

RAPID COMMUNICATIONS

Structure, structural phase transitions, mechanical properties, defects

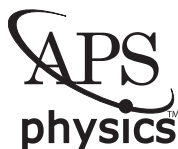
- Orientations of low-energy domain walls in perovskites with oxygen octahedral tilts (*5 pages*) 220101(R)
Fei Xue, Yijia Gu, Linyun Liang, Yi Wang, and Long-Qing Chen
- Decoupling of defect and short-range order contributions to resistivity recovery measurements in binary alloys (*5 pages*) 220102(R)
B. Gómez-Ferrer, I. García-Cortés, J. F. Marco, D. Jiménez-Rey, and R. Vila
- First-principles study of the multimode antiferroelectric transition in PbZrO_3 (*5 pages*) 220103(R)
Jorge Íñiguez, Massimiliano Stengel, Sergey Prosandeev, and L. Bellaiche
- Nanoscale phase quantification in lead-free $(\text{Bi}_{1/2}\text{Na}_{1/2})\text{TiO}_3$ - BaTiO_3 relaxor ferroelectrics by means of ^{23}Na NMR (*5 pages*) 220104(R)
Pedro B. Groszewicz, Hergen Breitzke, Robert Dittmer, Eva Sapper, Wook Jo, Gerd Buntkowsky, and Jürgen Rödel

Inhomogeneous, disordered, and partially ordered systems

- Super-Potts glass: A disordered model for glass-forming liquids (*5 pages*) 220201(R)
Maria Chiara Angelini and Giulio Biroli
- Excited-state entanglement and thermal mutual information in random spin chains (*5 pages*) 220202(R)
Yichen Huang (黄溢辰) and Joel E. Moore

Dynamics, dynamical systems, lattice effects:

- Near-complete violation of detailed balance in thermal radiation (*5 pages*) 220301(R)
Linxiao Zhu and Shanhui Fan
- Consistent perturbative treatment of the subohmic spin-boson model yielding arbitrarily small T_2/T_1 decoherence time ratios (*5 pages*) 220302(R)
Kyung-Joo Noh and Uwe R. Fischer
- Interplay of electron heating and saturable absorption in ultrafast extreme ultraviolet transmission of condensed matter (*5 pages*) 220303(R)
Andrea Di Cicco, Keisuke Hatada, Erika Giangrisostomi, Roberto Gunnella, Filippo Bencivenga, Emiliano Principi, Claudio Masciovecchio, and Adriano Filipponi



