

LETTERS

Structure, structural phase transitions, mechanical properties, defects

- ☞ Structural transition and magnetic anisotropy in α -RuCl₃ (7 pages) L140101
Subin Kim, Ezekiel Horsley, Jacob P. C. Ruff, Beatriz D. Moreno, and Young-June Kim
- Observation of scale-free localized states induced by non-Hermitian defects (7 pages) L140102
Xinrong Xie, Gan Liang, Fei Ma, Yulin Du, Yiwei Peng, Erping Li, Hongsheng Chen, Linhu Li, Fei Gao, and Haoran Xue
- Stability of xenon-sodium compounds at moderately low pressures (6 pages) L140103
Junhao Peng, Shaoxiong Wang, Huafeng Dong, Minru Wen, Xin Zhang, and Fugen Wu
- Spin Chern insulator in a phononic fractal lattice (7 pages) L140104
Pengtao Lai, Hui Liu, Boyang Xie, Weiyin Deng, Haonan Wang, Hua Cheng, Zhengyou Liu, and Shuqi Chen
- Unveiling the microscopic dynamics of the charge density wave transition in monolayer VX₂ (X = S, Te) (10 pages) L140105
Yuxuan Chen, Chao Liang, Jian Yuan, Biao Wang, and Huashan Li

Inhomogeneous, disordered, and partially ordered systems

- Diagnosing non-Hermitian many-body localization and quantum chaos via singular value decomposition (6 pages) L140201
Federico Roccati, Federico Balducci, Ruth Shir, and Aurélie Chenu
- Quantum circuits reproduce the experimental two-dimensional many-body localization transition point (7 pages) L140202
Joey Li, Amos Chan, and Thorsten B. Wahl

Dynamics, dynamical systems, lattice effects:

- Quantum dynamics in one and two dimensions via the recursion method (6 pages) L140301
Filipp Uskov and Oleg Lychkovskiy
- Exact dynamics of quantum dissipative XX models: Wannier-Stark localization in the fragmented operator space (7 pages) L140302
Alexander Teretenkov and Oleg Lychkovskiy
- Vortex loop dynamics and dynamical quantum phase transitions in three-dimensional fermion matter (6 pages) L140303
Arkadiusz Kosior and Markus Heyl



(Continued)



2469-9950(20240401)109:14;1-U

Carrier transport after ultrashort-pulse laser excitation in dielectric materials leads to 10 MV m^{-1} electric fields: Transient birefringence and emission of terahertz radiation (<i>6 pages</i>)	L140304
Søren H. Møller, Peter S. Sneftrup, Brian Julsgaard, and Peter Balling	
Magnetism	
Quantum phase transition of an organic spin liquid tuned by mixing counterions (<i>6 pages</i>)	L140401
K. Ueda, S. Fujiyama, and R. Kato	
Topological band structure due to modified Kramers degeneracy for electrons in a helical magnetic field (<i>5 pages</i>)	L140402
Yu. B. Kudasov	
 Role of photonic angular momentum in all-optical magnetic switching (<i>6 pages</i>)	L140403
Muhammad Waleed Khalid, Ali Akbar, Jeongho Ha, Mohammed Salah El Hadri, Alexander V. Sergienko, Eric E. Fullerton, and Abdoulaye Ndao	
Deconfined quantum phase transition on the kagome lattice: Distinct velocities of spinon and string excitations (<i>6 pages</i>)	L140404
Dong-Xu Liu, Zijian Xiong, Yining Xu, and Xue-Feng Zhang (张学锋)	
Magnetic structure of Ce_3TiBi_5 and its relation to current-induced magnetization (<i>6 pages</i>)	L140405
Nicolas Gauthier, Romain Sibille, Vladimir Pomjakushin, Øystein S. Fjellvåg, James Fraser, Mathieu Desmarais, Andrea D. Bianchi, and Jeffrey A. Quilliam	
Emission of fast-propagating spin waves by an antiferromagnetic domain wall driven by spin current (<i>6 pages</i>)	L140406
Roman V. Ovcharov, B. A. Ivanov, Johan Åkerman, and Roman S. Khymyn	
Role of Debye temperature in achieving large adiabatic temperature changes at cryogenic temperatures: A case study on Pr_2In (<i>7 pages</i>)	L140407
Wei Liu, Franziska Scheibel, Nuno Fortunato, Imants Dirba, Tino Gottschall, Hongbin Zhang, Konstantin Skokov, and Oliver Gutfleisch	
Primary and secondary order parameters in the fully frustrated transverse-field Ising model on the square lattice (<i>5 pages</i>)	L140408
Gabe Schumm, Hui Shao, Wenan Guo, Frédéric Mila, and Anders W. Sandvik	
Superfluidity and superconductivity	
Fate of the superconducting state in floating islands of hybrid nanowire devices (<i>7 pages</i>)	L140501
E. V. Shpagina, E. S. Tikhonov, D. Ruhstorfer, G. Koblmüller, and V. S. Khrapai	
Reinforcement of superconductivity by quantum critical fluctuations of metamagnetism in UTe_2 (<i>6 pages</i>)	L140502
Y. Tokiwa, P. Opletal, H. Sakai, S. Kambe, E. Yamamoto, M. Kimata, S. Awaji, T. Sasaki, D. Aoki, Y. Haga, and Y. Tokunaga	
Proximity-effect-induced superconductivity in a van der Waals heterostructure consisting of a magnetic topological insulator and a conventional superconductor (<i>6 pages</i>)	L140503
Peng Dong, Xiaofei Hou, Jiadian He, Yiwen Zhang, Yifan Ding, Xiaohui Zeng, Jinghui Wang, Yueshen Wu, Kenji Watanabe, Takashi Taniguchi, Wei Xia, Yanfeng Guo, Yulin Chen, Xiang Zhou, Wei Li, and Jun Li	

