

CONTENTS - *Continued*

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 109, NUMBER 13

APRIL 2024-1(I)

Topological superconductivity induced by spin-orbit coupling, perpendicular magnetic field, and superlattice potential (<i>17 pages</i>)	134518
Jonathan Schirmer, J. K. Jain, and C. -X. Liu	
Quantum Monte Carlo algorithm for Bose-Hubbard models on arbitrary graphs (<i>12 pages</i>)	134519
Emre Akaturk and Itay Hen	
Topological metal and a nonlinear Dirac point in the cubic Rashba model (<i>8 pages</i>)	134520
Haijiao Ji, Ning Zhang, and Noah F. Q. Yuan	

ERRATA

Erratum: Unusual coercivity and zero-field stabilization of fully saturated magnetization in single crystals of LaCrGe_3 [Phys. Rev. B 107 , 134437 (2023)] (<i>1 page</i>)	139901(E)
M. Xu, S. L. Bud'ko, R. Prozorov, and P. C. Canfield	
Erratum: Photoinduced structural dynamics of multiferroic TbMnO_3 [Phys. Rev. B 106 , 214312 (2022)] (<i>1 page</i>)	139902(E)
Elsa Abreu, Matteo Savoini, Larissa Boie, Paul Beaud, Vincent Esposito, Martin Kubli, Martin J. Neugebauer, Michael Porer, Urs Staub, Seyed M. Koohpayeh, Bulat Burganov, Chris Dornes, Angel Rodriguez-Fernandez, Lucas Huber, Gabriel Lantz, José R. L. Mardegan, Sergii Parchenko, Jochen Rittmann, Cris Svetina, Gerhard Ingold, and Steven L. Johnson	

CONTENTS - *Continued*

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 109, NUMBER 13

APRIL 2024-1(I)

Hybridization induced triplet superconductivity with $S^z = 0$ (9 pages)	134503
Edine Silva, R. C. Bento Ribeiro, Heron Caldas, and Mucio A. Continentino	
Enhancement of superconductivity in the Fibonacci chain (7 pages)	134504
Meng Sun, Tilen Čadež, Igor Yurkevich, and Alexei Andreanov	
Superconductivity in Li_8H_n electrides: The effect of interstitial anionic electrons on electron-phonon coupling (7 pages)	134505
Zixuan Guo, Aitor Bergara, Xiaohua Zhang, Xing Li, Shicong Ding, and Guochun Yang	
Ground-state phase diagram and parity-flipping microwave transitions in a gate-tunable Josephson junction (9 pages)	134506
M. R. Sahu, F. J. Matute-Cañadas, M. Benito, P. Krogstrup, J. Nygård, M. F. Goffman, C. Urbina, A. Levy Yeyati, and H. Pothier	
Type-II superconductivity in the Dirac semimetal PdTe_2 (7 pages)	134507
Ritu Gupta, Catherine Witteveen, Debarchan Das, Fabian O. von Rohr, and Rustem Khasanov	
Ginzburg-Landau energy of multiband superconductors with interband pairing (20 pages)	134508
K. V. Samokhin	
Bardeen-Cooper-Schrieffer interaction as an infinite-range Penson-Kolb pairing mechanism (17 pages)	134509
Francesco Romeo and Alfonso Maiellaro	
Extreme orbital <i>ab</i> -plane upper critical fields far beyond the Pauli limit in $4\text{H}_b\text{-Ta}(\text{S}, \text{Se})_2$ bulk crystals (6 pages)	134510
Fanyu Meng (孟凡玉), Yang Fu (付阳), Senyang Pan (潘森洋), Shangjie Tian (田尚杰), Shaohua Yan (闫少华), Zhengyu Li (李政禹), Shouguo Wang (王守国), Jinglei Zhang (张警蕾), and Hechang Lei (雷和畅)	
Superconductor-altermagnet memory functionality without stray fields (8 pages)	134511
Hans Glöckner Gil and Jacob Linder	
Axions and superfluidity in Weyl semimetals (26 pages)	134512
Emil Mottola, Andrey V. Sadofyev, and Andreas Stergiou	
<i>Ab initio</i> studies on interactions in K_3C_{60} under high pressure (13 pages)	134513
Jianyu Li, Zhangkai Cao, Jiahao Su, Ruipeng Wang, Haipeng Li, Yusuke Nomura, Xiaosen Yang, and Ho-Kin Tang	
Local condensation of charge-4 <i>e</i> superconductivity at a nematic domain wall (8 pages)	134514
Matthias Hecker and Rafael M. Fernandes	
Many-body effects on superconductivity mediated by double-magnon processes in altermagnets (23 pages)	134515
Kristian Mæland, Bjørnulf Brekke, and Asle Sudbø	
Magnetic exchange interaction in a spin valve with a chiral spin-triplet superconductor (13 pages)	134516
Alfonso Romano, Canio Noce, and Mario Cuoco	
Floquet engineering Higgs dynamics in time-periodic superconductors (11 pages)	134517
Tobias Kuhn, Björn Sothmann, and Jorge Cayao	

