

RAPID COMMUNICATIONS

Structure, structural phase transitions, mechanical properties, defects

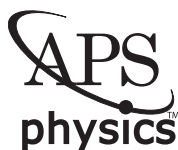
- Grain-boundary structural transformation induced by geometry and chemistry (*4 pages*) 140101(R)
Yukio Sato, Ji-Young Roh, and Yuichi Ikuhara

Dynamics, dynamical systems, lattice effects:

- Investigation of the electromagnon excitations in the multiferroic TbMn₂O₅ (*5 pages*) 140301(R)
S. Petit, V. Balédent, C. Doubrovsky, M. B. Lepetit, M. Greenblatt, B. Wanklyn, and P. Foury-Leylekian
- Minimum thermal conductivity in superlattices: A first-principles formalism (*5 pages*) 140302(R)
Jivtesh Garg and Gang Chen

Magnetism

-  Dynamically generated pure spin current in single-layer graphene (*5 pages*) 140401(R)
Zhenyao Tang, Eiji Shikoh, Hiroki Ago, Kenji Kawahara, Yuichiro Ando, Teruya Shinjo, and Masashi Shiraishi
- Gapless spin liquids: Stability and possible experimental relevance (*5 pages*) 140402(R)
Maissam Barkeshli, Hong Yao, and Steven A. Kivelson
- Improper ferroelectricity and multiferroism in 2H-BaMnO₃ (*4 pages*) 140403(R)
Julien Varignon and Philippe Ghosez
-  Realization of higher Wess-Zumino-Witten models in spin chains (*5 pages*) 140404(R)
Frédéric Michaud, Salvatore R. Manmana, and Frédéric Mila
- Electric-field-controlled antiferromagnetic domains in epitaxial BiFeO₃ thin films probed by neutron diffraction (*6 pages*) 140405(R)
W. Ratcliff II, Zahra Yamani, V. Anbusathaiah, T. R. Gao, P. A. Kienzle, H. Cao, and I. Takeuchi
- Magnetic and crystal structures of Sr₂IrO₄: A neutron diffraction study (*6 pages*) 140406(R)
Feng Ye, Songxue Chi, Bryan C. Chakoumakos, Jaime A. Fernandez-Baca, Tongfei Qi, and G. Cao
- Simplex $\mathbb{Z}_2$ spin liquids on the kagome lattice with projected entangled pair states: Spinon and vison coherence lengths, topological entropy, and gapless edge modes (*5 pages*) 140407(R)
Didier Poilblanc and Norbert Schuch



Magnetic anisotropic energy gap and low-energy spin wave excitation in the antiferromagnetic block phase of $\text{K}_2\text{Fe}_4\text{Se}_5$ (6 pages)	140408(R)
Y. Xiao, S. Nandi, Y. Su, S. Price, H.-F. Li, Z. Fu, W. Jin, A. Piovano, A. Ivanov, K. Schmalzl, W. Schmidt, T. Chatterji, Th. Wolf, and Th. Brückel	

