

ARTICLES

Structure, structural phase transitions, mechanical properties, defects

- Effect of quantum anharmonic ionic fluctuations on the bond length alternation and giant piezoelectricity of conjugated polymers (*16 pages*) 074101

Stefano Paolo Villani, Lorenzo Monacelli, Paolo Barone, and Francesco Mauri

- Competing hydrogenation pathways to metastable CaH₆ revealed by machine learning potential molecular dynamics (*8 pages*) 074102

Ryuhei Sato, Peter I. C. Cooke, Maélie Caussé, Hung Ba Tran, Seong Hoon Jang, Di Zhang, Hao Li, Shin-ichi Orimo, Yasushi Shibuta, and Chris J. Pickard

- Collective atomic motion and melting of bcc chromium at terapascal pressures (*8 pages*) 074103

Yichu Zhang, Anatoly B. Belonoshko, Xiancai Lu, and Kai Wang

- Mechanical anisotropy and thermal transport hierarchy in defect-engineered hexagonal boron nitride (*11 pages*) 074104

Md. Rakib Hassan, Carlos A. Jiménez-Hoyos, and Francis W. Starr

-  Defect in diamond with millisecond-scale spin relaxation time at room temperature (*17 pages*) 074105

Sounak Mukherjee, Anran Li, Johannes Eberle, Sean Karg, Zi-Huai Zhang, Mayer M. Feldman, Yilin Chen, Mark E. Turiensky, Mengen Wang, Yogendra Limbu, Tharnier O. Puel, Yueguang Shi, Matthew L. Markham, Rajesh L. Patel, Patryk Gumann, Michael E. Flatté, Chris G. Van de Walle, Stephen A. Lyon, and Nathalie P. de Leon

- Pressure-temperature phase diagram and electronic band structure of BaAl₂Si₂: Effect of kinetic-barrier metastability (*11 pages*) 074106

S. Strikos, Bobby Joseph, F. G. Alabarse, G. Valadares, D. G. Costa, Rodrigo B. Capaz, and M. ElMassalami

- Observation of critical non-Hermitian edge states in electric circuits (*12 pages*) 074107

Ruixia Hu, Weipeng Hu, Zhaojian He, Bowen Zeng, and Ke Deng

- Invariant-based master equation applied to a driven qutrit coupled to a bath and a leaky cavity (*25 pages*) 074108

Sagarika Basak, A. Javadi, and D. Blume

Inhomogeneous, disordered, and partially ordered systems

- Disorder-enhanced transport across MoS₂-WS₂ lateral interfaces (*10 pages*) 074201

Favian Sun and Boris I. Yakobson



(Continued)



