

## LETTERS

### Inhomogeneous, disordered, and partially ordered systems

- Localization and delocalization in one-dimensional systems with translation-invariant hopping (*4 pages*) . . . . . L020201  
Reza Sepehrinia

### Dynamics, dynamical systems, lattice effects:

- Nanosecond dynamics in intrinsic topological insulator  $\text{Bi}_{2-x}\text{Sb}_x\text{Se}_3$  revealed by time-resolved optical reflectivity (*6 pages*) . . . . . L020301  
Adam L. Gross, Yassen Hou, Antonio Rossi, Dong Yu, and Inna M. Vishik

- ☞ Spreading of correlations in Markovian open quantum systems (*6 pages*) . . . . . L020302  
Vincenzo Alba and Federico Carollo

### Magnetism

- ☞ Distinguishing antiferromagnetic spin sublattices via the spin Seebeck effect (*5 pages*) . . . . . L020401  
Yongming Luo, Changjiang Liu, Hilal Saglam, Yi Li, Wei Zhang, Steven S.-L. Zhang, John E. Pearson, Brandon Fisher, Tiejun Zhou, Anand Bhattacharya, and Axel Hoffmann

- Enhancement of the anomalous Nernst effect in Ni/Pt superlattices (*7 pages*) . . . . . L020402  
T. Seki, Y. Sakuraba, K. Masuda, A. Miura, M. Tsujikawa, K. Uchida, T. Kubota, Y. Miura, M. Shirai, and K. Takanashi

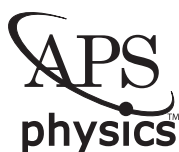
- Topological phase transition driven by magnetic field and topological Hall effect in an antiferromagnetic skyrmion lattice (*5 pages*) . . . . . L020403  
M. Tomé and H. D. Rosales

- Temperature dependence of the anomalous Nernst effect in  $\text{Ni}_2\text{MnGa}$  shape memory alloy (*6 pages*) . . . . . L020404  
Avirup De, Anupam K. Singh, Sanjay Singh, and Sunil Nair

- Anomalous Hall resistivity and possible topological Hall effect in the  $\text{EuAl}_4$  antiferromagnet (*7 pages*) . . . . . L020405  
T. Shang, Y. Xu, D. J. Gawryluk, J. Z. Ma, T. Shiroka, M. Shi, and E. Pomjakushina

- Spin versus bond correlations along dangling edges of quantum critical magnets (*5 pages*) . . . . . L020406  
Lukas Weber and Stefan Wessel

- Nontrivial torque generation by orbital angular momentum injection in ferromagnetic-metal/Cu/ $\text{Al}_2\text{O}_3$  trilayers (*6 pages*) . . . . . L020407  
Junyeon Kim, Dongwook Go, Hanshen Tsai, Daegeun Jo, Kouta Kondou, Hyun-Woo Lee, and YoshiChika Otani



|                                                                                                                                                                  |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| Element-specific field-induced spin reorientation and tetracritical point in $\text{MnCr}_2\text{S}_4$ (6 pages) . . . . .                                       | L020408 |
| Sh. Yamamoto, H. Suwa, T. Kihara, T. Nomura, Y. Kotani, T. Nakamura, Y. Skourski, S. Zherlitsyn,<br>L. Prodan, V. Tsurkan, H. Nojiri, A. Loidl, and J. Wosnitzer |         |
| Triplons, magnons, and spinons in a single quantum spin system: $\text{SeCuO}_3$ (6 pages) . . . . .                                                             | L020409 |
| Luc Testa, Vinko Šurića, Krunoslav Prša, Paul Steffens, Martin Boehm, Philippe Bourges,<br>Helmuth Berger, Bruce Normand, Henrik M. Rønnow, and Ivica Živković   |         |
| Optical magnons with dominant bond-directional exchange interactions in the honeycomb lattice iridate<br>$\alpha\text{-Li}_2\text{IrO}_3$ (6 pages) . . . . .    | L020410 |
| Sae Hwan Chun, P. Peter Stavropoulos, Hae-Young Kee, M. Moretti Sala, Jung-Ho Kim, Jong-Woo Kim,<br>B. J. Kim, J. F. Mitchell, and Young-June Kim                |         |
| Enhanced unidirectional spin Hall magnetoresistance in a Pt/Co system with a Cu interlayer (4 pages) . . . . .                                                   | L020411 |
| K. Hasegawa, T. Koyama, and D. Chiba                                                                                                                             |         |
| <b>Superfluidity and superconductivity</b>                                                                                                                       |         |
| Resistivity saturation in an electron-doped cuprate (5 pages) . . . . .                                                                                          | L020501 |
| Nicholas R. Poniatowski, Tarapada Sarkar, Sankar Das Sarma, and Richard L. Greene                                                                                |         |
| Experimental evidence that zinc impurities pin pair-density-wave order in $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$ (6 pages) . . . . .                           | L020502 |
| P. M. Lozano, G. D. Gu, J. M. Tranquada, and Qiang Li                                                                                                            |         |
| Thermally induced spin-transfer torques in superconductor/ferromagnet bilayers (6 pages) . . . . .                                                               | L020503 |
| I. V. Bobkova, A. M. Bobkov, and Wolfgang Belzig                                                                                                                 |         |
| Tunable critical field in Rashba superconductor thin films (5 pages) . . . . .                                                                                   | L020504 |
| L. A. B. Olde Olthof, J. R. Weggemans, G. Kimbell, J. W. A. Robinson, and X. Montiel                                                                             |         |

