

CONTENTS - Continued

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 94, NUMBER 5

AUGUST 2016-1(I)

Current loops, phase transitions, and the Higgs mechanism in Josephson-coupled multicomponent superconductors (<i>11 pages</i>)	054518
Peder Notto Galteland and Asle Sudbø	
Paramagnetically induced gapful topological superconductors (<i>20 pages</i>)	054519
Akito Daido and Youichi Yanase	
Low-field magnetoresponse of strongly disordered two-dimensional superconductors (<i>8 pages</i>)	054520
S. Sankar and V. Tripathi	
Transverse forces on vortices in superfluids in a periodic potential (<i>13 pages</i>)	054521
E. B. Sonin	
Coherent diffraction of thermal currents in long Josephson tunnel junctions (<i>9 pages</i>)	054522
Claudio Guarcello, Francesco Giazotto, and Paolo Solinas	
Superconducting gap structure of the skutterudite $\text{LaPt}_4\text{Ge}_{12}$ probed by specific heat and thermal transport (<i>7 pages</i>)	054523
H. Pfau, M. Nicklas, U. Stockert, R. Gumenuik, W. Schnelle, A. Leithe-Jasper, Y. Grin, and F. Steglich	
Effect of nonmagnetic impurities on $s_{\pm}$ superconductivity in the presence of incipient bands (<i>6 pages</i>)	054524
X. Chen, V. Mishra, S. Maiti, and P. J. Hirschfeld	
Incipient Berezinskii-Kosterlitz-Thouless transition in two-dimensional coplanar Josephson junctions (<i>11 pages</i>)	054525
D. Massarotti, B. Jouault, V. Rouco, S. Charpentier, T. Bauch, A. Michon, A. De Candia, P. Lucignano, F. Lombardi, F. Tafuri, and A. Tagliacozzo	

ERRATA

Erratum: Theory of Raman response in three-dimensional Kitaev spin liquids: Application to β - and γ - Li_2IrO_3 compounds [Phys. Rev. B 92 , 094439 (2015)] (<i>1 page</i>)	059901(E)
Brent Perreault, Johannes Knolle, Natalia B. Perkins, and F. J. Burnell	
Publisher's Note: Pairing symmetry of the one-band Hubbard model in the paramagnetic weak-coupling limit: A numerical RPA study [Phys. Rev. B 92 , 104505 (2015)] (<i>1 page</i>)	059902(E)
A. T. Rømer, A. Kreisel, I. Eremin, M. A. Malakhov, T. A. Maier, P. J. Hirschfeld, and B. M. Andersen	
Publisher's Note: Observation of a charge delocalization from Se vacancies in Bi_2Se_3 : A positron annihilation study of native defects [Phys. Rev. B 94 , 014117 (2016)] (<i>1 page</i>)	059903(E)
I. Unzueta, N. Zabala, V. Marín-Borrás, V. Muñoz-Sanjosé, J. A. García, and F. Plazaola	
Erratum: Improved real-space genetic algorithm for crystal structure and polymorph prediction [Phys. Rev. B 77 , 134117 (2008)] (<i>1 page</i>)	059904(E)
N. L. Abraham and M. I. J. Probert	

CONTENTS - Continued

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 94, NUMBER 5

AUGUST 2016-1(I)