2469-9950(20260801)114:7;1-6

Impact of spin-orbit coupling on electron correlation corrections to the density of states in anisotropic conductors (<i>11 pages</i>)	074202
Bahruz Suleymanli and B. Tanatar	
<i>Ab initio</i> equation of state, critical point, and ionic transport properties of liquid expanded lead (<i>21 pages</i>)	074203
M. A. Paramonov, D. V. Minakov, I. S. Galtsov, and P. R. Levashov	
Local density of states distribution and multifractal eigenvectors of weighted random networks via the cavity approach (<i>15 pages</i>)	074204
Joseph W. Baron and Tim Rogers	
Continuum model for the terahertz dielectric response of glasses (<i>15 pages</i>)	074205
Tatsuya Mori, Hideyuki Mizuno, Yuzuki Motokawa, Dan Kyotani, Soo Han Oh, Yasuhiro Fujii, Akitoshi Koreeda, Shinji Kohara, and Seiji Kojima	
Dynamics, dynamical systems, lattice effects:	
Floquet-engineered fidelity revivals in the PXP model (<i>13 pages</i>)	074301
F. Perciavalle, F. Plastina, and N. Lo Gullo	
Coherent control of electron and nuclear spin polarization by two-pulse optical Stark effect induced spin rotations (<i>14 pages</i>)	074302
Estefanio Kesto, Ayla Rodriguez, Ian Swanson, Michael J. Dominguez, and Vanessa Sih	
Dissipation-induced deviations from Kibble-Zurek scaling in non-Hermitian quantum annealing (<i>13 pages</i>)	074303
H. Najafzadeh, S. Sadeghizade, R. Jafari, and A. Langari	
Giant negative coefficient of thermal expansion and tetragonality retention in PbTiO ₃ -based perovskites (<i>9 pages</i>)	074304
Niraj Kumar, Chin-Wei Wang, and Ajay Kumar Kalyani	
High-temperature quantum oscillations of a nonequilibrium non-Fermi liquid (<i>7 pages</i>)	074305
Oles Matsyshyn, Li-kun Shi, and Inti Sodemann Villadiego	
Mpemba effect in many-body systems near equilibrium (<i>6 pages</i>)	074306
P. Ben-Abdallah	
Control-driven critical fluctuations across quantum trajectories (<i>23 pages</i>)	074307
Haining Pan, Thomas Iadecola, E. M. Stoudenmire, and J. H. Pixley	
Operator spreading in random unitary circuits with orthogonal/symplectic-invariant gate distributions (<i>34 pages</i>)	074308
Zhiyang Tan (谭志阳) and Piet W. Brouwer	
Emergent electric fields driven by phonon-coupled skyrmion resonances (<i>13 pages</i>)	074309
Seno Aji	
Mpemba effects in quantum complexity (<i>12 pages</i>)	074310
Sreemayee Aditya, Alessandro Summer, Piotr Sierant, and Xhek Turkeshi	
Relation between crystal melting temperature T_m and glass transition temperature T_g determined by the response of the caged molecule dynamics (<i>12 pages</i>)	074311
K. L. Ngai, Yanhui Zhang, and Li-Min Wang	

(Continued)

Magnetism

Dissipationless dynamics of spin supersolid states in a spin- $\frac{1}{2}$ triangular antiferromagnet with impurities (12 pages)	074401
Yixuan Huang, Yuan Gao, Wei Li, Seiji Yunoki, and Sadamichi Maekawa	
Strongly frustrated two-dimensional magnetism in a three-dimensional hexagonal perovskite (9 pages)	074402
Bocheng Yu, Otkur Omar, Songtai Lv, Long Ma, Zhengcai Xia, Jing Meng, Yanran Yang, Jie Ma, Yang Xu, Qingfeng Zhan, Vladimir Yu. Pomjakushin, Haiyuan Zou, Shang Gao, Toni Shiroka, and Tian Shang	
Phonon anomalies and critical scaling in the spin- $\frac{1}{2}$ trimer chain $\text{Na}_2\text{Cu}_3\text{Ge}_4\text{O}_{12}$ (12 pages)	074403
P. Srikanth Patnaik, A. K. Bera, Srishti Bhardwaj, Tulika Maitra, Buddhananda Banerjee, Anushree Roy, and S. M. Yusuf	
First-order magnetic transition and field-sensitive magnetic states in the distorted kagome metal Pr_3MnBi_5 (8 pages)	074404
Jingyu Li, Cuiwei Zhang, Zhongchen Xu, Guohao Dong, Shanshan Miao, Yong-Chang Lau, Fang Hong, and Youguo Shi	
Dynamical spin correlations in kagome antiferromagnets: Comparison of the Abrikosov fermion and Schwinger boson approaches beyond mean field (31 pages)	074405
Daiki Sasamoto and Joji Nasu	
Antiferromagnetism, spin liquid, and plaquette singlet phases in the Shastry-Sutherland model: A variational cluster approximation approach (8 pages)	074406
Jean Paul Latyr Faye, Oumar Ndiaye, and David Sénéchal	
 Coexistence of magnon and spinon excitations in SeCuO_3 (10 pages)	074407
Youngsu Choi, Dirk Wulferding, Kalaivanan Raju, Raman Sankar, and Kwang-Yong Choi	
Tunable hybrid magnons mediated by coherent spin pumping in a CoZr/GdFeCo heterostructure (9 pages)	074408
Ying Jin, Jie Xu, Fu Liu, Bokai Liang, Guozhi Chai, Wenbo Sui, and Changjun Jiang	
Magnetic ordering and spin network in the quantum spin ladder $\text{Ba}_2\text{CuTeO}_6$ (10 pages)	074409
Sunil K. Karna, Y. Zhao, C. W. Wang, R. Sankar, D. Temple, K. Matan, R. Piltz, and M. Avdeev	
Variational study of the magnetization plateaus in the spin- $\frac{1}{2}$ kagome Heisenberg antiferromagnet: An approach from vision transformer neural quantum states (16 pages)	074410
Andreas Raikos, Sylvain Capponi, and Fabien Alet	
Electron-phonon coupling in magnetic materials using the local spin density approximation (12 pages)	074411
Álvaro Adrián Carrasco Álvarez, Matteo Giantomassi, Jae-Mo Lihm, Guillaume E. Allemand, Maxime Mignolet, Matthieu Verstraete, and Samuel Poncé	
Strain-induced magnetization in RuO_2 (9 pages)	074412
Chuhan Tang, Fuxiang Li, and Liming Tang	
Field angle-dependent magnetization reversal in perpendicular anisotropy garnet films (17 pages)	074413
Senyin Zhu, Hanxu Zhang, Zhichao Xing, Bingchi Li, Zhicong Zhang, Xingyu Huang, Yang Li, Qiang Fu, Xianjie Wang, Andreas Berger, and Bo Song	
Dzyaloshinskii-Moriya-driven instabilities in square-kagome quantum antiferromagnets (17 pages)	074414
Leonid S. Taran, Arnaud Ralko, Fedor V. Temnikov, Vladimir V. Mazurenko, Sergey V. Streltsov, and Yasir Iqbal	