(Continued)

Gilbert damping in two-dimensional metallic antiferromagnets (<i>10 pages</i>)	134427
R. J. Sokolewicz, M. Baglai, I. A. Ado, M. I. Katsnelson, and M. Titov	
Effect of carrier localization on anomalous Hall effect in the structurally chiral β -Mn type $\text{Co}_7\text{Zn}_7\text{Mn}_6$ alloy (<i>9 pages</i>)	134428
Prasanta Chowdhury, Mohamad Numan, Shuvankar Gupta, Souvik Chatterjee, Saurav Giri, and Subham Majumdar	
Anisotropic magnetic properties of antiferromagnetic DyCoGa_5 (<i>9 pages</i>)	134429
Baopeng Song, Zhaoyang Shan, Rui Shi, Sai Yang, Rui Li, Jiahua Min, Zhen Ma, Shuhan Zheng, Meifeng Liu, Xiuzhang Wang, Saiyu Wang, Yongjun Zhang, Michael Smidman, and Huiqiu Yuan	
Evolution of Berry phase and half-metallicity in Cr_2Te_3 in response to strain, filling, thickness, and surface termination (<i>13 pages</i>)	134430
Sohee Kwon, Yuhang Liu, Hang Chi, Gen Yin, Mahesh R. Neupane, and Roger K. Lake	
Persistent spin dynamics in magnetically ordered honeycomb-lattice cobalt oxides (<i>7 pages</i>)	134431
Ping Miao, Xianghong Jin, Weiliang Yao, Yue Chen, Akihiro Koda, Zhenhong Tan, Wu Xie, Wenhai Ji, Takashi Kamiyama, and Yuan Li	
Enhanced magnon transport through an amorphous magnetic insulator (<i>6 pages</i>)	134432
D. M. Cheshire, J. A. D. Nascimento, V. K. Lazarov, and S. A. Cavill	
Deterministic spin-orbit torque switching including the interplay between spin polarization and kagome plane in Mn_3Sn (<i>7 pages</i>)	134433
Zhengde Xu, Xue Zhang, Yixiao Qiao, Gengchiao Liang, Shuyuan Shi, and Zhifeng Zhu	
 Magnetic property changes of NdGa upon hydrogen absorption (<i>7 pages</i>)	134434
Johan Cedervall, Vitalii Shtender, Pascal Manuel, Vladimir Pomjakushin, Roland Mathieu, Ulrich Häussermann, and Mikael S. Andersson	
Localized states at the Rashba spin-orbit domain wall in magnetized graphene: Interplay of Rashba and magnetic domain walls (<i>14 pages</i>)	134435
M. Inglot, J. Barnaś, V. K. Dugaev, and A. Dyrdal	
Possible room-temperature ferromagnetic semiconductor in monolayer MnSe_2 through a metal-semiconductor transition (<i>9 pages</i>)	134436
Jia-Wen Li, Gang Su, and Bo Gu	
Phase coexistence and transitions between antiferromagnetic and ferromagnetic states in a synthetic antiferromagnet (<i>9 pages</i>)	134437
C. E. A. Barker, K. Fallon, C. Barton, E. Haltz, T. P. Almeida, S. Villa, C. Kirkbride, F. Maccherozzi, B. Sarpi, S. S. Dhesi, D. McGrouther, S. McVitie, T. A. Moore, O. Kazakova, and C. H. Marrows	
Superfluidity and superconductivity	
Microscopic study of the impurity effect in the kagome superconductor $\text{La}(\text{Ru}_{1-x}\text{Fe}_x)_3\text{Si}_2$ (<i>7 pages</i>)	134501
C. Mielke, III, D. Das, J. Spring, H. Nakamura, S. Shin, H. Liu, V. Sazgari, S. Jöhr, J. Lyu, J. N. Graham, T. Shiroka, M. Medarde, M. Z. Hasan, S. Nakatsuji, R. Khasanov, D. J. Gawryluk, H. Luetkens, and Z. Guguchia	
Electron-phonon driven charge density wave and superconductivity in a $1T$ - TaSi_2N_4 monolayer (<i>10 pages</i>)	134502
Luo Yan, Ruiqi Ku, Jian-Guo Si, Peng-Fei Liu, Hao Gao, Liujiang Zhou, and Bao-Tian Wang	