Magnetism

Nonlocal transport mediated by spin supercurrents (5 pages)	220401(R)
Hua Chen, Andrew D. Kent, Allan H. MacDonald, and Inti Sodemann	
Self-consistent model of spin accumulation magnetoresistance in ferromagnet/insulator/semiconductor tunnel junctions (6 pages)	220402(R)
Ian Appelbaum, Holly N. Tinkey, and Pengke Li	
Skew scattering in dilute ferromagnetic alloys (5 pages)	220403(R)
Bernd Zimmermann, Kristina Chadova, Diemo Ködderitzsch, Stefan Blügel, Hubert Ebert, Dmitry V. Fedorov, Nguyen H. Long, Phivos Mavropoulos, Ingrid Mertig, Yuriy Mokrousov, and Martin Gradhand	
Antiferromagnetic coupling of Cr-porphyrin to a bare Co substrate (5 pages)	220404(R)
Jan Girovsky, Kartick Tarafder, Christian Wäckerlin, Jan Nowakowski, Dorota Siewert, Tatjana Hählen, Aneliia Wäckerlin, Armin Kleibert, Nirmalya Ballav, Thomas A. Jung, and Peter M. Oppeneer	
Electric polarization of $\text{Sr}_{0.5}\text{Ba}_{0.5}\text{MnO}_3$: A multiferroic Mott insulator (4 pages)	220405(R)
R. Nourafkan, G. Kotliar, and A.-M. S. Tremblay	
Cluster algorithm for Monte Carlo simulations of spin ice (5 pages)	220406(R)
Hiromi Otsuka	
Kinetic pathways to the magnetic charge crystal in artificial dipolar spin ice (5 pages)	220407(R)
I. A. Chioar, B. Canals, D. Lacour, M. Hehn, B. Santos Burgos, T. O. Menteş, A. Locatelli, F. Montaigne, and N. Rougemaille	
Large field-induced irreversibility in Ni-Mn based Heusler shape-memory alloys: A pulsed magnetic field study (5 pages)	220408(R)
A. K. Nayak, C. Salazar Mejia, S. W. D'Souza, S. Chadov, Y. Skourski, C. Felser, and M. Nicklas	
Superfluidity and superconductivity	
Unconventional superconductivity in double quantum dots (5 pages)	220501(R)
Björn Sothmann, Stephan Weiss, Michele Governale, and Jürgen König	
Sharp magnetization jump at the first-order superconducting transition in Sr_2RuO_4 (5 pages)	220502(R)
Shunichiro Kittaka, Akira Kasahara, Toshiro Sakakibara, Daisuke Shibata, Shingo Yonezawa, Yoshiteru Maeno, Kenichi Tenya, and Kazushige Machida	
Multigap superconductivity in locally noncentrosymmetric SrPtAs : An ^{75}As nuclear quadrupole resonance investigation (5 pages)	220503(R)
F. Brückner, R. Sarkar, M. Günther, H. Kühne, H. Luetkens, T. Neupert, A. P. Reyes, P. L. Kuhns, P. K. Biswas, T. Stürzer, D. Johrendt, and H.-H. Klauss	
Superconductor derived from a topological insulator heterostructure (5 pages)	220504(R)
Satoshi Sasaki, Kouji Segawa, and Yoichi Ando	
General analysis of the angle-resolved photoemission line shape for strongly correlated electron systems (5 pages)	220505(R)
S. G. Ovchinnikov, E. I. Shneyder, and A. A. Kordyuk	
Itinerant effects and enhanced magnetic interactions in Bi-based multilayer cuprates (5 pages)	220506(R)
M. P. M. Dean, A. J. A. James, A. C. Walters, V. Bisogni, I. Jarrige, M. Hücker, E. Giannini, M. Fujita, J. Pelliciari, Y. B. Huang, R. M. Konik, T. Schmitt, and J. P. Hill	

(Continued)

☞ Threshold of magnetic field response of the superconducting proximity effect for ultrathin Pb/Ag metallic films (5 pages)	220507(R)
M. Caminale, A. A. Leon Vanegas, A. Stępnia, H. Oka, D. Sander, and J. Kirschner	
Anomalous pressure dependence of the superconductivity in noncentrosymmetric LaNiC ₂ : Evidence of strong electronic correlations (4 pages)	220508(R)
Susumu Katano, Hideya Nakagawa, Kazuyuki Matsubayashi, Yoshiya Uwatoko, Hideto Soeda, Takahiro Tomita, and Hiroki Takahashi	
Emergent transition for superconducting fluctuations in antiferromagnetic ruthenocuprates (5 pages)	220509(R)
A. C. McLaughlin and J. P. Attfield	
Pressure-enhanced superconductivity in Eu ₃ Bi ₂ S ₄ F ₄ (5 pages)	220510(R)
Yongkang Luo, Hui-Fei Zhai, Pan Zhang, Zhu-An Xu, Guang-Han Cao, and J. D. Thompson	
☞ Current inversion at the edges of a chiral <i>p</i> -wave superconductor (4 pages)	220511(R)
Adrien Bouhon and Manfred Sigrist	
Proximity to Fermi-surface topological change in superconducting LaO _{0.54} F _{0.46} BiS ₂ (5 pages)	220512(R)
Kensei Terashima, Junki Sonoyama, Takanori Wakita, Masanori Sunagawa, Kanta Ono, Hiroshi Kumigashira, Takayuki Muro, Masanori Nagao, Satoshi Watauchi, Isao Tanaka, Hiroyuki Okazaki, Yoshihiko Takano, Osuke Miura, Yoshikazu Mizuguchi, Hidetomo Usui, Katsuhiko Suzuki, Kazuhiko Kuroki, Yuji Muraoka, and Takayoshi Yokoya	
Exact correlation functions in the cuprate pseudogap phase: Combined effects of charge order and pairing (5 pages)	220513(R)
Rufus Boyack, Chien-Te Wu, Peter Scherpelz, and K. Levin	