Hydrodynamic theory of quantum fluctuating superconductivity (19 pages)	054502
Richard A. Davison, Luca V. Delacrétaz, Blaise Goutéraux, and Sean A. Hartnoll	
Triplet generation and upper critical field in superconducting spin valves based on CrO ₂ (9 pages)	054503
S. Voltan, A. Singh, and J. Aarts	
Anomalous oscillatory magnetoresistance in superconductors (8 pages)	054504
Milind N. Kunchur, Charles L. Dean, and Boris I. Ivlev	
Nested defects on the boundary of topological superconductors (11 pages)	054505
James de Lisle, Giandomenico Palumbo, Adil A. Gangat, and Jiannis K. Pachos	
Large thermoelectric power and figure of merit in a ferromagnetic–quantum dot–superconducting device (9 pages)	054506
Sun-Yong Hwang, Rosa López, and David Sánchez	
Electron-phonon superconductivity in the ternary phosphides BaM ₂ P ₂ (M = Ni, Rh, and Ir) (11 pages)	054507
Ertuğrul Karaca, H. M. Tütüncü, G. P. Srivastava, and S. Uğur	
Competing effects of Mn and Y doping on the low-energy excitations and phase diagram of La _{1-y} Y _y Fe _{1-x} Mn _x AsO _{0.89} F _{0.11} iron-based superconductors (8 pages)	054508
M. Moroni, S. Sanna, G. Lamura, T. Shiroka, R. De Renzi, R. Kappenberger, M. A. Afrassa, S. Wurmehl, A. U. B. Wolter, B. Büchner, and P. Carretta	
Dendritic flux instabilities in YBa ₂ Cu ₃ O _{7-x} films: Effects of temperature and magnetic field ramp rate (6 pages)	054509
E. Baruch-El, M. Baziljevich, B. Ya. Shapiro, T. H. Johansen, A. Shaulov, and Y. Yeshurun	
Competing interactions in population-imbalanced two-component Bose-Einstein condensates (14 pages)	054510
Peder Notto Galteland and Asle Sudbø	
Between types I and II: Intertype flux exotic states in thin superconductors (5 pages)	054511
W. Y. Córdoba-Camacho, R. M. da Silva, A. Vagov, A. A. Shanenko, and J. Albino Aguiar	
Quantization of conductance minimum and index theorem (6 pages)	054512
Satoshi Ikegaya, Shu-Ichiro Suzuki, Yukio Tanaka, and Yasuhiro Asano	
Incommensurate defect-driven electron correlations in Pr _{1.85} Ce _{0.15} CuO _{4+δ} (5 pages)	054513
Ai Ikeda, Hiroshi Irie, Hideki Yamamoto, and Yoshiharu Krockenberger	
Thermodynamic study of gap structure and pair-breaking effect by magnetic field in the heavy-fermion superconductor CeCu ₂ Si ₂ (9 pages)	054514
Shunichiro Kittaka, Yuya Aoki, Yasuyuki Shimura, Toshiro Sakakibara, Silvia Seiro, Christoph Geibel, Frank Steglich, Yasumasa Tsutsumi, Hiroaki Ikeda, and Kazushige Machida	
Superconducting properties of the noncentrosymmetric superconductor Re ₆ Hf (9 pages)	054515
D. Singh, A. D. Hillier, A. Thamizhavel, and R. P. Singh	
Rise and fall of shape resonances in thin films of BCS superconductors (14 pages)	054516
D. Valentini, D. van der Marel, and C. Berthod	
Pressure-driven superconductivity in the transition-metal pentatelluride HfTe ₅ (9 pages)	054517
Yanpeng Qi, Wujun Shi, Pavel G. Naumov, Nitesh Kumar, Walter Schnelle, Oleg Barkalov, Chandra Shekhar, Horst Borrmann, Claudia Felser, Binghai Yan, and Sergey A. Medvedev	

(Continued)

