW B™

For editorial and subscription correspondence, please see inside front cover
(ISSN: 1098-0121)

PERIODICALS
Postmaster send address changes to:

APS Subscription Services
P.O. Box 41
Annapolis Junction, MD 20701

THIRD SERIES, VOLUME 87, NUMBER 13 *CONTENTS* **APRIL 2013-1(I)**

ARTICLES

Structure, structural phase transitions, mechanical properties, defects

Hydrogen phase IV revisited via synchrotron infrared measurements in H_2 and D_2 up to 290 GPa at 296 K *(5 pages)* 134101
Paul Loubeyre, Florent Occelli, and Paul Dumas

Low-symmetry monoclinic ferroelectric phase stabilized by oxygen octahedra rotations in strained $Eu_xSr_{1-x}TiO_3$ thin films *(9 pages)* 134102
Anna N. Morozovska, Yijia Gu, Victoria V. Khist, Maya D. Glinchuk, Long-Qing Chen, Venkatraman Gopalan, and Eugene A. Eliseev

Melting of graphene clusters *(9 pages)* 134103
Sandeep Kumar Singh, M. Neek-Amal, and F. M. Peeters

Ab initio analysis of the defect structure of ceria *(11 pages)* 134104
T. Zacherle, A. Schriever, R. A. De Souza, and M. Martin

Multicomponent phase-field crystal model for structural transformations in metal alloys *(15 pages)* 134105
Nana Ofori-Opoku, Vahid Fallah, Michael Greenwood, Shahrzad Esmaeili, and Nikolas Provatas

Dislocation core radii near elastic stability limits *(7 pages)* 134106
C. A. Sawyer, J. W. Morris, Jr., and D. C. Chrzan

Energetic landscape and diffusion of He in α-Fe grain boundaries from first principles *(11 pages)* 134107
Lei Zhang, Chu-Chun Fu, and Guang-Hong Lu

Self-interstitial defects in hexagonal close packed metals revisited: Evidence for low-symmetry configurations in Ti, Zr, and Hf *(6 pages)* 134108
G. Vérité, C. Domain, Chu-Chun Fu, P. Gasca, A. Legris, and F. Willaime

Comprehensive examination of dopants and defects in $BaTiO_3$ from first principles *(7 pages)* 134109
V. Sharma, G. Pilania, G. A. Rossetti Jr., K. Slenes, and R. Ramprasad

Inhomogeneous, disordered, and partially ordered systems

Ensemble renormalization group for disordered systems *(7 pages)* 134201
Maria Chiara Angelini, Giorgio Parisi, and Federico Ricci-Tersenghi

Many-body localization in a quasiperiodic system *(15 pages)* 134202
Shankar Iyer, Vadim Oganesyan, Gil Refael, and David A. Huse

Copyright 2013 by American Physical Society

1098-0121(20130401)87:13;1-Q

(Continued)

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 87, NUMBER 13** **APRIL 2013-1(I)**

Ioffe-Regel criterion and diffusion of vibrations in random lattices *(20 pages)* 134203
Y. M. Beltukov, V. I. Kozub, and D. A. Parshin

Thermodynamics of a Potts-like model for a reconstructed zigzag edge in graphene nanoribbons *(16 pages)* 134204
J. N. B. Rodrigues, P. A. D. Gonçalves, Jaime E. Santos, and A. H. Castro Neto

Numerical results for the Edwards-Anderson spin-glass model at low temperature *(8 pages)* 134205
Julio F. Fernández and Juan J. Alonso

Dynamic transitions in molecular dynamics simulations of supercooled silicon *(7 pages)* 134206
Xiaojun Mei and Jacob Eapen

Simulation of quantum zero-point effects in water using a frequency-dependent thermostat *(11 pages)* 134207
Sriram Ganeshan, R. Ramírez, and M. V. Fernández-Serra

Dual fermion method for disordered electronic systems *(6 pages)* 134208
H. Terletska, S.-X. Yang, Z. Y. Meng, J. Moreno, and M. Jarrell

Dynamics, dynamical systems, lattice effects:

Dynamics of quantum coherences at strong coupling to a heat bath *(9 pages)* 134301
Denis Kast and Joachim Ankerhold

First-principles study of transport properties in Os and OsSi *(9 pages)* 134302
Bin Xu and Matthieu J. Verstraete