Superfluidity and superconductivity

Slow noise processes in superconducting resonators (5 pages)	140501(R)
J. Burnett, T. Lindström, M. Oxborrow, Y. Harada, Y. Sekine, P. Meeson, and A. Ya. Tzalenchuk	
Effect of a magnetic field on the quasiparticle recombination in superconductors (5 pages)	140502(R)
Xiaoxiang Xi, J. Hwang, C. Martin, D. H. Reitze, C. J. Stanton, D. B. Tanner, and G. L. Carr	
High-temperature surface superconductivity in rhombohedral graphite (4 pages)	140503(R)
N. B. Kopnin, M. Ijäs, A. Harju, and T. T. Heikkilä	
Disentangling Majorana fermions from topologically trivial low-energy states in semiconductor Majorana wires (4 pages)	140504(R)
T. D. Stanescu and Sumanta Tewari	
Nodal superconductivity in isovalently substituted $\text{SrFe}_2(\text{As}_{1-x}\text{P}_x)_2$ pnictide superconductor at the optimal doping $x = 0.35$ (5 pages)	140505(R)
J. Murphy, C. P. Strehlow, K. Cho, M. A. Tanatar, N. Salovich, R. W. Giannetta, T. Kobayashi, S. Miyasaka, S. Tajima, and R. Prozorov	
Strong enhancement of the critical current at the antiferromagnetic transition in $\text{ErNi}_2\text{B}_2\text{C}$ single crystals (5 pages)	140506(R)
M. Weigand, L. Civale, F. J. Baca, Jeehoon Kim, S. L. Bud'ko, P. C. Canfield, and B. Maierov	
Superconducting properties of the In-substituted topological crystalline insulator SnTe (4 pages)	140507(R)
G. Balakrishnan, L. Bawden, S. Cavendish, and M. R. Lees	
Coexistence of the superconducting energy gap and pseudogap above and below the transition temperature of cuprate superconductors (4 pages)	140508(R)
J. L. Tallon, F. Barber, J. G. Storey, and J. W. Loram	
Two-dimensional magnetic interactions in LaFeAsO (5 pages)	140509(R)
M. Ramazanoglu, J. Lamsal, G. S. Tucker, J.-Q. Yan, S. Calder, T. Guidi, T. Perring, R. W. McCallum, T. A. Lograsso, A. Kreyssig, A. I. Goldman, and R. J. McQueeney	

ARTICLES

Structure, structural phase transitions, mechanical properties, defects

Topological magnon insulator in insulating ferromagnet (8 pages)	144101
Lifa Zhang, Jie Ren, Jian-Sheng Wang, and Baowen Li	
Complex nanoprecipitate structures induced by irradiation in immiscible alloy systems (13 pages)	144102
Shipeng Shu, P. Bellon, and R. S. Averback	
Quantum Drude oscillator model of atoms and molecules: Many-body polarization and dispersion interactions for atomistic simulation (18 pages)	144103
Andrew P. Jones, Jason Crain, Vlad P. Sokhan, Troy W. Whitfield, and Glenn J. Martyna	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 87, NUMBER 14

APRIL 2013-1(II)

Complex role for thallium in PbTe:TI from local probe studies (<i>5 pages</i>)	144104
T. Keiber, F. Bridges, B. C. Sales, and H. Wang	
Structure change, layer sliding, and metallization in high-pressure MoS ₂ (<i>6 pages</i>)	144105
Liliana Hromadová, Roman Martoňák, and Erio Tosatti	
 Prediction of the kink-pair formation enthalpy on screw dislocations in α -iron by a line tension model parametrized on empirical potentials and first-principles calculations (<i>8 pages</i>)	144106
Laurent Proville, Lisa Ventelon, and David Rodney	
Method to account for arbitrary strains in kinetic Monte Carlo simulations (<i>12 pages</i>)	144107
Gopinath Subramanian, Danny Perez, Blas P. Uberuaga, Carlos N. Tomé, and Arthur F. Voter	
Inhomogeneous, disordered, and partially ordered systems	
Polaronic model of two-level systems in amorphous solids (<i>14 pages</i>)	144201
Kartiek Agarwal, Ivar Martin, Mikhail D. Lukin, and Eugene Demler	
Analytical and numerical study of uncorrelated disorder on a honeycomb lattice (<i>16 pages</i>)	144202
Kean Loon Lee(李健伦), Benoît Grémaud, Christian Miniatura, and Dominique Delande	
Classical-field renormalization flow of one-dimensional disordered bosons (<i>10 pages</i>)	144203
Lode Pollet, Nikolay V. Prokof'ev, and Boris V. Svistunov	
Contribution of vacancies to relaxation in amorphous materials: A kinetic activation-relaxation technique study (<i>6 pages</i>)	144204
Jean-Francois Joly, Laurent Karim Béland, Peter Brommer, and Normand Mousseau	
Dynamics, dynamical systems, lattice effects:	
Parametric amplification in Josephson junction embedded transmission lines (<i>9 pages</i>)	144301
O. Yaakobi, L. Friedland, C. Macklin, and I. Siddiqi	
Anharmonic vibrational properties in periodic systems: energy, electron-phonon coupling, and stress (<i>10 pages</i>)	144302
Bartomeu Monserrat, N. D. Drummond, and R. J. Needs	
Dynamic control of quantum geometric heat flux in a nonequilibrium spin-boson model (<i>5 pages</i>)	144303
Tian Chen, Xiang-Bin Wang, and Jie Ren	
Anti-phase synchronization in microelectromechanical systems and effect of impulsive perturbations (<i>6 pages</i>)	144304
Qingfei Chen, Ying-Cheng Lai, Junseok Chae, and Younghae Do	
Lattice dynamics of KNi ₂ Se ₂ (<i>4 pages</i>)	144305
N. Lazarević, M. Radonjić, M. Šćepanović, Hechang Lei (雷和畅), D. Tanasković, C. Petrovic, and Z. V. Popović	
Magnetism	
Atomistic spin dynamics of low-dimensional magnets (<i>12 pages</i>)	144401
Lars Bergqvist, Andrea Taroni, Anders Bergman, Corina Etz, and Olle Eriksson	