(Continued)

Phase field modeling of microstructure evolution and magnetic phase transitions in $(\text{Hf}_{1-x}\text{Nb}_x)\text{Fe}_2$ alloys (8 pages)	074415
Ye Tao, Jian-Tao Wang, Fengxia Hu, and Changfeng Chen	
Possible origin of the 175 cm^{-1} Raman mode in altermagnetic MnTe (7 pages)	074416
Bishal Thapa, K. D. Belashchenko, and Igor I. Mazin	
Frustration-induced degenerate spin state with up-up-down-down ordering in corner-connected Heisenberg square plaquettes (16 pages)	074417
Pritam Manna and A. K. Bera	
Observation of angular planar Hall singularity in a type-II Weyl semimetal (6 pages)	074418
Apurba Dutta and Soumik Mukhopadhyay	
Nonlinear interaction theory for parametrically excited spin-wave modes in confined micromagnetic systems (43 pages)	074419
Massimiliano d'Aquino, Salvatore Perna, Hugo Merbouche, and Grégoire de Loubens	
Significant ordinary Nernst effect contribution to spin-orbit torque harmonic Hall measurements in metallic structures (8 pages)	074420
Igor Lyalin, C. C. Chiang, and C. L. Chien	
Long-range magnetic interactions in Nd_2PdSi_3 and the formation of skyrmion phases in centrosymmetric metals (10 pages)	074421
Viviane Peçanha-Antonio, Zhaoyang Shan, Michael Smidman, Juba Bouaziz, Bachir Ouladdiaf, Iurii Kibalin, Marie-Hélène Lemée-Cailleau, Christian Balz, Jakob Lass, Daniel A. Mayoh, Geetha Balakrishnan, Julie B. Staunton, Devashibhai Adroja, and Andrew T. Boothroyd	
Ultrafast laser-induced spin-manipulation scenarios on a long zigzag silicon chain system (18 pages)	074422
Mohamed Barhoumi, Jing Liu, Georgios Lefkidis, and Wolfgang Hübner	
Real-space observation of crystallographic axis dependent in-plane magnetic domain evolution in the kagome magnet Fe_3Sn_2 (7 pages)	074423
Minghao Zheng, Yu Zhu, Zehua Bi, Yong-Chang Lau, Hang Li, Bei Ding, and Wenhong Wang	
State-resolved magnetopolar oxygen-vacancy unit and connectivity-aware supercell magnetic response in monolayer ZrMo_2O_8 (10 pages)	074424
Teli Lin, Shiqing Duan, Xuxuan Huang, Qian Liu, Zihao Cheng, Dong Zhao, Hangwei Liu, Jiao Chen, Xinyong Cai, Chunshen Guo, Lishu Zhang, Lei Shen, and Yuanzheng Chen	
Cooperative spin coupling in PrFeO_3 (11 pages)	074426
Narendrakumar Narayanan, V. Ovidiu Garlea, Richard Mole, Barry Winn, Dehui Sun, Xiaoxuan Ma, James Hester, Yun Liu, Garry McIntyre, Robert A. Robinson, Shixun Cao, and Dehong Yu	
<i>p</i> -wave magnetism and gate-tunable Edelstein response in van der Waals heterostructures (8 pages)	074427
Hanbyul Kim, Chan Bin Bark, Seik Pak, GiBaik Sim, and Moon Jip Park	
Emergent spin accumulation in non-Hermitian altermagnets (12 pages)	074428
J. H. Correa, M. P. Nowak, and A. Pezo	
Phase diagram of the Kitaev-Heisenberg- Γ model: Classical and quantum magnetism, frustration, and subdominant interactions (19 pages)	074429
Kiyu Fukui and Yukitoshi Motome	