Coexisting multiple order parameters in single-layer LuMnO ₃ films (6 pages)	054423
Christof W. Schneider, Saumya Mukherjee, Kenta Shimamoto, Saikat Das, Hubertus Luetkens, Jonathan S. White, Matthias Bator, Yi Hu, Jochen Stahn, Thomas Prokscha, Andreas Suter, Zaher Salman, Michel Kenzelmann, Thomas Lippert, and Christof Niedermayer	
Effect of Dzyaloshinski-Moriya interaction on elastic small-angle neutron scattering (10 pages)	054424
Andreas Michels, Denis Mettus, Dirk Honecker, and Konstantin L. Metlov	
Magnetoelastic properties of antiferromagnetically coupled magnetic composite media (8 pages)	054425
Juan J. Valencia-Cardona and Perry H. Leo	
Self-polarized terahertz magnon absorption in a single crystal of BiFeO ₃ (6 pages)	054426
Eiichi Matsubara, Takeshi Mochizuki, Masaya Nagai, and Masaaki Ashida	
Electronic structure and magneto-optical Kerr effect spectra of ferromagnetic shape-memory Ni-Mn-Ga alloys: Experiment and density functional theory calculations (12 pages)	054427
S. Uba, A. Bonda, L. Uba, L. V. Bekenov, V. N. Antonov, and A. Ernst	
Exchange and spin-orbit induced phenomena in diluted (Ga,Mn)As from first principles (8 pages)	054428
J. Kudrnovský, V. Drchal, and I. Turek	
High-resolution magneto-optical spectroscopy of ⁷ LiYF ₄ : ¹⁶⁷ Er ³⁺ , ¹⁶⁶ Er ³⁺ and analysis of hyperfine structure of ultranarrow optical transitions (8 pages)	054429
K. I. Gerasimov, M. M. Minnegaliev, B. Z. Malkin, E. I. Baibekov, and S. A. Moiseev	
Temperature dependence of the threshold magnetic field for nucleation and domain wall propagation in an inhomogeneous structure with grain boundary (14 pages)	054430
Sasmita Mohakud, Sergio Andraus, Masamichi Nishino, Akimasa Sakuma, and Seiji Miyashita	
Magnetic tetrastability in a spin chain (7 pages)	054431
Vivien Pianet, Matias Urdampilleta, Thierry Colin, Rodolphe Clérac, and Claude Coulon	
Exchange bias and surface effects in bimagnetic CoO-core/Co _{0.5} Ni _{0.5} Fe ₂ O ₄ -shell nanoparticles (9 pages)	054432
Gabriel Lavorato, Elin Winkler, Alberto Ghirri, Enio Lima, Jr., Davide Peddis, Horacio E. Troiani, Dino Fiorani, Elisabetta Agostinelli, Daniele Rinaldi, and Roberto D. Zysler	
Spin pumping in strongly coupled magnon-photon systems (8 pages)	054433
H. Maier-Flaig, M. Harder, R. Gross, H. Huebl, and S. T. B. Goennenwein	
Longitudinal spin dynamics in ferrimagnets: Multiple spin wave nature of longitudinal spin excitations (13 pages)	054434
V. N. Krivoruchko	
Hybridization and spin-orbit coupling effects in the quasi-one-dimensional spin- $\frac{1}{2}$ magnet Ba ₃ Cu ₃ Sc ₄ O ₁₂ (11 pages)	054435
D. I. Badrtdinov, O. S. Volkova, A. A. Tsirlin, I. V. Solov'yev, A. N. Vasiliev, and V. V. Mazurenko	
Evolution of thermodynamic properties and inelastic neutron scattering intensities for spin- $\frac{1}{2}$ antiferromagnetic quantum rings (9 pages)	054436
Jason T. Haraldsen	
Superfluidity and superconductivity	
Evolution of supercurrent path in Nb/Ru/Sr ₂ RuO ₄ dc-SQUIDs (8 pages)	054501
Y. Nago, R. Ishiguro, T. Sakurai, M. Yakabe, T. Nakamura, S. Yonezawa, S. Kashiwaya, H. Takayanagi, and Y. Maeno	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 94, NUMBER 5

AUGUST 2016-1(I)