Ab initio study of the stabilities of and mechanism of superionic transport in lithium-rich antiperovskites *(8 pages)* 134303
Yi Zhang, Yusheng Zhao, and Changfeng Chen

Magnetism

Effect of quantum well states in Cu overlayer on magnetic anisotropy of Fe and Co films revisited *(7 pages)* 134401
S. Manna, P. L. Gastelois, M. Dąbrowski, P. Kuświk, M. Cinal, M. Przybylski, and J. Kirschner

Spin orders and lattice distortions of geometrically frustrated 6H-perovskites $Ba_3B'Ru_2O_9$ ($B' = La^{3+}$, Nd^{3+}, and Y^{3+}) *(8 pages)* 134402
Mark S. Senn, Simon A. J. Kimber, Angel M. Arevalo Lopez, Adrian H. Hill, and J. Paul Attfield

Magnetoelectric resonances and predicted microwave diode effect of the skyrmion crystal in a multiferroic chiral-lattice magnet *(5 pages)* 134403
Masahito Mochizuki and Shinichiro Seki

Exchange bias, training effect, and bimodal distribution of blocking temperatures in electrodeposited core-shell nanotubes *(7 pages)* 134404
M. P. Proenca, J. Ventura, C. T. Sousa, M. Vazquez, and J. P. Araujo

Influence of short-range spin correlations on the μSR polarization functions in the slow dynamic limit: Application to the quantum spin-liquid system $Yb_2Ti_2O_7$ *(8 pages)* 134405
A. Yaouanc, A. Maisuradze, and P. Dalmas de Réotier

Field-dependent thermal conductivity and Lorenz number in Co/Cu multilayers *(9 pages)* 134406
Johannes Kimling, Kornelius Nielsch, Karsten Rott, and Günter Reiss

Fluctuation-induced first-order phase transition in Dzyaloshinskii-Moriya helimagnets *(16 pages)* 134407
M. Janoschek, M. Garst, A. Bauer, P. Krautscheid, R. Georgii, P. Böni, and C. Pfleiderer

(Continued)

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 87, NUMBER 13** **APRIL 2013-1(I)**

$Yb_2Sn_2O_7$: A magnetic Coulomb liquid at a quantum critical point *(5 pages)* 134408
Z. L. Dun, E. S. Choi, H. D. Zhou, A. M. Hallas, H. J. Silverstein, Y. Qiu, J. R. D. Copley, J. S. Gardner, and C. R. Wiebe

Weak ferromagnetism with the Kondo screening effect in the Kondo lattice systems *(5 pages)* 134409
Yu Liu, Guang-Ming Zhang, and Lu Yu

Magnetic and electronic properties of $NpCo_2$: Evidence for long-range magnetic order *(7 pages)* 134410
J. P. Sanchez, J.-C. Griveau, P. Javorsky, E. Colineau, R. Eloirdi, P. Boulet, J. Rebizant, F. Wastin, A. B. Shick, and R. Caciuffo

Perpendicular magnetic anisotropy and noncollinear magnetic structure in ultrathin Fe films on W(110) *(8 pages)* 134411
M. Ślęzak, T. Ślęzak, K. Freindl, W. Karaś, N. Spiridis, M. Zając, A. I. Chumakov, S. Stankov, R. Rüffer, and J. Korecki

Barium vanadium silicate $BaVSi_2O_7$: A t_{2g} counterpart of the Han purple compound *(8 pages)* 134412
A. Vasiliev, O. Volkova, E. Zvereva, M. Isobe, Y. Ueda, S. Yoshii, H. Nojiri, V. Mazurenko, M. Valentyuk, V. Anisimov, I. Solovyev, R. Klingeler, and B. Büchner

Spin dynamics in the unconventional multiferroic $AgCrS_2$ *(8 pages)* 134413
F. Damay, S. Petit, M. Braendlein, S. Rols, J. Ollivier, C. Martin, and A. Maignan

Spin/orbit moment imbalance in the near-zero moment ferromagnetic semiconductor SmN *(5 pages)* 134414
Eva-Maria Anton, B. J. Ruck, C. Meyer, F. Natali, Harry Warring, Fabrice Wilhelm, A. Rogalev, V. N. Antonov, and H. J. Trodahl