(Continued)

Emergent Fano-Feshbach resonance in two-band superconductors with an incipient quasiflat band: Enhanced critical temperature evading particle-hole fluctuations (<i>6 pages</i>)	L140504
Hiroyuki Tajima, Hideo Aoki, Andrea Perali, and Antonio Bianconi	
Coexistence of superconductivity and superionicity in $\text{Li}_2\text{MgH}_{16}$ (<i>5 pages</i>)	L140505
Haoran Chen and Junren Shi	

ARTICLES

Structure, structural phase transitions, mechanical properties, defects

Jahn-Teller driven quadrupolar ordering and spin-orbital dimer formation in GaNb_4Se_8 (<i>7 pages</i>)	144101
Tsung-Han Yang, Tieyan Chang, Yu-Sheng Chen, and K. W. Plumb	
Exceptional points in single open acoustic resonator due to symmetry breaking (<i>9 pages</i>)	144102
Vladimir Igoshin, Mariia Tsimokha, Anastasia Nikitina, Mihail Petrov, Ivan Toftul, and Kristina Frizyuk	
Impact of temperature on short-range charge ordering in $\text{LiFePO}_4/\text{FePO}_4$ (<i>12 pages</i>)	144103
Souzan Hammadi, Jolla Kullgren, Matthew J. Wolf, Daniel Brandell, and Peter Broqvist	
Location and migration of interstitial Li ions in CsPbI_3 crystals (<i>11 pages</i>)	144104
Wei Wei, Julian Gebhardt, Daniel F. Urban, and Christian Elsässer	
Sound velocity of α -quartz under pressure: First-principles calculations (<i>7 pages</i>)	144105
Zhi-Xin Bai, Xin Qu, Cheng-Lu Jiang, Zheng-Tang Liu, and Qi-Jun Liu	
Two-step charge density wave transition and hidden transient phase in $1T\text{-TiSe}_2$ (<i>8 pages</i>)	144106
R. Amin, J. Pandey, K. Beyer, and V. Petkov	
From semiconductor to Fermi metal and emergent density-wave-like transition in the quasi-one-dimensional n -type $\text{Bi}_{19}\text{S}_{27}\text{I}_3$ under hydrostatic pressure (<i>10 pages</i>)	144107
Shuxiang Xu, Ziyi Liu, Pengtao Yang, Binbin Ruan, Zhian Ren, Jianping Sun, Yoshiya Uwatoko, Bosen Wang, and Jinguang Cheng	
Two-dimensional Weyl metal and second-order topological insulator phases in the modified Kane-Mele model (<i>10 pages</i>)	144108
Xiaokang Dai and Qinjun Chen	
Ultrahigh pressure shock compression of platinum up to 1.1 TPa: Melting and ionization (<i>7 pages</i>)	144109
Zhiguo Li, Long Hao, Xiang Wang, Guojun Li, Yong Hou, Qingsong Wang, Lei Liu, Huayun Geng, Yuying Yu, Chengda Dai, Qiang Wu, and Jianbo Hu	