Magnons in disordered nonstoichiometric low-dimensional magnets (<i>15 pages</i>)	054407
Paweł Buczek, Leonid M. Sandratskii, Nadine Buczek, Stefan Thomas, Giovanni Vignale, and Arthur Ernst	
Skyrmion domain wall collision and domain wall-gated skyrmion logic (<i>11 pages</i>)	054408
Xiangjun Xing, Philip W. T. Pong, and Yan Zhou	
Spin-transfer torques in antiferromagnetic textures: Efficiency and quantification method (<i>8 pages</i>)	054409
Yuta Yamane, Jun'ichi Ieda, and Jairo Sinova	
Magnetostatic spin wave modes in trilayer nanowire arrays probed using ferromagnetic resonance spectroscopy (<i>6 pages</i>)	054410
X. Zhou and A. O. Adeyeye	
Nonuniversal scaling of the magnetocaloric effect as an insight into spin-lattice interactions in manganites (<i>5 pages</i>)	054411
Anders Smith, Kaspar K. Nielsen, Henrique N. Bez, and Christian R. H. Bahl	
Off-easy-plane antiferromagnetic spin canting in coupled FePt/NiO bilayer structure with perpendicular exchange bias (<i>5 pages</i>)	054412
Tenghua Gao, Nobuhide Itokawa, Jian Wang, Youxing Yu, Takashi Harumoto, Yoshio Nakamura, and Ji Shi	
Temperature dependence of angular momentum transport across interfaces (<i>9 pages</i>)	054413
Kai Chen, Weiwei Lin, C. L. Chien, and Shufeng Zhang	
Movement of magnetic domain walls induced by single femtosecond laser pulses (<i>7 pages</i>)	054414
O. Sandig, Y. A. Shokr, J. Vogel, S. Valencia, F. Kronast, and W. Kuch	
Fully relativistic description of spin-orbit torques by means of linear response theory (<i>12 pages</i>)	054415
S. Wimmer, K. Chadova, M. Seemann, D. Ködderitzsch, and H. Ebert	
Spin transport in tantalum studied using magnetic single and double layers (<i>8 pages</i>)	054416
Eric Montoya, Pavlo Omelchenko, Chris Coutts, Nicholas R. Lee-Hone, René Hübner, David Broun, Bret Heinrich, and Erol Girt	
Competing anisotropies in exchange-biased nanostructured thin films (<i>12 pages</i>)	054417
F. J. T. Goncalves, G. W. Paterson, R. L. Stamps, S. O'Reilly, R. Bowman, G. Gubbiotti, and D. S. Schmool	
Thickness dependence of spin Hall angle of Au grown on $\text{Y}_3\text{Fe}_5\text{O}_{12}$ epitaxial films (<i>6 pages</i>)	054418
Jack T. Brangham, Keng-Yuan Meng, Angela S. Yang, James C. Gallagher, Bryan D. Esser, Shane P. White, Sisheng Yu, David W. McComb, P. Chris Hammel, and Fengyuan Yang	
Synchronization of electrically coupled stochastic magnetic oscillators induced by thermal and electrical noise (<i>8 pages</i>)	054419
A. Mizrahi, N. Locatelli, J. Grollier, and D. Querlioz	
Formation of a topological monopole lattice and its dynamics in three-dimensional chiral magnets (<i>7 pages</i>)	054420
Seong-Gyu Yang, Ye-Hua Liu, and Jung Hoon Han	
Control of coexisting magnetic phases by electric fields in $\text{NdFe}_3(\text{BO}_3)_4$ (<i>7 pages</i>)	054421
S. Partzsch, J.-E. Hamann-Borrero, C. Mazzoli, J. Herrero-Martin, S. Valencia, R. Feyerherm, E. Dudzik, A. Vasiliev, L. Bezmaternykh, B. Büchner, and J. Geck	
Temperature and magnetic field dependence of rare-earth $\leftrightarrow$ iron exchange resonance mode in a magnetic oxide studied with femtosecond magneto-optical Kerr effect (<i>5 pages</i>)	054422
Marwan Deb, Pierre Molho, Bernard Barbara, and Jean-Yves Bigot	

(Continued)