Nonvolatile reconfigurable current divider based on spin extraction in lateral ferromagnet/nonmagnet transport structures *(6 pages)* 134415
Yori Manzke, Rouin Farshchi, Pawel Bruski, Jens Herfort, and Manfred Ramsteiner

Spin state and spectroscopic modes of multiferroic $BiFeO_3$ *(10 pages)* 134416
Randy S. Fishman, Jason T. Haraldsen, Nobuo Furukawa, and Shin Miyahara

Electric-field-induced reorientation and flip in domain magnetization and light diffraction in an yttrium-iron-garnet/lead-zirconate-titanate bilayer *(7 pages)* 134417
I. V. Zavislyak, V. P. Sohatsky, M. A. Popov, and G. Srinivasan

Spin dynamics and resonant inelastic x-ray scattering in chromium with commensurate spin-density wave order *(8 pages)* 134418
Koudai Sugimoto, Zhi Li, Eiji Kaneshita, Kenji Tsutsui, and Takami Tohyama

Theory of ground-state switching in an array of magnetic nanodots by application of a short external magnetic field pulse *(12 pages)* 134419
Roman Verba, Vasil Tiberkevich, Konstantin Guslienko, Gennadiy Melkov, and Andrei Slavin

Universality in the entropy change for the inverse magnetocaloric effect *(7 pages)* 134420
Anis Biswas, Sayan Chandra, Tapas Samanta, Barnali Ghosh, Subarna Datta, M. H. Phan, A. K. Raychaudhuri, I. Das, and H. Srikanth

Identifying the critical point of the weakly first-order itinerant magnet $DyCo_2$ with complementary magnetization and calorimetric measurements *(6 pages)* 134421
K. Morrison, A. Dupas, Y. Mudryk, V. K. Pecharsky, K. A. Gschneidner, A. D. Caplin, and L. F. Cohen

(Continued)

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 87, NUMBER 13** **APRIL 2013-1(I)**

Magnetic states in low-pinning high-anisotropy material nanostructures suitable for dynamic imaging *(6 pages)* 134422
Felix Büttner, C. Moutafis, A. Bisig, P. Wohlhüter, C. M. Günther, J. Mohanty, J. Geilhufe, M. Schneider, C. v. Korff Schmising, S. Schaffert, B. Pfau, M. Hantschmann, M. Riemeier, M. Emmel, S. Finizio, G. Jakob, M. Weigand, J. Rhensius, J. H. Franken, R. Lavrijsen, H. J. M. Swagten, H. Stoll, S. Eisebitt, and M. Kläui

Observation of an intersublattice exchange magnon in $CoCr_2O_4$ and analysis of magnetic ordering *(5 pages)* 134423
D. Kamenskyi, H. Engelkamp, T. Fischer, M. Uhlarz, J. Wosnitza, B. P. Gorshunov, G. A. Komandin, A. S. Prokhorov, M. Dressel, A. A. Bush, V. I. Torgashev, and A. V. Pronin

Giant generic topological Hall resistivity of MnSi under pressure *(17 pages)* 134424
R. Ritz, M. Halder, C. Franz, A. Bauer, M. Wagner, R. Bamler, A. Rosch, and C. Pfleiderer

Gyrotropic frequencies of pinned vortices in magnetic nanodisks *(4 pages)* 134425
C. E. Zaspel

Interfacial coupling in multiferroic/ferromagnet heterostructures *(6 pages)* 134426
M. Trassin, J. D. Clarkson, S. R. Bowden, Jian Liu, J. T. Heron, R. J. Paull, E. Arenholz, D. T. Pierce, and J. Unguris

Superfluidity and superconductivity

Vortex structures in model p-wave superconducting Sr_2RuO_4: Single two-dimensional band vs quasi-one-dimensional bands *(9 pages)* 134501
Jia-Wei Huo and Fu-Chun Zhang

Pressure dependence of superconducting critical temperature and upper critical field of $2H$-NbS_2 *(6 pages)* 134502
V. G. Tissen, M. R. Osorio, J. P. Brison, N. M. Nemes, M. García-Hernández, L. Cario, P. Rodière, S. Vieira, and H. Suderow

Phase structure and phase transitions in a three-dimensional $SU(2)$ superconductor *(14 pages)* 134503
Egil V. Herland, Troels A. Bojesen, Egor Babaev, and Asle Sudbø