## ARTICLES

### Structure, structural phase transitions, mechanical properties, defects

|                                                                                                                                                                                          |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Structural phase transition and Goldstone-like mode in hexagonal $\text{BaMnO}_3$ (7 pages) . . . . .                                                                                    | 024101 |
| Xuefeng Zhang, Qi-Jun Ye, and Xin-Zheng Li                                                                                                                                               |        |
| Structural and optoelectronic behavior of the copper-doped $\text{Cs}_2\text{AgInCl}_6$ double perovskite:<br>A density functional theory investigation (9 pages) . . . . .              | 024102 |
| Isaac Busayo Ogunniranye, Tersoo Atsue, and Oluwole Emmanuel Oyewande                                                                                                                    |        |
| Structural and electronic transition in liquid rubidium (6 pages) . . . . .                                                                                                              | 024103 |
| D. Kartoon and G. Makov                                                                                                                                                                  |        |
| Origin of intense blue-green emission in $\text{SrTiO}_3$ thin films with implanted nitrogen ions:<br>An investigation by synchrotron-based experimental techniques (11 pages) . . . . . | 024104 |
| Vishnu Kumar, Anuradha Bhogra, Manju Bala, S. C. Haw, C. L. Chen, C. L. Dong,<br>K. Asokan, and S. Annapoorni                                                                            |        |
| Crystal and electronic structure of $\text{Co}_3\text{O}_4$ spinel under pressure probed by XANES<br>and Raman spectroscopy (11 pages) . . . . .                                         | 024105 |
| Yimin Mijiti, Kai Chen, João Elias F. S. Rodrigues, Zhiwei Hu, Lucie Nataf, Angela Trapananti,<br>Andrea Di Cicco, and Francois Baudet                                                   |        |

(Continued)