(Continued)

Emergence of magnetic ordering and weak antilocalization in Fe-doped Sb ₂ Te ₃ : Evidence by muon spin resonance and density functional theory studies (12 pages)	074430
Suchandra Mukherjee, Nabakumar Rana, Ankit Kumar, Subarna Das, Anthony V. Powell, Mark T. F. Telling, Gavin B. G. Stenning, Swapnadeep Goswami, and Aritra Banerjee	
Relationship between anisotropic magnetoresistance and magnetocrystalline anisotropy in uniaxially textured cobalt (002) films (8 pages)	074431
Zhiyang Gao, Junwen Sun, Sha Zhang, Yu Miao, Cunxu Gao, X. R. Wang, and Desheng Xue	
Nonvolatile interwave switching of altermagnetism enabled by sliding ferroelectricity (11 pages)	074432
Pengtao Diao, Shuang Wu, Wei Sun, Wenxuan Wang, Changhong Yang, Shifeng Huang, and Zhenxiang Cheng	
 Spin-Hall angle temperature dependence in NiFe/MnBi ₂ Te ₄ heterostructures (8 pages)	074433
A. S. Pakhomov, V. V. Yurlov, P. N. Skirdkov, M. V. Bakhmetiev, R. B. Morgunov, N. T. Hai, J. C. Wu, J. C. A. Huang, S. H. Su, C. F. Almeida Alves, E. Paz, A. I. Chernov, and K. A. Zvezdin	
Heitler effect and resonance fluorescence in quantum magnonics (8 pages)	074434
Enes Ilbuğa, V. V. Dobrovitski, and Ya. M. Blanter	
 Simplex crystal ground state and magnetization plateaus in the spin- $\frac{1}{2}$ Heisenberg model on the ruby lattice (11 pages)	074435
Pratyay Ghosh and Frédéric Mila	
Domains with noncentrosymmetric structural distortion in altermagnetic MnTe (8 pages)	074436
Ao Wu, Di Cheng, Jing-Yang Chung, Xinyun Wang, Meng Zeng, Chang Liu, Silvija Gradečak-Garaj, and Xinwei Li	
Orientation-resolved magneto-optical conductivity and topological response in Rashba altermagnets (13 pages)	074437
Chang Liu, Sha-Sha Ke, Yong Guo, Xiao-Tao Zu, Sean Li, and Hai-Feng Lü	
Coexistence of strong spin fluctuations and partial ordering in the buckled honeycomb lattice system Nd ₂ Te ₄ O ₁₁ (9 pages)	074438
Manshi Rani, J. M. Wilkinson, G. B. G. Stenning, and K. Mukherjee	
Direct measurement of the timescale of spin reorientation in TbMn ₆ Sn ₆ (10 pages)	074439
Sinéad A. Ryan, Anya Grafov, Na Li, Hans T. Nembach, Justin M. Shaw, Hari Bhandari, Tika R. Kaffle, Richa Sapkota, Henry C. Kapteyn, Nirmal J. Ghimire, and Margaret M. Murnane	
Enhanced layer Hall effect and $C = 1/2$ parity anomaly state in fully compensated antiferromagnets (10 pages)	074440
Hao Tian, Di Han, Yuanzheng Chu, Yu Zhang, Xuqi Li, and Shifei Qi	
Superfluidity and superconductivity	
First-principles study of chemical pressure in La ₂ RNi ₂ O ₇ ($R=Pr, Nd, \text{ and } Sm$) (10 pages)	074501
Xiaochun Yan, Shuo Tong, Zihao Huo, Guanlin Li, Haoliang Shi, Binghong Li, Jiaqi Shi, and Defang Duan	
Structure and superconductivity in a ternary selenide PbSnSe ₂ alloy of three-dimensional PbSe and two-dimensional SnSe under pressure (9 pages)	074502
Binbin Yue, Wei Zhong, Huchen Shu, Kaiwen Li, Yi Tan, Jingwei Miao, E. Karaca, D. Errandonea, and Fang Hong	