Inhomogeneous, disordered, and partially ordered systems

 Perturbative analysis of quasiperiodic patterning of transmon quantum computers: Enhancement of many-body localization (<i>10 pages</i>)	144201
Evangelos Varvelis and David P. DiVincenzo	
Population annealing with topological defect driven nonlocal updates for spin systems with quenched disorder (<i>15 pages</i>)	144202
David Cirauqui, Miguel Ángel García-March, J. R. M. Saavedra, Maciej Lewenstein, and Przemysław R. Grzybowski	

(Continued)

 Topological enhancement of nonnormality in non-Hermitian skin effects (33 pages)	144203
Yusuke O. Nakai, Nobuyuki Okuma, Daichi Nakamura, Kenji Shimomura, and Masatoshi Sato	
Dynamics, dynamical systems, lattice effects:	
Quantum Liouville theorem based on Haar measure (9 pages)	144301
B. Q. Song, J. D. H. Smith, L. Luo, and J. Wang	
Application of the Green's function formalism to the interplay between avalanche and multiphoton ionization induced by optical pulses (9 pages)	144302
Alessandro Alberucci, Chandroth P. Jisha, and Stefan Nolte	
Coupled spin-lattice dynamics from the tight-binding electronic structure (14 pages)	144303
Ramon Cardias, Simon Streib, Zhiwei Lu, Manuel Pereiro, Anders Bergman, Erik Sjöqvist, Cyrille Barreteau, Anna Delin, Olle Eriksson, and Danny Thonig	
Phononic dynamical axion in magnetic Dirac insulators (10 pages)	144304
M. Nabil Y. Lhachemi and Ion Garate	
Prethermalization and transient dynamics of multichannel Kondo systems under generic quantum quenches: Insights from large- N Schwinger-Keldysh approach (23 pages)	144305
Iksu Jang and Po-Yao Chang	
Density and current statistics in boundary-driven monitored fermionic chains (9 pages)	144306
Xhek Turkeshi, Lorenzo Piroli, and Marco Schirò	
Three-dimensional acoustic metamaterials with topological states of different orders and multidirectional waveguiding (18 pages)	144307
Guifeng Wang, Zhenyu Chen, Zhifei Shi, and C. W. Lim	
Magnetism	
Entropic sampling in frustrated magnets: Role of self-intersecting spaces (9 pages)	144401
Alwyn Jose Raja and R. Ganesh	
Magnetic structure and component-separated transitions of HoNiSi_3 (12 pages)	144402
R. Tartaglia, F. R. Arantes, C. W. Galdino, U. F. Kaneko, M. A. Avila, E. Granado, Veronica Vildosola, Matias Nuñez, Pablo S. Cornaglia, and Daniel J. García	
 Helimagnetism in the candidate ferroelectric CrI_2 (9 pages)	144403
John A. Schneeloch, Shunshun Liu, Prasanna V. Balachandran, Qiang Zhang, and Despina Louca	
Structural modulation driven Curie temperature enhancement in Cr-doped SrRuO_3 (11 pages)	144404
Pooja, Bikash Saha, Nitesh Choudhary, Pradip K. Maji, A. K. Bera, S. M. Yusuf, and Chanchal Sow	
Effects of Na deficiency on spin dynamics in the Mott insulating $\text{Na}_{4-x}\text{Ir}_3\text{O}_8$ (9 pages)	144405
Y. S. Choi, C. H. Lee, T. Kihara, H. Zheng, H. Nojiri, J. F. Mitchell, and Kwang-Yong Choi	
Multiple unconventional Hall effects induced by noncoplanar spin textures in SmMn_2Ge_2 (12 pages)	144406
Dan Huang, Hang Li, Bei Ding, Linxuan Song, Xue Li, Xuekui Xi, Yong-Chang Lau, Jianrong Gao, and Wenhong Wang	