|                                                                                                                                                                                                                                                   |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Stability of topological edge states under strong nonlinear effects ( <i>13 pages</i> ) . . . . .                                                                                                                                                 | 024106 |
| Rajesh Chaunsali, Haitao Xu, Jinkyu Yang, Panayotis G. Kevrekidis, and Georgios Theocharis                                                                                                                                                        |        |
| Metastable piezoelectric group-IV monochalcogenide monolayers with a buckled honeycomb structure ( <i>16 pages</i> ) . . . . .                                                                                                                    | 024107 |
| Shiva P. Poudel and Salvador Barraza-Lopez                                                                                                                                                                                                        |        |
| Deep learning of accurate force field of ferroelectric HfO <sub>2</sub> ( <i>12 pages</i> ) . . . . .                                                                                                                                             | 024108 |
| Jing Wu, Yuzhi Zhang, Linfeng Zhang, and Shi Liu                                                                                                                                                                                                  |        |
| <b>Inhomogeneous, disordered, and partially ordered systems</b>                                                                                                                                                                                   |        |
| Analysis of landscape hierarchy during coarsening and aging in Ising spin glasses ( <i>8 pages</i> ) . . . . .                                                                                                                                    | 024201 |
| Stefan Boettcher and Mahajabin Rahman                                                                                                                                                                                                             |        |
| Disorder-induced enhancement of entanglement growth in one dimension: Information leakage at the scale of the localization length ( <i>11 pages</i> ) . . . . .                                                                                   | 024202 |
| Roopayan Ghosh and Arnab Das                                                                                                                                                                                                                      |        |
| Slow delocalization of particles in many-body localized phases ( <i>9 pages</i> ) . . . . .                                                                                                                                                       | 024203 |
| Maximilian Kiefer-Emmanouilidis, Razmik Unanyan, Michael Fleischhauer, and Jesko Sirker                                                                                                                                                           |        |
| Mode localization and suppressed heat transport in amorphous alloys ( <i>7 pages</i> ) . . . . .                                                                                                                                                  | 024204 |
| Nicholas W. Lundgren, Giuseppe Barbalinardo, and Davide Donadio                                                                                                                                                                                   |        |
| Topological crystalline phases in a disordered inversion-symmetric chain ( <i>14 pages</i> ) . . . . .                                                                                                                                            | 024205 |
| Saavanth Velury, Barry Bradlyn, and Taylor L. Hughes                                                                                                                                                                                              |        |
| <b>Dynamics, dynamical systems, lattice effects:</b>                                                                                                                                                                                              |        |
|  Long-time relaxation dynamics of a spin coupled to a Chern insulator ( <i>11 pages</i> ) . . . . .                                                             | 024301 |
| Michael Elbracht and Michael Potthoff                                                                                                                                                                                                             |        |
| Enhanced coherent phonon excitation in Fe <sub>3</sub> GeTe <sub>2</sub> via resonance Raman effect ( <i>8 pages</i> ) . . . . .                                                                                                                  | 024302 |
| Jia Guo, Chenhui Zhang, Weizheng Liang, Xi-Xiang Zhang, and S. N. Luo                                                                                                                                                                             |        |
| Electron-phonon coupling in the magnetic Weyl semimetal ZrCo <sub>2</sub> Sn ( <i>6 pages</i> ) . . . . .                                                                                                                                         | 024303 |
| I. Yu. Sklyadneva, R. Heid, P. M. Echenique, and E. V. Chulkov                                                                                                                                                                                    |        |
| Coarse-grained spectral projection: A deep learning assisted approach to quantum unitary dynamics ( <i>10 pages</i> ) . . . . .                                                                                                                   | 024304 |
| Pinchen Xie and Weinan E                                                                                                                                                                                                                          |        |
| <b>Magnetism</b>                                                                                                                                                                                                                                  |        |
| Magnetic phase transitions in two-dimensional two-valley semiconductors with in-plane magnetic field ( <i>9 pages</i> ) . . . . .                                                                                                                 | 024401 |
| Dmitry Miserev, Jelena Klinovaja, and Daniel Loss                                                                                                                                                                                                 |        |
| Direct determination of the zero-field splitting for the Fe <sup>3+</sup> ion in a synthetic polymorph of NaMgFe(C <sub>2</sub> O <sub>4</sub> ) <sub>3</sub> · 9H <sub>2</sub> O: A natural metal-organic framework ( <i>6 pages</i> ) . . . . . | 024402 |
| Tao Xie, S. E. Nikitin, A. I. Kolesnikov, E. Mamontov, L. M. Anovitz, G. Ehlers, I. Huskić, T. Friščić, and A. Podlesnyak                                                                                                                         |        |
| Dynamical spin excitations of the topological Haldane gapped phase in the <i>S</i> = 1 Heisenberg antiferromagnetic chain with single-ion anisotropy ( <i>8 pages</i> ) . . . . .                                                                 | 024403 |
| Jun-Han Huang (黄俊翰), Guang-Ming Zhang (张广铭), and Dao-Xin Yao (姚道新)                                                                                                                                                                                |        |

(Continued)