ARTICLES

Structure, structural phase transitions, mechanical properties, defects

Heat capacity of solid ⁴ He and ³ He- ⁴ He mixture grown in aerogel (7 pages)	224101
Zhi Gang Cheng, Norbert Mulders, and Moses H. W. Chan	
Charge transition levels of Mn-doped Si calculated with the GGA-1/2 method (7 pages)	224102
Filipe Matusalem, Ronaldo R. Pelá, Marcelo Marques, and Lara K. Teles	
Calorimetric and acoustic emission study of martensitic transformation in single-crystalline Ni ₂ MnGa alloys (6 pages)	224103
László Z. Tóth, Sándor Szabó, Lajos Daróczy, and Dezső L. Beke	
Necessary and sufficient elastic stability conditions in various crystal systems (4 pages)	224104
Félix Mouhat and François-Xavier Coudert	
Elastic properties and stress-temperature phase diagrams of high-temperature phases with low-temperature lattice instabilities (6 pages)	224105
John C. Thomas and Anton Van der Ven	
Unveiling the structural origin of the high carrier mobility of a molecular monolayer on boron nitride (5 pages)	224106
Rui Xu, Daowei He, Yuhang Zhang, Bing Wu, Fengyuan Liu, Lan Meng, Jun-Fang Liu, Qisheng Wu, Yi Shi, Jinlan Wang, Jia-Cai Nie, Xinran Wang, and Lin He	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 90, NUMBER 22

DECEMBER 2014-1(II)

Analogous stress and electric field driven structural transformation and decrease in polarization coherence on poling around the morphotropic phase boundary in $\text{BiScO}_3\text{-PbTiO}_3$ (7 pages)	224107
Lalitha K. V., Ajay Kumar Kalyani, and Rajeev Ranjan	
Thermal response of nanoscale cylindrical inclusions of amorphous silica embedded in α -quartz (6 pages)	224108
B. Afra, K. Nordlund, M. D. Rodriguez, T. Bierschen, C. Trautmann, S. Mudie, and P. Kluth	
Inhomogeneous, disordered, and partially ordered systems	
Nonequilibrium optical conductivity in materials with localized electronic states (11 pages)	224201
Veljko Janković and Nenad Vukmirović	
Identification of structural motifs as tunneling two-level systems in amorphous alumina at low temperatures (10 pages)	224202
Alejandro Pérez Paz, Irina V. Lebedeva, Ilya V. Tokatly, and Angel Rubio	
Mean-field theory of nearly many-body localized metals (13 pages)	224203
Sarang Gopalakrishnan and Rahul Nandkishore	
Dynamics, dynamical systems, lattice effects:	
Quantum chaotic tunneling in graphene systems with electron-electron interactions (14 pages)	224301
Lei Ying, Guanglei Wang, Liang Huang, and Ying-Cheng Lai	
Fluctuating defects in the incipient relaxor $\text{K}_{1-x}\text{Li}_x\text{TaO}_3$ ($x = 0.02$) (13 pages)	224302
C. Stock, P. M. Gehring, G. Xu, D. Lamago, D. Reznik, M. Russina, J. Wen, and L. A. Boatner	
Magnetism	
Quantum phase transition and correlations in the multi-spin-boson model (18 pages)	224401
André Winter and Heiko Rieger	
Magnetic phase diagram and multiferroicity of $\text{Ba}_3\text{MnNb}_2\text{O}_9$: A spin- $\frac{5}{2}$ triangular lattice antiferromagnet with weak easy-axis anisotropy (8 pages)	224402
M. Lee, E. S. Choi, X. Huang, J. Ma, C. R. Dela Cruz, M. Matsuda, W. Tian, Z. L. Dun, S. Dong, and H. D. Zhou	
Magnon-mediated Dzyaloshinskii-Moriya torque in homogeneous ferromagnets (9 pages)	224403
Aurélien Manchon, Papa Birame Ndiaye, Jung-Hwan Moon, Hyun-Woo Lee, and Kyung-Jin Lee	
Modulating spin transfer torque switching dynamics with two orthogonal spin-polarizers by varying the cell aspect ratio (6 pages)	224404
B. Lacoste, M. Marins de Castro, T. Devolder, R. C. Sousa, L. D. Buda-Prejbeanu, S. Auffret, U. Ebels, C. Ducruet, I. L. Prejbeanu, L. Vila, B. Rodmacq, and B. Dieny	
Spin-cluster excitations in the rare-earth kagome system $\text{Nd}_3\text{Ga}_5\text{SiO}_{14}$ (8 pages)	224405
S. Ghosh, S. Datta, H. Zhou, M. J. R. Hoch, C. R. Wiebe, P. Schlottmann, and S. Hill	
Thermoelectricity and disorder of FeCo/MgO/FeCo magnetic tunnel junctions (10 pages)	224406
Shi-Zhuo Wang, Ke Xia, and Gerrit E. W. Bauer	
Magnetic domain-wall motion twisted by nanoscale probe-induced spin transfer (5 pages)	224407
J. Wang, L. S. Xie, C. S. Wang, H. Z. Zhang, L. Shu, J. Bai, Y. S. Chai, X. Zhao, J. C. Nie, C. B. Cao, C. Z. Gu, C. M. Xiong, Y. Sun, J. Shi, S. Salahuddin, K. Xia, C. W. Nan, and J. X. Zhang	