(Continued)

Local distortion driven magnetic phase switching in pyrochlore $\text{Yb}_2(\text{Ti}_{1-x}\text{Sn}_x)_2\text{O}_7$ (7 pages)	144407
Yuanpeng Zhang, Zhiling Dun, Yunqi Cai, Chengkun Xing, Qi Cui, Naveen Kumar Chogondahalli Muniraju, Qiang Zhang, Yongqing Li, Jinguang Cheng, and Haidong Zhou	
Magnetic phase diagram of $\text{Eu}_{1-x}\text{Ca}_x\text{Co}_2\text{P}_2$ determined using muon spin rotation and relaxation (11 pages)	144408
Izumi Umegaki, Kodai Moriyama, Kohei Yoshinaga, Kazuki Ohishi, Frank Elson, Ugne Miniotaite, Rasmus Palm, Martin Månsson, Ola Kenji Forslund, Yasmine Sassa, Soh Sugiyama, Gerald D. Morris, Bassam Hitti, Chishiro Michioka, Hiroaki Ueda, Kazuyoshi Yoshimura, and Jun Sugiyama	
Long-range three-dimensional magnetic structures of the spin $S=1$ hexamer cluster fedotovite-like $\text{A}_2\text{Cu}_3\text{O}(\text{SO}_4)_3$ ($\text{A}_2=\text{K}_2, \text{NaK}, \text{Na}_2$): A neutron diffraction study (11 pages)	144409
V. Yu. Pomjakushin, A. Podlesnyak, A. Furrer, and E. V. Pomjakushina	
Finite-temperature dynamics in 0-flux and π -flux quantum spin ice: Self-consistent exclusive boson approach (20 pages)	144410
Félix Desrochers and Yong Baek Kim	
Magnetism in the two-dimensional dipolar XY model (15 pages)	144411
Björn Sbierski, Marcus Bintz, Shubhayu Chatterjee, Michael Schuler, Norman Y. Yao, and Lode Pollet	
Impact of crystallinity on orbital torque generation in ferromagnets (8 pages)	144412
Riko Fukunaga, Satoshi Haku, Tenghua Gao, Hiroki Hayashi, and Kazuya Ando	
Elastic and anelastic behavior associated with magnetic ordering in the skyrmion host Cu_2OSeO_3 (10 pages)	144413
Kanta Adachi, Heribert Wilhelm, Marcus P. Schmidt, and Michael A. Carpenter	
Frustrated magnets in the limit of infinite dimensions: Dynamics and disorder-free glass transition (27 pages)	144414
Achille Mauri and Mikhail I. Katsnelson	
Fractionalized excitations probed by ultrasound (11 pages)	144415
A. Hauspurg, S. Zherlitsyn, T. Helm, V. Felea, J. Wosnitzer, V. Tsurkan, K.-Y. Choi, S.-H. Do, Mengxing Ye, Wolfram Brenig, and Natalia B. Perkins	
Electron-electron interaction correction to the skew scattering contribution to the anomalous Hall effect in ultrathin FeCo films (8 pages)	144416
Pengju Wang, Peng Chen, Yongzuo Wang, Yu Miao, and Cunxu Gao	
Dzyaloshinskii-Moriya interaction from unquenched orbital angular momentum (11 pages)	144417
Runze Chen, Dongwook Go, Stefan Blügel, Weisheng Zhao, and Yuriy Mokrousov	
<i>Ab initio</i> investigation of laser-induced ultrafast demagnetization of $L1_0$ FePt: Intensity dependence and importance of electron coherence (12 pages)	144418
M. S. Mrudul and Peter M. Oppeneer	
Temperature-dependent Barkhausen volume in two-dimensional Ising-like ferromagnetic films (7 pages)	144419
Qoimatul Mustaghfiroh, Anabil Gayen, Nguyen Le Thi, Yunxiu Zhao, Duy-Truong Quach, Duc-The Ngo, Eunhong Baek, Chun-Yeol You, Yeon Suk Choi, Seung-Young Park, and Dong-Hyun Kim	
Impact of incomplete martensitic phase transition on the magnetic behavior of Co-doped $\text{MnNiGe}_{1.05}$ alloys (8 pages)	144420
Riya Roy, Sanat Kumar Adhikari, Sambhu Charan Das, Rosni Roy, Sabyasachi Pramanick, Kalyanashis De, Oleh Ivashko, Ann-Christin Dippel, Martin von Zimmermann, Sudipta Bandyopadhyay, Rajib Mondal, and Souvik Chatterjee	