|                                                                                                                                                                                                      |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Pressure control of the magnetic anisotropy of the quasi-two-dimensional van der Waals ferromagnet $\text{Cr}_2\text{Ge}_2\text{Te}_6$ (8 pages) . . . . .                                           | 024404 |
| T. Sakurai, B. Rubrecht, L. T. Corredor, R. Takehara, M. Yasutani, J. Zeisner, A. Alfonsov, S. Selter, S. Aswartham, A. U. B. Wolter, B. Büchner, H. Ohta, and V. Kataev                             |        |
| Prediction of Majorana edge states from magnetized topological surface states (10 pages) . . . . .                                                                                                   | 024405 |
| Xiaoming Zhang and Feng Liu                                                                                                                                                                          |        |
|  Magnetic surface reconstruction in the van der Waals antiferromagnet $\text{Fe}_{1+x}\text{Te}$ (10 pages) . . . . . | 024406 |
| C. Trainer, M. Songvilay, N. Qureshi, A. Stunault, C. M. Yim, E. E. Rodriguez, C. Heil, V. Tsurkan, M. A. Green, A. Loidl, P. Wahl, and C. Stock                                                     |        |
| Spin waves in the collinear antiferromagnetic phase of $\text{Mn}_5\text{Si}_3$ (9 pages) . . . . .                                                                                                  | 024407 |
| F. J. dos Santos, N. Biniskos, S. Raymond, K. Schmalzl, M. dos Santos Dias, P. Steffens, J. Persson, S. Blügel, S. Lounis, and T. Brückel                                                            |        |
| Zero-field magnetic ground state of $\text{EuMg}_2\text{Bi}_2$ (6 pages) . . . . .                                                                                                                   | 024408 |
| Santanu Pakhira, Thomas Heitmann, S. X. M. Riberolles, B. G. Ueland, R. J. McQueeney, D. C. Johnston, and David Vaknin                                                                               |        |
| First- and second-order quantum phase transitions in the one-dimensional transverse-field Ising model with boundary fields (11 pages) . . . . .                                                      | 024409 |
| Kun Hu and Xintian Wu                                                                                                                                                                                |        |
| Short period magnetization texture of B20-MnGe explained by thermally fluctuating local moments (12 pages) . . . . .                                                                                 | 024410 |
| Eduardo Mendiave-Tapia, Manuel dos Santos Dias, Sergii Grytsiuk, Julie B. Staunton, Stefan Blügel, and Samir Lounis                                                                                  |        |
| Generation of spin waves via spin-phonon interaction in a buried dielectric thin film (8 pages) . . . . .                                                                                            | 024411 |
| Marwan Deb, Elena Popova, Steffen Peer Zeuschner, Michel Hehn, Niels Keller, Stéphane Mangin, Gregory Malinowski, and Matias Bargheer                                                                |        |
| Surface critical behavior of coupled Haldane chains (10 pages) . . . . .                                                                                                                             | 024412 |
| Wenjing Zhu, Chengxiang Ding, Long Zhang, and Wenan Guo                                                                                                                                              |        |
| Temporal and field evolution of spin excitations in the disorder-free triangular antiferromagnet $\text{Na}_2\text{BaCo}(\text{PO}_4)_2$ (7 pages) . . . . .                                         | 024413 |
| S. Lee, C. H. Lee, A. Berlie, A. D. Hillier, Devashibhai T. Adroja, Ruidan Zhong, R. J. Cava, Z. H. Jang, and K.-Y. Choi                                                                             |        |
| Magnetic exchange interactions in the van der Waals layered antiferromagnet $\text{MnPSe}_3$ (9 pages) . . . . .                                                                                     | 024414 |
| S. Calder, A. V. Haglund, A. I. Kolesnikov, and D. Mandrus                                                                                                                                           |        |
| Absence of spin Hall magnetoresistance in $\text{Pt}/(\text{CoNi})_n$ multilayers (8 pages) . . . . .                                                                                                | 024415 |
| Yongwei Cui, Xiaoyu Feng, Qihan Zhang, Hengan Zhou, Wanjuan Jiang, Jiangwei Cao, Desheng Xue, and Xiaolong Fan                                                                                       |        |
| Spin-orbit effects in ferroelectric $\text{PbTiO}_3$ under tensile strain (13 pages) . . . . .                                                                                                       | 024416 |
| J. Gosteau, R. Arras, P. Chen, H. J. Zhao, C. Paillard, and L. Bellaiche                                                                                                                             |        |
| Torque equilibrium spin wave theory of Raman scattering in an anisotropic triangular lattice antiferromagnet with Dzyaloshinskii-Moriya interaction (11 pages) . . . . .                             | 024417 |
| Chao Shan, Shangjian Jin, Trinanjan Datta, and Dao-Xin Yao                                                                                                                                           |        |

(Continued)