(Continued)

Symmetry, topology, duality, chirality, and criticality in a spin- $\frac{1}{2}$ XXZ ladder with a four-spin interaction (21 pages)	134413
Matéo Fontaine, Koudai Sugimoto, and Shunsuke Furukawa	
Elliptical spin textures in two-dimensional semimetals with spatially anisotropic Dzyaloshinskii-Moriya interaction (11 pages)	134414
Yan Luo, Zhongyuan Liu, Lei-Lei Nian, Cai Cheng, Long Xiong, and Bo Zheng	
Keldysh theory of thermal transport in multiband Hamiltonians (14 pages)	134415
Luqman Saleem, Udo Schwingenschlögl, and Aurélien Manchon	
Pulse-driven depinning of magnetic gap modes in ferromagnetic films (7 pages)	134416
Xin-Wei Jin, Zhan-Ying Yang, Yanan Liu, and Guangyin Jing	
Unidirectional multipulse helicity-independent all-optical switching in [Ni/Pt] based synthetic ferrimagnets (8 pages)	134417
Connor R. J. Sait, Maciej Dąbrowski, Jade N. Scott, William R. Hendren, David G. Newman, Alpha T. N'Diaye, Christoph Klewe, Padraic Shafer, Gerrit van der Laan, Paul S. Keatley, Robert M. Bowman, and Robert J. Hicken	
Current-controlled chirality dynamics in a mesoscopic magnetic domain wall (10 pages)	134418
Oleksiy Kolezhuk, Roman Teslia, Ihor Buryak, and Olena Gomonay	
On-demand higher-harmonic generation through nonlinear Hall effects in curved nanomembranes (7 pages)	134419
Botsz Huang, You-Ting Huang, Jan-Chi Yang, Tse-Ming Chen, Ali G. Moghaddam, and Ching-Hao Chang	
Revisiting spin ice physics in the ferromagnetic Ising pyrochlore $\text{Pr}_2\text{Sn}_2\text{O}_7$ (15 pages)	134420
Brenden R. Ortiz, Paul M. Sarte, Ganesh Pokharel, Miles J. Knudtson, Steven J. Gomez Alvarado, Andrew F. May, Stuart Calder, Lucile Mangin-Thro, Andrew R. Wildes, Haidong Zhou, Gabriele Sala, Chris R. Wiebe, Stephen D. Wilson, Joseph A. M. Paddison, and Adam A. Aczel	
Magnetization dynamics due to field interplay in external field free spin Hall nano-oscillators (11 pages)	134421
Ayush K. Gupta, Sourabh Manna, Rajdeep Singh Rawat, and Rohit Medwal	
Spin reorientation in Dy-based high-entropy oxide perovskite thin films (8 pages)	134422
Maria Cocconcelli, Duncan Miertschin, Balaram Regmi, Davis Crater, Federico Stramaglia, Lide Yao, Riccardo Bertacco, Cinthia Piamonteze, Sebastiaan van Dijken, and Alan Farhan	
Depth-dependent magnetic crossover in a room-temperature skyrmion-hosting multilayer (8 pages)	134423
T. J. Hicken, M. N. Wilson, Z. Salman, S. L. Zhang, S. J. R. Holt, T. Prokscha, A. Suter, F. L. Pratt, G. van der Laan, T. Hesjedal, and T. Lancaster	
☞ Fragility of the magnetic order in the prototypical altermagnet RuO_2 (6 pages)	134424
Andriy Smolyanyuk, Igor I. Mazin, Laura Garcia-Gassull, and Roser Valentí	
☞ Antiferromagnetic ordering and chiral crystal structure transformation in $\text{Nd}_3\text{Rh}_4\text{Sn}_{13}$ (10 pages)	134425
Ami Shimoda, Kazuaki Iwasa, Keitaro Kuwahara, Hajime Sagayama, Hironori Nakao, Motoyuki Ishikado, Akiko Nakao, Seiko Ohira-Kawamura, Naoki Murai, Takashi Ohhara, and Yusuke Nambu	
Layer-locked anomalous valley Hall effect in a two-dimensional A-type tetragonal antiferromagnetic insulator (8 pages)	134426
San-Dong Guo, Wei Xu, Yang Xue, Gangqiang Zhu, and Yee Sin Ang	