(Continued)

CONTENTS - Continued

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 90, NUMBER 22

DECEMBER 2014-1(II)

Ultrafast demagnetization of FePt:Cu thin films and the role of magnetic heat capacity (9 pages)	224408
Johannes Kimling, Judith Kimling, R. B. Wilson, Birgit Hebler, Manfred Albrecht, and David G. Cahill	
Extremely high density of magnetic excitations at $T = 0$ in $\text{YbCu}_{5-x}\text{Au}_x$ (7 pages)	224409
I. Čurlík, M. Giovannini, J. G. Sereni, M. Zapotoková, S. Gabáni, and M. Reiffers	
Coexistence of ferromagnetism and superconductivity in $\text{CeO}_{0.3}\text{F}_{0.7}\text{BiS}_2$ (8 pages)	224410
J. Lee, S. Demura, M. B. Stone, K. Iida, G. Ehlers, C. R. dela Cruz, M. Matsuda, K. Deguchi, Y. Takano, Y. Mizuguchi, O. Miura, D. Louca, and S.-H. Lee	
Comparative studies of the thermal conductivity of spinel oxides with orbital degrees of freedom (6 pages)	224411
Y. Ishitsuka, T. Ishikawa, R. Koborinai, T. Omura, and T. Katsufuji	
Dissipation processes in the insulating skyrmion compound Cu_2OSeO_3 (9 pages)	224412
I. Levatić, V. Šurija, H. Berger, and I. Živković	
Electronic and magnetic properties of $\text{Nd}_{1-x}\text{Sr}_x\text{MnAsO}$ oxyarsenides (6 pages)	224413
E. J. Wildman, N. Emery, and A. C. McLaughlin	
Spin waves scattering on a Bloch point (5 pages)	224414
R. G. Elías, V. L. Carvalho-Santos, A. S. Núñez, and A. D. Verga	
Evidence of a perpendicular magnetocrystalline anisotropy in a Mn_5Ge_3 epitaxial thin film revealed by ferromagnetic resonance (8 pages)	224415
A. Truong, A. O. Watanabe, T. Sekiguchi, P. A. Mortemousque, T. Sato, K. Ando, and K. M. Itoh	
Reentrant paramagnetism induced by drastic reduction of magnetic couplings at surfaces of superparamagnetic nanoparticles (9 pages)	224416
Wei Qin, Xiaoguang Li, Yi Xie, and Zhenyu Zhang	
Magnetic and electronic structure of the frustrated spin-chain compound linarite $\text{PbCuSO}_4(\text{OH})_2$ (14 pages)	224417
M. Schäpers, H. Rosner, S.-L. Drechsler, S. Süllow, R. Vogel, B. Büchner, and A. U. B. Wolter	
Magnetic order and electromagnon excitations in DyMnO_3 studied by neutron scattering experiments (9 pages)	224418
T. Finger, K. Binder, Y. Sidis, A. Maljuk, D. N. Argyriou, and M. Braden	
Hall effect and transmission electron microscopy of epitaxial MnSi thin films (10 pages)	224419
S. A. Meynell, M. N. Wilson, J. C. Loudon, A. Spitzig, F. N. Rybakov, M. B. Johnson, and T. L. Monchesky	
Tunable interface strain coupling and its impact on the electronic transport and magnetic properties of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3/\text{Pb}(\text{In}_{1/2}\text{Nb}_{1/2})\text{O}_3\text{-Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3\text{-PbTiO}_3$ multiferroic heterostructures (12 pages)	224420
M. Zheng, M. M. Yang, Q. X. Zhu, X. Y. Li, G. Y. Gao, R. K. Zheng, Y. Wang, X. M. Li, X. Shi, H. S. Luo, and X. G. Li	
Phonon-magnon resonant processes with relevance to acoustic spin pumping (13 pages)	224421
P. A. Deymier, J. O. Vasseur, K. Runge, A. Manchon, and O. Bou-Matar	
Spin-modulated torque waves in ferrimagnetic tunnel junctions (5 pages)	224422
P. Merodio, A. Kalitsov, H. Béa, V. Baltz, and M. Chshiev	
Magnetic field influence on the Néel, dimer, and spin-liquid states of the low-dimensional antiferromagnets NiTa_2O_6 and CoSb_2O_6 (10 pages)	224423
A. B. Christian, S. H. Masunaga, A. T. Schye, A. Rebello, J. J. Neumeier, and Yi-Kuo Yu	