|                                                                                                                                                                                                   |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Spin-wave dispersion and exchange stiffness in $\text{Nd}_2\text{Fe}_{14}\text{B}$ and $R\text{Fe}_{11}\text{Ti}$ ( $R=\text{Y, Nd, Sm}$ ) from first-principles calculations (7 pages) . . . . . | 024418 |
| Taro Fukazawa, Hisazumi Akai, Yosuke Harashima, and Takashi Miyake                                                                                                                                |        |
| Critical temperature and low-energy excitations in gapped spin systems with defects (7 pages) . . . . .                                                                                           | 024420 |
| F. D. Timkovskii and A. V. Syromyatnikov                                                                                                                                                          |        |
| <i>Ab initio</i> based models for temperature-dependent magnetochemical interplay in bcc Fe-Mn alloys (17 pages) . . .                                                                            | 024421 |
| Anton Schneider, Chu-Chun Fu, Osamu Waseda, Cyrille Barreateau, and Tilmann Hickel                                                                                                                |        |
| Electrical detection of the spin reorientation transition in antiferromagnetic $\text{TmFeO}_3$ thin films by spin Hall magnetoresistance (9 pages) . . . . .                                     | 024423 |
| S. Becker, A. Ross, R. Lebrun, L. Baldrati, S. Ding, F. Schreiber, F. Maccherozzi, D. Backes, M. Kläui, and G. Jakob                                                                              |        |
| Search for nonreciprocal magnons in $\text{MnPS}_3$ (6 pages) . . . . .                                                                                                                           | 024424 |
| A. R. Wildes, S. Okamoto, and D. Xiao                                                                                                                                                             |        |
| Understanding the interaction of soft and hard magnetic components in $\text{NdFeB}$ with first-order reversal curves (6 pages) . . . . .                                                         | 024425 |
| Sven Erik Ilse, Felix Groß, Gisela Schütz, Joachim Gräfe, and Eberhard Goering                                                                                                                    |        |
| Strain-attenuated spin frustration in double perovskite $\text{Sr}_2\text{FeOsO}_6$ (7 pages) . . . . .                                                                                           | 024426 |
| Paresh C. Rout and Udo Schwingenschlögl                                                                                                                                                           |        |
| Control of spin relaxation anisotropy by spin-orbit-coupled diffusive spin motion (6 pages) . . . . .                                                                                             | 024427 |
| Daisuke Iizasa, Asuka Aoki, Takahito Saito, Junsaku Nitta, Gian Salis, and Makoto Kohda                                                                                                           |        |
| Megahertz dynamics in skyrmion systems probed with muon-spin relaxation (8 pages) . . . . .                                                                                                       | 024428 |
| T. J. Hicken, M. N. Wilson, K. J. A. Franke, B. M. Huddart, Z. Hawkhead, M. Gomilšek, S. J. Clark, F. L. Pratt, A. Štefančíč, A. E. Hall, M. Ciomaga Hatnean, G. Balakrishnan, and T. Lancaster   |        |
| Spin-lattice dynamics model with angular momentum transfer for canonical and microcanonical ensembles (13 pages) . . . . .                                                                        | 024429 |
| Mara Strungaru, Matthew O. A. Ellis, Sergiu Ruta, Oksana Chubykalo-Fesenko, Richard F. L. Evans, and Roy W. Chantrell                                                                             |        |
| Antiferromagnetism and crystalline electric field excitations in tetragonal $\text{NaCeO}_2$ (7 pages) . . . . .                                                                                  | 024430 |
| Mitchell M. Bordelon, Joshua D. Bocarsly, Lorenzo Posthuma, Arnab Banerjee, Qiang Zhang, and Stephen D. Wilson                                                                                    |        |
| Chiral droplets and current-driven motion in ferromagnets (8 pages) . . . . .                                                                                                                     | 024431 |
| Naveen Sisodia, Pranaba Kishor Muduli, Nikos Papanicolaou, and Stavros Komineas                                                                                                                   |        |
| Spin transport in different oxide phases of copper (5 pages) . . . . .                                                                                                                            | 024432 |
| Rongxin Sha, Qinxu Liu, Mengyi Wang, Min Liu, Yibo Peng, Ziyang Zhang, Ailiang Zou, Yuekui Xu, Xue Jiang, and Zhiyong Qiu                                                                         |        |
| Density wave mediated Dzyaloshinskii-Moriya interactions (9 pages) . . . . .                                                                                                                      | 024433 |
| Ian E. Powell, Steven Durr, Nicholas Rombes, and Sudip Chakravarty                                                                                                                                |        |
| Theoretical study of current-induced domain wall motion in magnetic nanotubes with azimuthal domains (13 pages) . . . . .                                                                         | 024434 |
| Jérôme Hurst, Arnaud De Riz, Michal Staňo, Jean-Christophe Toussaint, Olivier Fruchart, and Daria Gusakova                                                                                        |        |

(Continued)