Phonon anharmonicity and negative thermal expansion in SnSe (13 pages)	054307
Dipanshu Bansal, Jiawang Hong, Chen W. Li, Andrew F. May, Wallace Porter, Michael Y. Hu, Douglas L. Abernathy, and Olivier Delaire	
Extended asymmetric hot region formation due to shockwave interactions following void collapse in shocked high explosive (7 pages)	054308
Tzu-Ray Shan, Ryan R. Wixom, and Aidan P. Thompson	
Access to phases of coherent phonon excitations by femtosecond ultraviolet photoelectron diffraction (7 pages)	054309
M. Greif, L. Kasmi, L. Castiglioni, M. Lucchini, L. Gallmann, U. Keller, J. Osterwalder, and M. Hengsberger	
Ab initio computational study on the lattice thermal conductivity of Zintl clathrates [Si ₁₉ P ₄]Cl ₄ and Na ₄ [Al ₄ Si ₁₉] (11 pages)	054310
Ville J. Härkönen and Antti J. Karttunen	
Time-dependent spin and transport properties of a single-molecule magnet in a tunnel junction (15 pages)	054311
H. Hammar and J. Fransson	
Dynamics of exciton-polaritons in discrete lattices under incoherent localized pumping (11 pages)	054312
A. V. Yulin, I. Yu. Chestnov, X. Ma, S. Schumacher, U. Peschel, and O. A. Egorov	
 Exact steady states for quantum quenches in integrable Heisenberg spin chains (19 pages)	054313
Lorenzo Piroli, Eric Vernier, and Pasquale Calabrese	
Mapping the chemical potential landscape of a triple quantum dot (7 pages)	054314
M. A. Broome, S. K. Gorman, J. G. Keizer, T. F. Watson, S. J. Hile, W. J. Baker, and M. Y. Simmons	
Lattice dynamics and domain wall oscillations of morphotropic Pb(Zr,Ti)O ₃ ceramics (10 pages)	054315
E. Buixaderas, V. Bovtun, M. Kempa, D. Nuzhnyy, M. Savinov, P. Vanek, I. Gregora, and B. Malic	
Magnetism	
Magnetic, resonance, and optical properties of Cu ₃ Sm(SeO ₃) ₂ O ₂ Cl: A rare-earth francisite compound (11 pages)	054401
K. V. Zakharov, E. A. Zvereva, M. M. Markina, M. I. Stratan, E. S. Kuznetsova, S. F. Dunaev, P. S. Berdonosov, V. A. Dolgikh, A. V. Olenov, S. A. Klimin, L. S. Mazaev, M. A. Kashchenko, Md. A. Ahmed, A. Banerjee, S. Bandyopadhyay, A. Iqbal, B. Rahaman, T. Saha-Dasgupta, and A. N. Vasiliev	
Skymions in square-lattice antiferromagnets (6 pages)	054402
Rick Keesman, Mark Raaijmakers, A. E. Baerends, G. T. Barkema, and R. A. Duine	
Spin dynamical phase and antiresonance in a strongly coupled magnon-photon system (5 pages)	054403
Michael Harder, Paul Hyde, Lihui Bai, Christophe Match, and Can-Ming Hu	
Modulated systems in external fields: Conditions for the presence of reentrant phase diagrams (8 pages)	054404
Alejandro Mendoza-Coto, Orlando V. Billoni, Sergio A. Cannas, and Daniel A. Stariolo	
Thickness dependence of exchange coupling in epitaxial Fe ₃ O ₄ /CoFe ₂ O ₄ soft/hard magnetic bilayers (6 pages)	054405
G. Lavorato, E. Winkler, B. Rivas-Murias, and F. Rivadulla	
Correlations of crystallographic defects and anisotropy with magnetotransport properties in Fe _x TaS ₂ single crystals (0.23 ≤ x ≤ 0.35) (7 pages)	054406
Chih-Wei Chen, Shaline Chikara, Vivien S. Zapf, and E. Morosan	

(Continued)