(Continued)

CONTENTS - *Continued*

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 87, NUMBER 14

APRIL 2013-1(II)

Irreversible magnetization switching using surface acoustic waves (9 pages)	144402
L. Thevenard, J.-Y. Duquesne, E. Peronne, H. J. von Bardeleben, H. Jaffres, S. Ruttala, J-M. George, A. Lemaître, and C. Gourdon	
Origin of multiferroicity in MnWO_4 (7 pages)	144403
I. V. Solovyev	
Irreversible magnetic-field dependence of low-temperature heat transport of spin-ice compound $\text{Dy}_2\text{Ti}_2\text{O}_7$ in a [111] field (6 pages)	144404
C. Fan, Z. Y. Zhao, H. D. Zhou, X. M. Wang, Q. J. Li, F. B. Zhang, X. Zhao, and X. F. Sun	
Neutron scattering study of correlated phase behavior in Sr_2IrO_4 (5 pages)	144405
Chetan Dhital, Tom Hogan, Z. Yamani, Clarina de la Cruz, Xiang Chen, Sovit Khadka, Zhensong Ren, and Stephen D. Wilson	
☞ Phase transitions in the frustrated Ising model on the square lattice (12 pages)	144406
Songbo Jin, Arnab Sen, Wenan Guo, and Anders W. Sandvik	
Low-temperature anisotropic magnetoresistance and planar Hall effect in SrRuO_3 (5 pages)	144407
Noam Haham, Yishai Shperber, James W. Reiner, and Lior Klein	
Evolution of magnetic and crystal structures in the multiferroic $\text{FeTe}_2\text{O}_5\text{Br}$ (8 pages)	144408
M. Pregelj, P. Jeglič, A. Zorko, O. Zaharko, T. Apih, A. Gradišek, M. Komelj, H. Berger, and D. Arčon	
Even-odd effect in short antiferromagnetic Heisenberg chains (23 pages)	144409
A. Machens, N. P. Konstantinidis, O. Waldmann, I. Schneider, and S. Eggert	
Gate-tunable exchange coupling between cobalt clusters on graphene (17 pages)	144410
Hua Chen, Qian Niu, Zhenyu Zhang, and Allan H. MacDonald	
☞ Theory of spin Hall magnetoresistance (9 pages)	144411
Yan-Ting Chen, Saburo Takahashi, Hiroyasu Nakayama, Matthias Althammer, Sebastian T. B. Goennenwein, Eiji Saitoh, and Gerrit E. W. Bauer	
Antiferromagnetic exchange interactions in the $\text{Ni}_2\text{Mn}_{1.4}\text{In}_{0.6}$ ferromagnetic Heusler alloy (6 pages)	144412
K. R. Priolkar, P. A. Bhobe, D. N. Lobo, S. W. D'Souza, S. R. Barman, Aparna Chakrabarti, and S. Emura	
Spin crossover in a single $\text{Fe}(\text{phen})_2(\text{NCS})_2$ molecule adsorbed onto metallic substrates: An <i>ab initio</i> calculation (7 pages)	144413
S. Gueddida and M. Alouani	
Spin-polarized ground states and ferromagnetic order induced by low-coordinated surface atoms and defects in nanoscale magnesium oxide (10 pages)	144414
Takashi Uchino and Toshinobu Yoko	
Charge ordering and antiferromagnetism in $(\text{TMTTF})_2\text{SbF}_6$ (5 pages)	144415
Noriaki Matsunaga, Shinji Hirose, Naoki Shimohara, Takehito Satoh, Tomoyuki Isome, Masatoshi Yamamoto, Yang Liu, Atsushi Kawamoto, and Kazushige Nomura	
Charge gap and charge-phonon coupling in LuFe_2O_4 (6 pages)	144416
A. Glamazda, K.-Y. Choi, P. Lemmens, D. Wulferding, S. Park, and S.-W. Cheong	
Nematic phase and phase separation near saturation field in frustrated ferromagnets (12 pages)	144417
Hiroaki T. Ueda and Tsutomu Momoi	