(Continued)

Universal imaginary-time critical dynamics on a quantum computer (<i>13 pages</i>)	134309
Shi-Xin Zhang and Shuai Yin	
Magnetism	
Double magnetic transitions, complex field-induced phases, and large magnetocaloric effect in the frustrated garnet compound $\text{Mn}_3\text{Cr}_2\text{Ge}_3\text{O}_{12}$ (<i>10 pages</i>)	134401
S. Mohanty, A. Magar, Vikram Singh, S. S. Islam, S. Guchhait, A. Jain, S. M. Yusuf, A. A. Tsirlin, and R. Nath	
Electric-field-tuned anomalous valley Hall effect in <i>A</i> -type hexagonal antiferromagnetic monolayers (<i>7 pages</i>) . . .	134402
San-Dong Guo, Yu-Ling Tao, Zi-Yang Zhuo, Gangqiang Zhu, and Yee Sin Ang	
Magnetic order in honeycomb layered $\text{U}_2\text{Pt}_6\text{Ga}_{15}$ studied by resonant x-ray and neutron scattering (<i>7 pages</i>)	134403
Chihiro Tabata, Fusako Kon, Kyugo Ota, Ruo Hibino, Yuji Matsumoto, Hiroshi Amitsuka, Hironori Nakao, Yoshinori Haga, and Koji Kaneko	
☞ Magnetotransport properties in van der Waals $R\text{Te}_3$ ($R = \text{La, Ce, Tb}$) (<i>8 pages</i>)	134404
Tomo Higashihara, Ryotaro Asama, Ryoya Nakamura, Mori Watanabe, Nanami Tomoda, Thomas Johannes Hasiweder, Yuita Fujisawa, Yoshinori Okada, Takuya Iwasaki, Kenji Watanabe, Takashi Taniguchi, Nan Jiang, and Yasuhiro Niimi	
Thermal Hall conductivity of a valence bond solid phase in the square lattice J_1 - J_2 antiferromagnet Heisenberg model with a Dzyaloshinskii-Moriya interaction (<i>18 pages</i>)	134405
Lucas S. Buzo and R. L. Doretto	
Broken weak and strong spin rotational symmetries and tunable interactions between phonons and the continuum in $\text{Cr}_2\text{Ge}_2\text{Te}_6$ (<i>11 pages</i>)	134406
Atul G. Chakkar, Deepu Kumar, and Pradeep Kumar	
☞ High-order harmonics and the reverse of the squaring up process in the triangular-lattice magnet $\text{HoPdAl}_4\text{Ge}_2$ (<i>13 pages</i>)	134407
Fei Gao, Weijun Ren, Chin-Wei Wang, S. Yano, Stuart Calder, Qiang Zhang, Hengheng Wu, Meng An, Yanpei Jing, Bing Li, and Zhidong Zhang	
☞ Coupling between magnetic and thermodynamic properties in RRh_2Si_2 ($R = \text{Dy, Ho}$) (<i>9 pages</i>)	134408
H. Dawczak-Dębicki, K. Kliemt, M. V. Ale Crivillero, R. Küchler, C. Krellner, O. Stockert, and S. Wirth	
Schwinger boson symmetric spin liquids of Shastry-Sutherland model (<i>20 pages</i>)	134409
Ke Liu and Fa Wang	
Transverse and longitudinal magnons in the strongly anisotropic antiferromagnet FePSe_3 (<i>9 pages</i>)	134410
F. Le Mardelé, A. El Mendili, M. E. Zhitomirsky, I. Mohelsky, D. Jana, I. Plutnarova, Z. Sofer, C. Faugeras, M. Potemski, and M. Orlita	
Random fields from quenched disorder in an archetype for correlated electrons: The parallel spin stripe phase of $\text{La}_{1.6-x}\text{Nd}_{0.4}\text{Sr}_x\text{CuO}_4$ at the $1/8$ anomaly (<i>7 pages</i>)	134411
Q. Chen, S. H.-Y. Huang, Q. Ma, E. M. Smith, H. Sharron, A. A. Aczel, W. Tian, and B. D. Gaulin	
Anyon condensation and confinement transition in a Kitaev spin liquid bilayer (<i>18 pages</i>)	134412
Kyungh Hwang	