(Continued)

Probing magnetoelastic effects of ultrathin antiferromagnets via magnetic domain imaging in ferromagnetic-antiferromagnetic bilayers (<i>10 pages</i>)	224424
Bo-Yao Wang, Jhen-Yong Hong, Nae-Yeou Jih, Kui-Hon Ou Yang, Li-Ren Chen, Hong-Ji Lin, Yuet-Loy Chan, Der-Hsin Wei, and Minn-Tsong Lin	
Neutron diffraction study of magnetic order in $\text{NdFe}_2\text{Al}_{10}$ (<i>8 pages</i>)	224425
Julien Robert, Françoise Damay, Kotaro Saito, Alexandre M. Bataille, Florence Porcher, Gilles André, Arsen Gukasov, Jean-Michel Mignot, Hiroshi Tanida, and Masafumi Sera	
Doping control of realization of an extended Nagaoka ferromagnetic state from the Mott state (<i>11 pages</i>)	224426
Hiroaki Onishi and Seiji Miyashita	
Interplay of spin-orbit torque and thermoelectric effects in ferromagnet/normal-metal bilayers (<i>11 pages</i>)	224427
Can Onur Avci, Kevin Garello, Mihai Gabureac, Abhijit Ghosh, Andreas Fuhrer, Santos F. Alvarado, and Pietro Gambardella	
Angular dependence of ferromagnetic resonance as indicator of the nature of magnetoelectric coupling in ferromagnetic-ferroelectric heterostructures (<i>8 pages</i>)	224428
A. Sukhov, C.-L. Jia, L. Chotorlishvili, P. P. Horley, D. Sander, and J. Berakdar	
Superfluidity and superconductivity	
Doping dependence of the critical current in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ (<i>5 pages</i>)	224501
Muntaser Naamneh, Juan Carlos Campuzano, and Amit Kanigel	
Quasiparticle damping of surface waves in superfluid ^3He and ^4He (<i>4 pages</i>)	224502
M. S. Manninen, J. Rysti, I. Todoshchenko, and J. Tuoriniemi	
Variable electronic stripe structures of the parent iron-chalcogenide superconductor Fe_{1+d}Te observed by STM-STs (<i>8 pages</i>)	224503
Akira Sugimoto, Toshikazu Ekino, and Alexander M. Gabovich	
Defects in the $d + id$ -wave superconducting state in heavily doped graphene (<i>7 pages</i>)	224504
Tomas Löthman and Annica M. Black-Schaffer	
Observation of quantum stochastic synchronization in a dissipative quantum system (<i>6 pages</i>)	224505
G. M. Xue, Ming Gong, H. K. Xu, W. Y. Liu, H. Deng, Ye Tian, H. F. Yu, Yang Yu, D. N. Zheng, S. P. Zhao, and Siyuan Han	
Transverse thermoelectric transport in a model of many competing order parameters (<i>10 pages</i>)	224506
Gideon Wachtel and Dror Orgad	
Numerical exploration of spontaneous broken symmetries in multiorbital Hubbard models (<i>9 pages</i>)	224507
Y. F. Kung, C.-C. Chen, B. Moritz, S. Johnston, R. Thomale, and T. P. Devereaux	
Crossover in the magnetic response of single-crystalline $\text{Ba}_{1-x}\text{K}_x\text{Fe}_2\text{As}_2$ and Lifshitz critical point evidenced by Hall effect measurements (<i>9 pages</i>)	224508
Yong Liu and Thomas A. Lograsso	
Radiation emission due to fluxon scattering on an inhomogeneity in a large two-dimensional Josephson junction (<i>12 pages</i>)	224509
Ivan O. Starodub and Yaroslav Zolotaryuk	