(Continued)

CONTENTS - Continued

PHYSICAL REVIEW B

THIRD SERIES, VOLUME 87, NUMBER 14

APRIL 2013-1(II)

Persistence of local-moment antiferromagnetic order in $\text{Ba}_{1-x}\text{K}_x\text{Mn}_2\text{As}_2$ (5 pages)	144418
J. Lamsal, G. S. Tucker, T. W. Heitmann, A. Kreyssig, A. Jesche, Abhishek Pandey, Wei Tian, R. J. McQueeney, D. C. Johnston, and A. I. Goldman	
Exact ground state of the Shastry-Sutherland lattice with classical Heisenberg spins (8 pages)	144419
Alexei Grechnev	
Quantum dynamics of vortices in mesoscopic magnetic disks (7 pages)	144420
R. Zarzuela, E. M. Chudnovsky, J. M. Hernandez, and J. Tejada	
☞ Three-dimensional symmetry-protected topological phase close to antiferromagnetic Néel order (8 pages)	144421
Cenke Xu	
Oxygen vacancy-mediated room-temperature ferromagnetism in insulating cobalt-substituted SrTiO_3 epitaxially integrated with silicon (9 pages)	144422
Agham B. Posadas, Chandrima Mitra, Chungwei Lin, Ajit Dhamdhere, David J. Smith, Maxim Tsoi, and Alexander A. Demkov	
☞ Mott insulators of ultracold fermionic alkaline earth atoms in three dimensions (9 pages)	144423
Hao Song (宋昊) and Michael Hermele	
Double-exchange theory of ferroelectric polarization in orthorhombic manganites with twofold periodic magnetic texture (15 pages)	144424
I. V. Solovyev and S. A. Nikolaev	
Magnetic transition in $\text{K}_4\text{Cu}_4\text{OCl}_{10}$: A model system of three-dimensional spin- $\frac{1}{2}$ tetrahedra (6 pages)	144425
Masayoshi Fujihala, Xu-Guang Zheng, Hiroki Morodomi, Tatsuya Kawae, and Isao Watanabe	
Spin wave excitations in exchange-coupled $[\text{Co}/\text{Pd}]$ -NiFe films with tunable tilting of the magnetization (5 pages)	144426
S. Tacchi, T. N. Anh Nguyen, G. Carlotti, G. Gubbiotti, M. Madami, R. K. Dumas, J. W. Lau, Johan Åkerman, A. Rettori, and M. G. Pini	
Structural and magnetic properties in the quantum $S = \frac{1}{2}$ dimer system $\text{Ba}_3(\text{Cr}_{1-x}\text{V}_x)_2\text{O}_8$ with site disorder (9 pages)	144427
Tao Hong, L. Y. Zhu, X. Ke, V. O. Garlea, Y. Qiu, Y. Nambu, H. Yoshizawa, M. Zhu, G. E. Granroth, A. T. Savici, Zheng Gai, and H. D. Zhou	
Superfluidity and superconductivity	
Early stages of magnetization relaxation in superconductors (5 pages)	144501
Mihajlo Vanević, Zoran Radović, and Vladimir G. Kogan	
Nodal gap in iron-based superconductor CsFe_2As_2 probed by quasiparticle heat transport (4 pages)	144502
X. C. Hong, X. L. Li, B. Y. Pan, L. P. He, A. F. Wang, X. G. Luo, X. H. Chen, and S. Y. Li	
High-resistance state of phase coherent nanoscale thin-film Al superconducting nanorings in magnetic fields (6 pages)	144503
S. D. Snyder, T. Dunn, M. J. Erickson, J. Kinney, Yeonbae Lee, J. Nelson, and A. M. Goldman	
Electron-phonon superconductivity in APt_3P ($A = \text{Sr, Ca, La}$) compounds: From weak to strong coupling (7 pages)	144504
Alaska Subedi, Luciano Ortenzi, and Lilia Boeri	
Discerning electronic fingerprints of nodal and antinodal nestings and their phase coherences in doped cuprate superconductors (6 pages)	144505
Tanmoy Das	