Ferroelectric phase transitions in multiferroic $\text{Ge}_{1-x}\text{Mn}_x\text{Te}$ driven by local lattice distortions (8 pages)	054112
Dominik Kriegner, Jürgen Furthmüller, Raimund Kirchschlager, Jan Endres, Lukas Horak, Petr Cejpek, Helena Reichlova, Xavier Marti, Daniel Primetzhofer, Andreas Ney, Günther Bauer, Friedhelm Bechstedt, Vaclav Holy, and Gunther Springholz	
Realization of stable ferromagnetic order in a topological insulator: Codoping-enhanced magnetism in 4f transition metal doped Bi_2Se_3 (8 pages)	054113
Bei Deng, Yiyou Zhang, S. B. Zhang, Yayu Wang, Ke He, and Junyi Zhu	
<i>Ab initio</i> modeling of quasielastic neutron scattering of hydrogen pipe diffusion in palladium (9 pages)	054114
Emily J. Schiavone and Dallas R. Trinkle	
Local twin domains and tip-voltage-induced domain switching of monoclinic M_C phase in $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ -0.34 PbTiO_3 single crystal revealed by piezoresponse force microscopy (7 pages)	054115
Ruixue Wang, Bin Yang, Zhenlin Luo, Enwei Sun, Yuan Sun, Han Xu, Jiangtao Zhao, Limei Zheng, Hua Zhou, Chen Gao, and Wenwu Cao	
Computational discovery of stable M_2AX phases (8 pages)	054116
Michael Ashton, Richard G. Hennig, Scott R. Broderick, Krishna Rajan, and Susan B. Sinnott	
Giant thermal vibrations in the framework compounds $\text{Ba}_{1-x}\text{Sr}_x\text{Al}_2\text{O}_4$ (6 pages)	054117
S. Kawaguchi, Y. Ishii, E. Tanaka, H. Tsukasaki, Y. Kubota, and S. Mori	
Inhomogeneous, disordered, and partially ordered systems	
Pressure-induced polyamorphism in a main-group metallic glass (5 pages)	054201
Min Wu, Hongbo Lou, John S. Tse, Hanyu Liu, Yuanming Pan, Kazushi Takahama, Takahiro Matsuoka, Katsuya Shimizu, and Jianzhong Jiang	
Dynamics, dynamical systems, lattice effects:	
Transient phases and dynamical transitions in the post-quench evolution of the generalized Bose-Anderson model (13 pages)	054301
Dmitry V. Chichinadze, Pedro Ribeiro, Yulia E. Shchadilova, and Alexey N. Rubtsov	
Dynamical phase transitions and pattern formation induced by a pulse pumping of excitons to a system near a thermodynamic instability (7 pages)	054302
Serguei Brazovskii and Natasha Kirova	
Effect of spin-orbit and on-site Coulomb interactions on the electronic structure and lattice dynamics of uranium monocarbide (9 pages)	054303
U. D. Wdowik, P. Piekarz, D. Legut, and G. Jagło	
Length dependence of thermal conductivity by approach-to-equilibrium molecular dynamics (9 pages)	054304
Hayat Zaoui, Pier Luca Palla, Fabrizio Cleri, and Evelyne Lampin	
Laser cooling of a high-temperature oscillator by a three-level system (10 pages)	054305
Hoi-Kwan Lau and Martin B. Plenio	
Long-range interatomic forces can minimize heat transfer: From slowdown of longitudinal optical phonons to thermal conductivity minimum (8 pages)	054306
Haoxue Han, Lei Feng, Shiyun Xiong, Takuma Shiga, Junichiro Shiomi, Sebastian Volz, and Yuriy A. Kosevich	

(Continued)

ARTICLES

Structure, structural phase transitions, mechanical properties, defects

Atomic-level study of BiFeO ₃ under epitaxial strain (7 pages)	054101
M. Graf, M. Sepiarsky, and M. G. Stachiotti	
Structure and pressure-induced ferroelectric phase transition in antiphase domain boundaries of strontium titanate from first principles (7 pages)	054102
Alexander Kvasov, Alexander K. Tagantsev, and Nava Setter	
Vacancies and oxidation of two-dimensional group-IV monochalcogenides (10 pages)	054103
Lidia C. Gomes, A. Carvalho, and A. H. Castro Neto	
Carbon-rich icosahedral boron carbides beyond B ₄ C and their thermodynamic stabilities at high temperature and pressure from first principles (11 pages)	054104
A. Ektarawong, S. I. Simak, and B. Alling	
Dislocations via incompatibilities in phase-field models of microstructure evolution (13 pages)	054105
R. Gröger, B. Marchand, and T. Lookman	
Light-element diffusion in Mg using first-principles calculations: Anisotropy and elastodiffusion (10 pages)	054106
Ravi Agarwal and Dallas R. Trinkle	
Atomistic mechanism leading to complex antiferroelectric and incommensurate perovskites (9 pages)	054107
Kinnary Patel, Sergey Prosandeev, Yurong Yang, Bin Xu, Jorge Íñiguez, and L. Bellaiche	
Effects of strain on the stability of tetragonal ZrO ₂ (13 pages)	054108
Min-Hua Chen, John C. Thomas, Anirudh Raju Natarajan, and Anton Van der Ven	
Dynamic nonlinearity in epitaxial BaTiO ₃ films (6 pages)	054109
M. Tyunina and M. Savinov	
Competing structures in two dimensions: Square-to-hexagonal transition (27 pages)	054110
Barbara Gränz, Sergey E. Korshunov, Vadim B. Geshkenbein, and Gianni Blatter	
Finite-temperature elastic constants of paramagnetic materials within the disordered local moment picture from <i>ab initio</i> molecular dynamics calculations (9 pages)	054111
E. Mozafari, N. Shulumba, P. Steneteg, B. Alling, and Igor A. Abrikosov	