(Continued)

CONTENTS - Continued

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 90, NUMBER 22

DECEMBER 2014-1(II)

Hall conductivity in the normal and superconducting phases of the Rashba system with Zeeman field (9 pages)	224510
Suk Bum Chung and Rahul Roy	
Hidden-order symmetry and superconductivity in URu ₂ Si ₂ investigated by quasiparticle interference (14 pages)	224511
Alireza Akbari and Peter Thalmeier	
Topological defects in systems with two competing order parameters: Application to superconductors with charge- and spin-density waves (7 pages)	224512
Andreas Moor, Anatoly F. Volkov, and Konstantin B. Efetov	
Simultaneous suppression of superconductivity and structural phase transition under pressure in Ca ₁₀ (Ir ₄ As ₈)(Fe _{2-x} Ir _x As ₂) ₅ (5 pages)	224513
Shunsaku Kitagawa, Shingo Araki, Tatsuo C. Kobayashi, Hiroyuki Ishii, Kazunori Fujimura, Daisuke Mitsuoka, Kazutaka Kudo, and Minoru Nohara	
Large-scale superfluid vortex rings at nonzero temperatures (5 pages)	224514
D. H. Wacks, A. W. Baggaley, and C. F. Barenghi	
Nature and Raman signatures of the Higgs amplitude mode in the coexisting superconducting and charge-density-wave state (10 pages)	224515
T. Cea and L. Benfatto	
Polarization-dependent infrared reflectivity study of Sr _{2.5} Ca _{11.5} Cu ₂₄ O ₄₁ under pressure: Charge dynamics, charge distribution, and anisotropy (8 pages)	224516
S. Frank, A. Huber, U. Ammerahl, M. Hückler, and C. A. Kuntscher	
Proximity-induced superconductivity and Josephson critical current in quantum spin Hall systems (8 pages)	224517
Hoi-Yin Hui, Alejandro M. Lobos, Jay D. Sau, and S. Das Sarma	
Picosecond solvation dynamics of alkali cations in superfluid ⁴ He nanodroplets (11 pages)	224518
Antonio Leal, David Mateo, Alberto Hernando, Martí Pi, Manuel Barranco, Alessandro Ponti, Fausto Cargnoni, and Marcel Drabbels	
Vanishing edge currents in non- <i>p</i> -wave topological chiral superconductors (9 pages)	224519
Wen Huang, Edward Taylor, and Catherine Kallin	