(Continued)

Dynamic structure factor for ^3He in two dimensions (5 pages)	144506
M. Nava, D. E. Galli, S. Moroni, and E. Vitali	
Experimental observation of the triplet spin-valve effect in a superconductor-ferromagnet heterostructure (6 pages)	144507
V. I. Zdravkov, J. Kehrle, G. Obermeier, D. Lenk, H.-A. Krug von Nidda, C. Müller, M. Yu. Kupriyanov, A. S. Sidorenko, S. Horn, R. Tidecks, and L. R. Tagirov	
Interplay between lattice and spin states degree of freedom in the FeSe superconductor: Dynamic spin state instabilities (8 pages)	144508
Vladimir Gnezdilov, Yurii G. Pashkevich, Peter Lemmens, Dirk Wulferding, Tatiana Shevtsova, Alexander Gusev, Dmitry Chareev, and Alexander Vasiliev	
Electronic structures and phonon spectra in boronitride superconductors LaMBN ($M = \text{Ni, Pt}$) (7 pages)	144509
Myung-Chul Jung, Chang-Jong Kang, B. I. Min, and Kwan-Woo Lee	
NbSi nanowire quantum phase-slip circuits: dc supercurrent blockade, microwave measurements, and thermal analysis (12 pages)	144510
C. H. Webster, J. C. Fenton, T. T. Hongisto, S. P. Giblin, A. B. Zorin, and P. A. Warburton	
 $s + is$ state with broken time-reversal symmetry in Fe-based superconductors (14 pages)	144511
Saurabh Maiti and Andrey V. Chubukov	
Strong-coupling superconductivity in $\text{NaFe}_{1-x}\text{Co}_x\text{As}$: Validity of Eliashberg theory (5 pages)	144512
Guotai Tan, Ping Zheng, Xiancheng Wang, Yanchao Chen, Xiaotian Zhang, Jianlin Luo, Tucker Netherton, Yu Song, Pengcheng Dai, Chenglin Zhang, and Shiliang Li	
Glassy low-energy spin fluctuations and anisotropy gap in $\text{La}_{1.88}\text{Sr}_{0.12}\text{CuO}_4$ (7 pages)	144513
A. T. Rømer, J. Chang, N. B. Christensen, B. M. Andersen, K. Lefmann, L. Mähler, J. Gavilano, R. Gilardi, Ch. Niedermayer, H. M. Rønnow, A. Schneidewind, P. Link, M. Oda, M. Ido, N. Momono, and J. Mesot	
Effect of annealing on the superconducting properties of $a\text{-Nb}_x\text{Si}_{1-x}$ thin films (8 pages)	144514
O. Crauste, A. Gentils, F. Couëdo, Y. Dolgorouky, L. Bergé, S. Collin, C. A. Marrache-Kikuchi, and L. Dumoulin	
Magnetic structure of individual flux vortices in superconducting MgB_2 derived using transmission electron microscopy (7 pages)	144515
J. C. Loudon, C. J. Howell, N. D. Zhigadlo, J. Karpinski, and P. A. Midgley	
Hybrid quantum circuit consisting of a superconducting flux qubit coupled to a spin ensemble and a transmission-line resonator (9 pages)	144516
Ze-Liang Xiang, Xin-You Lü, Tie-Fu Li, J. Q. You, and Franco Nori	
In-plane optical spectroscopy study on FeSe epitaxial thin film grown on SrTiO_3 substrate (5 pages)	144517
R. H. Yuan, W. D. Kong, L. Yan, H. Ding, and N. L. Wang	
Asymptotic expressions for charge-matrix elements of the fluxonium circuit (5 pages)	144518
Guanyu Zhu and Jens Koch	