|                                                                                                                                                                                                                                   |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Interfacial antiferromagnetic coupling and high spin polarization in metallic phthalocyanines (8 pages) . . . . .                                                                                                                 | 024435 |
| Junwei Tong, Feifei Luo, Liuxia Ruan, Guohuai Liu, Lianqun Zhou, Fubo Tian,<br>Gaowu Qin, and Xianmin Zhang                                                                                                                       |        |
| Tunable magneto-optical effect, anomalous Hall effect, and anomalous Nernst effect in the two-dimensional<br>room-temperature ferromagnet 1T-CrTe <sub>2</sub> (13 pages) . . . . .                                               | 024436 |
| Xiuxian Yang, Xiaodong Zhou, Wanxiang Feng, and Yugui Yao                                                                                                                                                                         |        |
| Chirality-induced linear response properties in noncoplanar Mn <sub>3</sub> Ge (14 pages) . . . . .                                                                                                                               | 024437 |
| Sebastian Wimmer, Sergiy Mankovsky, and Hubert Ebert                                                                                                                                                                              |        |
| Role of element-specific damping in ultrafast, helicity-independent, all-optical switching dynamics<br>in amorphous (Gd,Tb)Co thin films (9 pages) . . . . .                                                                      | 024438 |
| Alejandro Ceballos, Akshay Pattabi, Amal El-Ghazaly, Sergiu Ruta, Christian P. Simon, Richard F. L. Evans,<br>Thomas Ostler, Roy W. Chantrell, Ellis Kennedy, Mary Scott, Jeffrey Bokor, and Frances Hellman                      |        |
| Square skyrmion crystal in centrosymmetric itinerant magnets (11 pages) . . . . .                                                                                                                                                 | 024439 |
| Satoru Hayami and Yukitoshi Motome                                                                                                                                                                                                |        |
| Heat transport in insulator/ferromagnetic-insulator/insulator heterogeneous nanostructures at low<br>temperatures (7 pages) . . . . .                                                                                             | 024440 |
| V. A. Shklovskij, A. I. Bezuglyj, and I. V. Mironenko                                                                                                                                                                             |        |
| Tuning the dynamics of magnetic droplet solitons using dipolar interactions (7 pages) . . . . .                                                                                                                                   | 024441 |
| H. F. Yazdi, G. Ghasemi, Majid Mohseni, and Morteza Mohseni                                                                                                                                                                       |        |
| Domain-wall dynamics in a nanostrip with perpendicular magnetic anisotropy induced by perpendicular<br>current injection (8 pages) . . . . .                                                                                      | 024442 |
| I. L. Kindiak, P. N. Skirdkov, K. A. Tikhomirova, K. A. Zvezdin, E. G. Ekomasov, and A. K. Zvezdin                                                                                                                                |        |
| Dephasing of transverse spin current in ferrimagnetic alloys (18 pages) . . . . .                                                                                                                                                 | 024443 |
| Youngmin Lim, Behrouz Khodadadi, Jie-Fang Li, Dwight Viehland, Aurelien Manchon, and Satoru Emori                                                                                                                                 |        |
| Relationship of magnetic ordering and crystal structure in the lanthanide ferromagnets Gd, Tb, Dy, and Ho<br>at high pressures (11 pages) . . . . .                                                                               | 024444 |
| Masaki Mito, Yuta Kimura, Kanako Yamakata, Masahiro Ohkuma, Hirotaka Chayamichi, Takayuki Tajiri,<br>Hiroyuki Deguchi, and Mamoru Ishizuka                                                                                        |        |
| Topological Hall effect and magnetic states in the Nowotny chimney ladder compound Cr <sub>11</sub> Ge <sub>19</sub> (11 pages) . . . . .                                                                                         | 024445 |
| Yu Li, Xin Gui, Mojmammal A. Khan, Weiwei Xie, David P. Young, and J. F. DiTusa                                                                                                                                                   |        |
| Monte Carlo study of the phase diagram of disordered Fe <sub>p</sub> Al <sub>1-p</sub> alloys: A site-diluted isotropic Heisenberg<br>model (6 pages) . . . . .                                                                   | 024446 |
| J. B. Santos-Filho, J. A. Plascak, and D. P. Landau                                                                                                                                                                               |        |
| Destruction of long-range magnetic order in an external magnetic field and the associated spin dynamics in<br>Cu <sub>2</sub> GaBO <sub>5</sub> and Cu <sub>2</sub> AlBO <sub>5</sub> ludwigites (15 pages) . . . . .             | 024447 |
| A. A. Kulbakov, R. Sarkar, O. Janson, S. Dengre, T. Weinhold, E. M. Moshkina, P. Y. Portnichenko,<br>H. Luetkens, F. Yokaichiya, A. S. Sukhanov, R. M. Eremina, Ph. Schlender, A. Schneidewind,<br>H.-H. Klauss, and D. S. Inosov |        |
| Unusual magnetism in Cu <sub>x</sub> Co <sub>3-x</sub> O <sub>4</sub> nanoparticles (10 pages) . . . . .                                                                                                                          | 024448 |
| M. Shepit, V. K. Paidi, C. A. Roberts, G. K. Reddy, and J. van Lierop                                                                                                                                                             |        |