(Continued)

Strain-induced phase transition from antiferromagnet to altermagnet (12 pages)	144421
Atasi Chakraborty, Rafael González Hernández, Libor Šmejkal, and Jairo Sinova	
Oscillatory behavior of interlayer Dzyaloshinskii-Moriya interaction by spacer thickness variation (6 pages)	144422
E. Demiroglu, K. Hancioglu, I. Yavuz, C. O. Avci, and C. Deger	
Magnetic coupling at the interface between ultrathin tetragonal CuO and $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ (10 pages)	144423
Digbijaya Palai, Ravinder Kumar, M. Tahir, P. Gupta, S. N. Sarangi, S. Bedanta, G. Tripathy, S. Mukhopadhyay, Z. Hossain, and D. Samal	
Terahertz spin-wave excitations in the transverse conical phase of BiFeO_3 (10 pages)	144424
B. Tóth, D. G. Farkas, K. Amelin, T. Rőöm, U. Nagel, L. Udvardi, L. Szunyogh, L. Rózsa, T. Ito, and S. Bordács	
Assessment of magnetization reversal and anisotropy of thin films with collapsed hard-magnetization axes through vector magnetometry (6 pages)	144425
H. S. Acosta, A. M. H. de Andrade, L. F. S. Azeredo, and J. Geshev	
Spin-dependent graph neural network potential for magnetic materials (12 pages)	144426
Hongyu Yu, Yang Zhong, Liangliang Hong, Changsong Xu, Wei Ren, Xingao Gong, and Hongjun Xiang	
Superfluidity and superconductivity	
☞ Near power-law temperature dependence of the superfluid stiffness in strongly disordered superconductors (26 pages)	144501
Anton V. Khvalyuk, Thibault Charpentier, Nicolas Roch, Benjamin Sacépé, and Mikhail V. Feigel'man	
Stability of topological superconducting qubits with number conservation (9 pages)	144502
Matthew F. Lapa and Michael Levin	
Superconducting diodes from magnetization gradients (13 pages)	144503
Mercè Roig, Panagiotis Kotetes, and Brian M. Andersen	
Andreev reflection in normal metal/charge-4e superconductor junctions (14 pages)	144504
Yi-Xin Dai and Qing-Feng Sun	
☞ Superfluid stiffness within Eliashberg theory: The role of vertex corrections (22 pages)	144505
Zachary M. Raines, Shang-Shun Zhang, and Andrey V. Chubukov	
Multigap <i>s</i> -wave superconductivity emerging in the $1T'$ phase of MoTe_2 under hydrostatic pressure (6 pages)	144506
Dongting Zhang, Zhongchen Xu, Tian Le, Chufan Chen, Ge Ye, Fengrui Shi, Shuaishuai Luo, Youguo Shi, and Xin Lu	
Vortex phase diagram of the kagome superconductor CsV_3Sb_5 (9 pages)	144507
Xinyang Zhang, Mark P. Zic, Dong Chen, Chandra Shekhar, Claudia Felser, Ian R. Fisher, and Aharon Kapitulnik	
Realizing attractive interacting topological surface fermions: A resonating topological-insulator–thin-film hybrid platform (27 pages)	144508
Saran Vijayan and Fei Zhou	
High-temperature superconductivity of boron-carbon clathrates at ambient pressure (8 pages)	144509
Junda Li, Jincheng Yue, Siqi Guo, Ao Zhang, Li Zhu, Hao Song, Zhao Liu, Yanhui Liu, and Tian Cui	

(Continued)