(Continued)

Inhomogeneous, disordered, and partially ordered systems

Bulk-edge correspondence for the nonlinear eigenvalues problem of the Haldane model (<i>6 pages</i>)	134201
Shujie Cheng, Yonghua Jiang, and Gao Xianlong	
 Catching thermal avalanches in the disordered XXZ model (<i>21 pages</i>)	134202
Tomasz Szołdra, Piotr Sierant, Maciej Lewenstein, and Jakub Zakrzewski	
Roughness and critical force for depinning at 3-loop order (<i>25 pages</i>)	134203
Mikhail N. Semeikin and Kay Jörg Wiese	
Transport phenomena and correlation dynamics of a one-dimensional effective Hamiltonian equivalent to the hexagonal Harper model (<i>13 pages</i>)	134204
Santanu Dhara, Dibyajyoti Sahu, Manvendra Singh, and Suhas Gangadharaiah	
Higher-order topological insulators in three dimensions without crystalline counterparts (<i>6 pages</i>)	134205
Yu-Feng Mao, Yu-Liang Tao, Jiong-Hao Wang, Qi-Bo Zeng, and Yong Xu	
Local structural disorder and charge inhomogeneity induced relaxor ferroelectricity in CuCrO_2 (<i>11 pages</i>)	134206
A. Tripathy, K. Dey, S. R. Sahu, Najnin Bano, Vishal Kumar, P. Garg, Sanjay Singh, Vishnu Kumar, Martin v. Zimmermann, U. Deshpande, V. G. Sathe, and D. K. Shukla	
Dynamics, dynamical systems, lattice effects:	
Distribution of Fisher zeros in dynamical quantum phase transitions of two-dimensional topological systems (<i>18 pages</i>)	134301
P. D. Sacramento and Wing Chi Yu	
Observation of acoustic hybrid-order topological insulator induced by non-Hermiticity and anisotropy (<i>8 pages</i>)	134302
Weiyang Sun, Li Luo, Yingyi Huang, Jiebin Peng, Degang Zhao, Yuanwei Yao, Fugen Wu, and Xin Zhang	
Information propagation in one-dimensional XY - Γ chains (<i>12 pages</i>)	134303
Sasan Kheiri, Hadi Cheraghi, Saeed MahdaviFar, and Nicholas Sedlmayr	
Probing off-diagonal eigenstate thermalization with tensor networks (<i>13 pages</i>)	134304
Maxine Luo, Rahul Trivedi, Mari Carmen Bañuls, and J. Ignacio Cirac	
Energy-momentum transfer in the free-electron-photon interaction mediated by a film (<i>11 pages</i>)	134305
Wentao Wang, Dingguo Zheng, Siyuan Huang, Jun Li, Yongzhao Zhang, Taimin Miao, Shuaishuai Sun, Huanfang Tian, Huaixin Yang, and Jianqi Li	
Fast corrections to the generalized Kadanoff-Baym ansatz (<i>16 pages</i>)	134306
A. Kalvová, V. Špička, B. Velický, and P. Lipavský	
Surface and volume modes of polarization waves in ferroelectric films (<i>7 pages</i>)	134307
R. L. Rodríguez-Suárez, X.-H. Zhou, C. Y. Cai, P. Tang, T. Yu, G. E. W. Bauer, and S. M. Rezende	
Weak effects of electron-phonon interactions on the lattice thermal conductivity of wurtzite GaN with high electron concentrations (<i>7 pages</i>)	134308
Jianshi Sun, Shouhang Li, Zhen Tong, Cheng Shao, Xiangchuan Chen, Qianqian Liu, Yucheng Xiong, Meng An, and Xiangjun Liu	