(Continued)

|                                                                                                                                                                               |        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Non-Hamiltonian dynamics of indirectly coupled classical impurity spins ( <i>19 pages</i> ) . . . . .                                                                         | 024449 |
| Simon Michel and Michael Potthoff                                                                                                                                             |        |
| Precessional spin-torque dynamics in biaxial antiferromagnets ( <i>8 pages</i> ) . . . . .                                                                                    | 024450 |
| Arun Parthasarathy, Egecan Cogulu, Andrew D. Kent, and Shaloo Rakheja                                                                                                         |        |
| Magnetic and structural dimer networks in layered $\text{K}_2\text{Ni}(\text{MoO}_4)_2$ ( <i>9 pages</i> ) . . . . .                                                          | 024451 |
| G. Senthil Murugan, K. Ramesh Babu, R. Sankar, W. T. Chen, I. Panneer Muthuselvam, Sumanta Chattopadhyay, and K.-Y. Choi                                                      |        |
| <b>Superfluidity and superconductivity</b>                                                                                                                                    |        |
| Impact of impurity scattering on odd-frequency spin-triplet pairing near the edge of the Kitaev chain ( <i>14 pages</i> ) . . . . .                                           | 024501 |
| Sparsh Mishra, Shun Tamura, Akito Kobayashi, and Yukio Tanaka                                                                                                                 |        |
| Pressure tuning of the iron-based superconductor $(\text{Ca}_{0.73}\text{La}_{0.27})\text{FeAs}_2$ ( <i>6 pages</i> ) . . . . .                                               | 024502 |
| M. Y. Li, J. Huang, W. T. Guo, R. Yang, T. Hu, A. B. Yu, Y. L. Huang, M. Zhang, W. Zhang, J.-M. Zhang, and H. Xiao                                                            |        |
| Nodeless superconductivity in $\text{Lu}_{5-x}\text{Rh}_6\text{Sn}_{18+x}$ with broken time reversal symmetry ( <i>8 pages</i> ) . . . . .                                    | 024503 |
| A. Wang, Z. Y. Nie, F. Du, G. M. Pang, N. Kase, J. Akimitsu, Y. Chen, M. J. Gutmann, D. T. Adroja, R. S. Perry, C. Cao, M. Smidman, and H. Q. Yuan                            |        |
| Extreme high-field superconductivity in thin Re films ( <i>11 pages</i> ) . . . . .                                                                                           | 024504 |
| F. N. Womack, D. P. Young, D. A. Browne, G. Catelani, J. Jiang, E. I. Meletis, and P. W. Adams                                                                                |        |
| Hard and superconducting cubic boron phase via swarm-intelligence structural prediction driven by a machine-learning potential ( <i>6 pages</i> ) . . . . .                   | 024505 |
| Qiuping Yang, Jian Lv, Qunchao Tong, Xin Du, Yanchao Wang, Shoutao Zhang, Guochun Yang, Aitor Bergara, and Yanming Ma                                                         |        |
| Topological and nematic superconductivity mediated by ferro-SU(4) fluctuations in twisted bilayer graphene ( <i>15 pages</i> ) . . . . .                                      | 024506 |
| Yuxuan Wang, Jian Kang, and Rafael M. Fernandes                                                                                                                               |        |
| Evidence for the coexistence of time-reversal symmetry breaking and Bardeen-Cooper-Schrieffer-like superconductivity in $\text{La}_7\text{Pd}_3$ ( <i>9 pages</i> ) . . . . . | 024507 |
| D. A. Mayoh, A. D. Hillier, G. Balakrishnan, and M. R. Lees                                                                                                                   |        |
| Orbital-dependent self-energy effects and consequences for the superconducting gap structure in multiorbital correlated electron systems ( <i>8 pages</i> ) . . . . .         | 024508 |
| Kristofer Björnson, Andreas Kreisel, Astrid T. Rømer, and Brian M. Andersen                                                                                                   |        |
| Stochastic motion of finite-size immiscible impurities in a dilute quantum fluid at finite temperature ( <i>10 pages</i> ) . . . . .                                          | 024509 |
| Umberto Giuriato and Giorgio Krstulovic                                                                                                                                       |        |
| Large spectral gap and impurity-induced states in a two-dimensional Abrikosov vortex ( <i>22 pages</i> ) . . . . .                                                            | 024510 |
| A. A. Bespalov and V. D. Plastovets                                                                                                                                           |        |
| Effect of vortex annihilation lines on magnetic relaxation in high-temperature superconductors ( <i>7 pages</i> ) . . . . .                                                   | 024511 |
| L. Burlachkov and S. Burov                                                                                                                                                    |        |