Tunable coupling engineering between superconducting resonators: From sidebands to effective gauge fields *(12 pages)* 134504
Borja Peropadre, David Zueco, Friedrich Wulschner, Frank Deppe, Achim Marx, Rudolf Gross, and Juan José García-Ripoll

Probe spectroscopy of quasienergy states *(11 pages)* 134505
Matti Silveri, Jani Tuorila, Mika Kemppainen, and Erkki Thuneberg

Electrostatic tailoring of magnetic interference in quantum point contact ballistic Josephson junctions *(5 pages)* 134506
M. Amado, A. Fornieri, F. Carillo, G. Biasiol, L. Sorba, V. Pellegrini, and F. Giazotto

Magnetic neutron diffraction study of $Ba(Fe_{1-x}Co_x)_2As_2$ critical exponents through the tricritical doping *(6 pages)* 134507
D. M. Pajerowski, C. R. Rotundu, J. W. Lynn, and R. J. Birgeneau

Magnetic form factor, field map, and field distribution for a BCS type-II superconductor near its $B_{c2}(T)$ phase boundary *(14 pages)* 134508
A. Maisuradze and A. Yaouanc

Tight-binding description of intrinsic superconducting correlations in multilayer graphene *(7 pages)* 134509
W. A. Muñoz, L. Covaci, and F. M. Peeters

(Continued)

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 87, NUMBER 13** **APRIL 2013-1(I)**

Ginzburg-Landau theory for multiband superconductors: Microscopic derivation *(8 pages)* 134510
N. V. Orlova, A. A. Shanenko, M. V. Milošević, F. M. Peeters, A. V. Vagov, and V. M. Axt

Interaction proximity effect at the interface between a superconductor and a topological insulator quantum well *(22 pages)* 134511
Predrag Nikolić and Zlatko Tešanović

Temperature dependence of the upper critical field of FeSe single crystals *(8 pages)* 134512
S. I. Vedeneev, B. A. Piot, D. K. Maude, and A. V. Sadakov

Upper critical field of high-quality single crystals of KFe_2As_2 *(6 pages)* 134513
Yong Liu, M. A. Tanatar, V. G. Kogan, Hyunsoo Kim, T. A. Lograsso, and R. Prozorov

Time-resolved optical response of all-oxide $YBa_2Cu_3O_7/La_{0.7}Sr_{0.3}MnO_3$ proximitized bilayers *(9 pages)* 134514
L. Parlato, R. Arpaia, C. De Lisio, F. Miletto Granozio, G. P. Pepe, P. Perna, V. Pagliarulo, C. Bonavolontà, M. Radovic, Y. Wang, Roman Sobolewski, and U. Scotti di Uccio

Transverse force on a vortex and vortex mass: Effects of free bulk and vortex-core bound quasiparticles *(18 pages)* 134515
E. B. Sonin

Observation of charge accumulation and onsite Coulomb repulsion at transition metal impurities in the iron pnictides *(7 pages)* 134516
R. Kraus, V. Bisogni, L. Harnagea, S. Aswartham, S. Wurmehl, G. Levy, I. S. Elfimov, B. Büchner, G. A. Sawatzky, and J. Geck

Resolving the effects of frequency-dependent damping and quantum phase diffusion in $YBa_2Cu_3O_{7-x}$ Josephson junctions *(7 pages)* 134517
D. Stornaiuolo, G. Rotoli, D. Massarotti, F. Carillo, L. Longobardi, F. Beltram, and F. Tafuri

Onset of magnetism in optimally electron-doped $LFe_{1-x}Ru_xAsO_{1-y}F_y$ (L = La, Nd, or Sm) superconductors around $x = \frac{1}{4}$ *(6 pages)* 134518
S. Sanna, P. Carretta, R. De Renzi, G. Prando, P. Bonfà, M. Mazzani, G. Lamura, T. Shiroka, Y. Kobayashi, and M. Sato

𝔖 Axion topological field theory of topological superconductors *(10 pages)* 134519
Xiao-Liang Qi, Edward Witten, and Shou-Cheng Zhang