(Continued)

Orientation-dependent exceptional points in non-Hermitian altermagnetic Josephson junctions (<i>11 pages</i>)	074503
Mohammad Alipourzadeh, Jamal Berakdar, Wolfgang Belzig, and Yaser Hajati	
Analytical solution of coupled self-consistency and linearized Usadel equations for dirty superconductors near T_c and with the proximity effect (<i>8 pages</i>)	074504
S. S. Seidov and N. G. Pugach	
Enhancement of superconductivity by polarization of magnetic impurities in disordered films (<i>17 pages</i>)	074505
Gleb S. Seleznev and Yakov V. Fominov	
Unified topological phase diagram of quantum Hall and superconducting vortex-lattice states (<i>12 pages</i>)	074506
Daniil S. Antonenko, Liang Fu, and Leonid I. Glazman	
Nonthermal pairing glue of electrons in the steady state (<i>36 pages</i>)	074507
Michele Pini, Christian H. Johansen, and Francesco Piazza	
Third-harmonic generation in superconductors: Role of quantum geometry in the competition between Higgs mode and quasiparticles (<i>7 pages</i>)	074508
Chang-geun Oh, Haruki Watanabe, and Naoto Tsuji	
Interband effects in the intertype regime of dirty two-band superconductors (<i>12 pages</i>)	074509
P. M. Marychev and A. A. Shanenko	
Squeezed vibrational states in superfluid helium (<i>4 pages</i>)	074510
L. A. Melnikovsky	
 Eightfold classification of superconducting orders (<i>18 pages</i>)	074511
Alexander V. Balatsky and Saikat Banerjee	
First-principles evidence for conventional superconductivity in a quasicrystal approximant (<i>12 pages</i>)	074512
Pedro N. Ferreira, Roman Lucrezi, Sangmin Lee, Lucy Nathwani, Matthew Julian, Rohit P. Prasankumar, Warren E. Pickett, Chris J. Pickard, Philip Kim, and Christoph Heil	
Evolution of spin excitations in superconducting $\text{La}_{2-x}\text{Ca}_x\text{CuO}_{4-\delta}$ from the underdoped to the heavily overdoped regime (<i>7 pages</i>)	074513
S. Hameed, Y. Liu, M. Knaft, K. S. Rabinovich, G. Kim, G. Christiani, G. Logvenov, F. Yakhov-Harris, A. V. Boris, B. Keimer, and M. Minola	
 Observation of subharmonic charge-density-wave correlations in La-based cuprates (<i>8 pages</i>)	074514
J.-S. Lee, S. A. Kivelson, H. Lee, T. Wang, Y. Ikeda, T. Taniguchi, C.-T. Kuo, M. Fujita, and C.-C. Kao	