Monte Carlo spin simulations of magnetic noise: The search for pivoting (<i>12 pages</i>)	144510
D. L. Mickelsen, Ruqian Wu, and Clare C. Yu	
Theoretical analysis on the possibility of superconductivity in the trilayer Ruddlesden-Popper nickelate $\text{La}_4\text{Ni}_3\text{O}_{10}$ under pressure and its experimental examination: Comparison with $\text{La}_3\text{Ni}_2\text{O}_7$ (<i>10 pages</i>)	144511
Hiroyuki Sakakibara, Masayuki Ochi, Hibiki Nagata, Yuta Ueki, Hiroya Sakurai, Ryo Matsumoto, Kensei Terashima, Keisuke Hirose, Hiroto Ohta, Masaki Kato, Yoshihiko Takano, and Kazuhiko Kuroki	
Subtlety of modes trapped by vortices in a topological superconducting heterostructure (<i>6 pages</i>)	144512
Xin-Hai Tu, Xian-Gang Wan, and Ning Hao	
Thickness-dependent anisotropic superconductivity and charge density wave in ZrTe_3 down to the two-dimensional limit (<i>7 pages</i>)	144513
Xinyu Chen, Changsheng Zhu, Bin Lei, Weizhuang Zhuo, Wenxiang Wang, Jiaxiang Ma, Xigang Luo, Ziji Xiang, and Xianhui Chen	
Spectral form factors of unconventional superconductors (<i>7 pages</i>)	144514
Sankalp Gaur and Victor Gurarie	
Electronic structure and vibrational stability of copper-substituted lead apatite LK-99 (<i>12 pages</i>)	144515
J. Cabezas-Escases, Nicolás F. Barrera, Robert H. Lavroff, Anastassia N. Alexandrova, C. Cardenas, and F. Munoz	
Plasmon dispersion in bilayer cuprate superconductors (<i>8 pages</i>)	144516
M. Bejas, V. Zimmermann, D. Betto, T. D. Boyko, R. J. Green, T. Loew, N. B. Brookes, G. Cristiani, G. Logvenov, M. Minola, B. Keimer, H. Yamase, A. Greco, and M. Hepting	
Expanding the operational temperature window of a superconducting spin valve (<i>8 pages</i>)	144517
A. A. Kamashev, N. N. Garif'yanov, A. A. Validov, V. Kataev, A. S. Osin, Ya. V. Fominov, and I. A. Garifullin	
Orbital-selective Mott phase and spin nematicity in Ni-substituted $\text{FeTe}_{0.65}\text{Se}_{0.35}$ single crystals (<i>17 pages</i>)	144518
Marta Z. Cieplak, I. Zajcewa, A. Lynnyk, K. M. Kosyl, and D. J. Gawryluk	
Josephson junction arrays as a platform for topological phases of matter (<i>10 pages</i>)	144519
Omri Lesser, Ady Stern, and Yuval Oreg	
Theory of superconductivity in thin films under an external electric field (<i>7 pages</i>)	144520
Alessio Zaccane and Vladimir M. Fomin	
Competing higher order topological superconducting phases in triangular lattice magnet-superconductor hybrid systems (<i>9 pages</i>)	144521
Ka Ho Wong, Jacopo Gliozzi, Mark R. Hirsbrunner, Arbaz Malik, Barry Bradlyn, Taylor L. Hughes, and Dirk K. Morr	
Emergence of strong-coupling superconductivity and quantum criticality correlated with Lifshitz transitions in the alternate stacking compound $4H_b\text{-TaS}_2$ (<i>10 pages</i>)	144522
Shuxiang Xu, Junze Deng, Jingjing Gao, Fanyu Meng, Lifen Shi, Pengtao Yang, Ningning Wang, Ziyi Liu, Jianping Sun, Yoshiya Uwatoko, Hechang Lei, Xuan Luo, Yuping Sun, Nanlin Wang, Zhijun Wang, Bosen Wang, and Jinguang Cheng	

(Continued)

Extrapolation of polaron properties to low phonon frequencies by Bayesian machine learning (<i>11 pages</i>)	144523
Pranav Kairon, John Sous, Mona Berciu, and Roman V. Krems	
<i>Ab initio</i> investigation of phonon-mediated superconductivity in the ternary borides Mo_5XB_2 ($X = \text{P, Si, Ge}$): Comparison with W_5SiB_2 (<i>16 pages</i>)	144524
S. Bağcı, H. M. Tütüncü, H. Y. Uzunok, and G. P. Srivastava	