High bias anomaly in $YBa_2Cu_3O_{7-x}/LaMnO_{3+\delta}/YBa_2Cu_3O_{7-x}$ superconductor/ferromagnetic insulator/superconductor junctions: Evidence for a long-range superconducting proximity effect through the conduction band of a ferromagnetic insulator *(11 pages)* 134520
T. Golod, A. Rydh, V. M. Krasnov, I. Marozau, M. A. Uribe-Laverde, D. K. Satapathy, Th. Wagner, and C. Bernhard

COMMENTS

Comment on "Self-doping effects in cobalt silicide CoSi: Electrical, magnetic, elastic, and thermodynamic properties" *(3 pages)* 136401
V. N. Narozhnyi

Reply to "Comment on 'Self-doping effects in cobalt silicide CoSi: Electrical, magnetic, elastic, and thermodynamic properties' " *(2 pages)* 136402
Sergei M. Stishov, Alla E. Petrova, Vladimir A. Sidorov, and Dirk Menzel

(Continued)

𝔖 The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 87, NUMBER 13** **APRIL 2013-1(I)**

Comment on "Phase diagram of reentrant and magnetic-field-induced superconducting states with Kondo impurities in bulk and proximity-coupled compounds" *(3 pages)* 136501
Guy Deutscher, Shay Hacohen-Gourgy, and A. C. Mota

Reply to "Comment on 'Phase diagram of reentrant and magnetic-field-induced superconducting states with Kondo impurities in bulk and proximity-coupled compounds' " *(2 pages)* 136502
Yuval B. Simons, Ora Entin-Wohlman, Yuval Oreg, and Yoseph Imry

ERRATA

Publisher's Note: Nonlocal effect and dimensions of Cooper pairs measured by low-energy muons and polarized neutrons in type-I superconductors [Phys. Rev. B **87**, 104508 (2013)] *(1 page)* . . . . . 139901(E)
V. Kozhevnikov, A. Suter, H. Fritzsche, V. Gladilin, A. Volodin, T. Moorkens, M. Trekels, J. Cuppens, B. M. Wojek, T. Prokscha, E. Morenzoni, G. J. Nieuwenhuys, M. J. Van Bael, K. Temst, C. Van Haesendonck, and J. O. Indekeu

Erratum: Frustrated pentagonal Cairo lattice in the non-collinear antiferromagnet $Bi_4Fe_5O_{13}F$ [Phys. Rev. B **87**, 024423 (2013)] *(1 page)* . . . . . 139902(E)
Artem M. Abakumov, Dmitry Batuk, Alexander A. Tsirlin, Clemens Prescher, Leonid Dubrovinsky, Denis V. Sheptyakov, Walter Schnelle, Joke Hadermann, and Gustaaf Van Tendeloo

Erratum: Antiferromagnetic spin ice correlations at $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$ in the ground state of the pyrochlore magnet $Tb_2Ti_2O_7$ [Phys. Rev. B **87**, 094410 (2013)] *(1 page)* . . . . . 139903(E)
K. Fritsch, K. A. Ross, Y. Qiu, J. R. D. Copley, T. Guidi, R. I. Bewley, H. A. Dabkowska, and B. D. Gaulin

Publisher's Note: Full magnetoelectric response of Cr_2O_3 from first principles [Phys. Rev. B **86**, 094430 (2012)] *(1 page)* . . . . . 139904(E)
Andrei Malashevich, Sinisa Coh, Ivo Souza, and David Vanderbilt

Erratum: Classifying fractionalization: Symmetry classification of gapped $\mathbb{Z}_2$ spin liquids in two dimensions [Phys. Rev. B **87**, 104406 (2013)] *(1 page)* . . . . . 139905(E)
Andrew M. Essin and Michael Hermele

Erratum: Breakdown of Hund's third rule in amorphous Co-W nanoparticles and crystalline Co_3W alloys [Phys. Rev. B **86**, 064428 (2012)] *(1 page)* . . . . . 139906(E)
A. I. Figueroa, F. Bartolomé, J. Bartolomé, L. M. García, F. Petroff, C. Deranlot, F. Wilhelm, and A. Rogalev

Erratum: Magnetic excitations and orbital physics in the ferrimagnetic spinels MnB_2O_4 (B = Mn, V) [Phys. Rev. B **77**, 054412 (2008)] *(1 page)* . . . . . 139907(E)
J.-H. Chung, J.-H. Kim, S.-H. Lee, T. J. Sato, T. Suzuki, M. Katsumura, and T. Katsufuji

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).