(Continued)

ARTICLES

Structure, structural phase transitions, mechanical properties, defects

Enhanced electromechanical coupling from cation local structures in (Mg,Zn)O (11 pages)	134101
Junjun Jia, Daiki Kishi, Ningrui Bai, Toshihiko Okajima, Fabio Lesari, and Takahiko Yanagitani	
Effective stick-slip parameter for structurally lubric two-dimensional interface friction (10 pages)	134102
Jin Wang, Andrea Vanossi, and Erio Tosatti	
Atomic-scale stick-slip through a point defect (6 pages)	134103
Enrico Gnecco and Paolo Nicolini	
Critical behavior of the dimerized Si(001) surface: Continuous order-disorder phase transition in the two-dimensional Ising universality class (18 pages)	134104
Christian Brand, Alfred Hucht, Hamid Mehdipour, Giriraj Jnawali, Jonas D. Fortmann, Mohammad Tajik, Rüdiger Hild, Björn Sothmann, Peter Kratzer, Ralf Schützhold, and Michael Horn-von Hoegen	
Theoretical study of defect-mediated ionic transport in Li, Na, and K β and β'' aluminas (13 pages)	134105
Suchit Negi, Alexandra Carvalho, and A. H. Castro Neto	
Wavelength dependence of nitrogen vacancy center charge cycling (11 pages)	134106
A. A. Wood, A. Lozovoi, R. M. Goldblatt, C. A. Meriles, and A. M. Martin	
Higher-order Klein bottle topological insulator in three-dimensional acoustic crystals (15 pages)	134107
Yu-Liang Tao, Mou Yan, Mian Peng, Qiang Wei, Zhenxing Cui, Shengyuan A. Yang, Gang Chen, and Yong Xu	
Impact of CaCl ₂ -induced chemical pressure on the phase transition of H ₂ O at high pressure (10 pages)	134108
Xinmiao Wei, Xinyang Li, Zihan Zhang, Hanns-Peter Liermann, Sergio Speziale, Mengqiong Pu, Caizi Zhang, Ruiyu Li, Hongyu Yu, Liang Li, Fangfei Li, and Qiang Zhou	
Electron emission from deep traps in HfO ₂ under thermal and optical excitation (12 pages)	134109
Roman Izmailov, Jack Strand, Nicolo' Ronchi, Alexander Shluger, and Valeri Afanas'ev	
Designing the mechanical behavior of (HfTiZr) _{1-x} (NbTa) _x C high-entropy carbide ceramics (7 pages)	134110
Chuanying Li, Tao Fu, Hao Hu, Mengye Duan, Shayuan Weng, and Xianghe Peng	
Two displacive ferroelectric phase transitions in multiferroic quadruple perovskite BiMn ₇ O ₁₂ (10 pages)	134111
A. Maia, M. Kempa, V. Bovtun, R. Vilarinho, C. Kadlec, J. Agostinho Moreira, A. A. Belik, P. Proschek, and S. Kamba	
Prediction of stability of tenfold-coordinated silica up to 200 TPa pressure based on <i>ab initio</i> calculations with all-electron pseudopotentials (12 pages)	134112
Chuan Wang, Meng Lv, Ronghao Hu, Junqing Wang, and Yang Zhao	



(Continued)



2469-9950(20240401)109:13;1-V