(Continued)

|                                                                                                                                                                                                   |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Normal state specific heat of a core-shell aluminum-alumina metamaterial composite with enhanced $T_c$ (8 pages)                                                                                  | 024512 |
| Peter F. Rosen, Jason J. Calvin, Brian F. Woodfield, Vera N. Smolyaninova, Joseph C. Prestigiacomo, Michael S. Osofsky, and Igor I. Smolyaninov                                                   |        |
| Coherent photogalvanic effect in fluctuating superconductors (7 pages)                                                                                                                            | 024513 |
| V. M. Kovalev, K. Sonowal, and I. G. Savenko                                                                                                                                                      |        |
| Topological $s$ -wave superconductors driven by electron correlation (6 pages)                                                                                                                    | 024514 |
| Huai-Shuang Zhu, Zhidan Li, Qiang Han, and Z. D. Wang                                                                                                                                             |        |
| High-pressure synthesis and thermodynamic stability of $\text{PdH}_{1\pm\epsilon}$ up to 8 GPa (6 pages)                                                                                          | 024515 |
| Zachary M. Geballe, Maddury Somayazulu, Nicolas Armanet, Ajay K. Mishra, Muhtar Ahart, and Russell J. Hemley                                                                                      |        |
| Analysis of magnetic vortex dissipation in Sn-segregated boundaries in $\text{Nb}_3\text{Sn}$ superconducting RF cavities (12 pages)                                                              | 024516 |
| Jared Carlson, Alden Pack, Mark K. Transtrum, Jaeyel Lee, David N. Seidman, Danilo B. Liarte, Nathan S. Sitaraman, Alen Senanian, Michelle M. Kelley, James P. Sethna, Tomas Arias, and Sam Posen |        |
| Rotational symmetry breaking and partial Majorana corner states in a heterostructure based on high- $T_c$ superconductors (7 pages)                                                               | 024517 |
| Yu-Xuan Li and Tao Zhou                                                                                                                                                                           |        |
| Hybrid Berezinskii-Kosterlitz-Thouless and Ising topological phase transition in the generalized two-dimensional XY model using tensor networks (5 pages)                                         | 024518 |
| Feng-Feng Song and Guang-Ming Zhang                                                                                                                                                               |        |
| Interplay between nematicity and Bardasis-Schrieffer modes in the short-time dynamics of unconventional superconductors (12 pages)                                                                | 024519 |
| Marvin A. Müller, Pavel A. Volkov, Indranil Paul, and Ilya M. Eremin                                                                                                                              |        |
| Spectral properties and enhanced superconductivity in renormalized Migdal-Eliashberg theory (10 pages)                                                                                            | 024520 |
| Benjamin Nosarzewski, Michael Schüler, and Thomas P. Devereaux                                                                                                                                    |        |
| Distortional weak-coupling instability of Bogoliubov Fermi surfaces (21 pages)                                                                                                                    | 024521 |
| Carsten Timm, P. M. R. Brydon, and Daniel F. Agterberg                                                                                                                                            |        |
| Interplay between superconductivity and non-Fermi liquid at a quantum critical point in a metal. IV. The $\gamma$ model and its phase diagram at $1 < \gamma < 2$ (26 pages)                      | 024522 |
| Yi-Ming Wu, Shang-Shun Zhang, Artem Abanov, and Andrey V. Chubukov                                                                                                                                |        |
| Multigap superconductivity at an unconventional Lifshitz transition in a three-dimensional Rashba heterostructure at the atomic limit (17 pages)                                                  | 024523 |
| Maria Vittoria Mazziotti, Antonio Valletta, Roberto Raimondi, and Antonio Bianconi                                                                                                                |        |
| Spin pumping between noncollinear ferromagnetic insulators through thin superconductors (12 pages)                                                                                                | 024524 |
| Haakon T. Simensen, Lina G. Johnsen, Jacob Linder, and Arne Brataas                                                                                                                               |        |
| Peak structure in the self-energy of cuprate superconductors (8 pages)                                                                                                                            | 024525 |
| Yiqun Liu, Yu Lan, and Shiping Feng                                                                                                                                                               |        |
| Mössbauer studies of spin and charge modulations in $\text{BaFe}_2(\text{As}_{1-x}\text{P}_x)_2$ (12 pages)                                                                                       | 024526 |
| K. Komędera, J. Gatlik, A. Błachowski, J. Żukrowski, T. J. Sato, D. Legut, and U. D. Wdowik                                                                                                       |        |

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 103, NUMBER 2

JANUARY 2021-1(II)

|                                                                                                                              |        |
|------------------------------------------------------------------------------------------------------------------------------|--------|
| Nonequilibrium edge transport in quantum Hall based Josephson junctions ( <i>12 pages</i> ) . . . . .                        | 024527 |
| Lucila Peralta Gavensky, Gonzalo Usaj, and C. A. Balseiro                                                                    |        |
| Scanning SQUID characterization of extremely overdoped $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ ( <i>7 pages</i> ) . . . . . | 024528 |
| Chloe Herrera, Jacob Franklin, Ivan Božović, Xi He, and Ilya Sochnikov                                                       |        |
| Exactly solvable model of Fermi arcs and pseudogap ( <i>5 pages</i> ) . . . . .                                              | 024529 |
| Kun Yang                                                                                                                     |        |