

PHYSICAL REVIEW B

For editorial and subscription correspondence,
please see inside front cover
(ISSN: 1098-0121)

PERIODICALS
Postmaster send address changes to:
American Institute of Physics
Suite 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 71, NUMBER 13

CONTENTS

APRIL 2005-1(I)

BRIEF REPORTS

Structure, structural phase transitions, mechanical properties, defects

- Temperature dependence of the electro-optic tensor and refractive indices of BaTiO_3 from first principles
(4 pages) 132101
M. Veithen and Ph. Ghosez
- Coherent ferroelectric switching by atomic force microscopy (4 pages) 132102
Alexander Yu. Emelyanov
- Interactions of an atomic force microscope tip with a reversed ferroelectric domain (4 pages) 132103
Michel Molotskii and Emil Winebrand

Inhomogeneous, disordered, and partially ordered systems

- Universality of ac conduction in anisotropic disordered systems: An effective-medium-approximation study
(4 pages) 132201
Sebastian Bustingorry
- Collective excitations in molten NaCl and NaI: A theoretical generalized collective modes study (4 pages) . . . 132202
Taras Bryk and Ihor Mryglod

Dynamics, dynamical systems, lattice effects, quantum solids

- Cooperative oxygen ion dynamics in $\text{Gd}_2\text{Ti}_{2-y}\text{Zr}_y\text{O}_7$ (4 pages) 132301
K. J. Moreno, G. Mendoza-Suárez, A. F. Fuentes, J. García-Barriocanal, C. León, and J. Santamaria

Magnetism

- Spin and orbital frustration in $R\text{InCu}_4$ ($R=\text{Gd}, \text{Dy}, \text{Ho}, \text{and Er}$) (4 pages) 132401
V. Fritsch, J. D. Thompson, and J. L. Sarrao
- Dynamic Monte Carlo renormalization group determination of critical exponents with linearly changing
temperature (4 pages) 132402
Fan Zhong and Zhifang Xu
- Zinc-blende half-metallic ferromagnets are rarely stabilized by coherent epitaxy (4 pages) 132403
Yu-Jun Zhao and Alex Zunger
- Persistent photoinduced magnetization and hole droplets in $\text{La}_{0.9}\text{Ca}_{0.1}\text{MnO}_3$ films (4 pages) 132404
H. Huhtinen, R. Laiho, and V. Zakhvalinskii



Copyright 2005 by The American Physical Society

(Continued)



1098-0121(20050401)71:13;1-9

Superfluidity and superconductivity

Local density of states of a strongly type-II d -wave superconductor: The binary alloy model in a magnetic field (<i>4 pages</i>)	132501
J. Lages and P. D. Sacramento	
Fermi surface of $\text{LaRu}_4\text{P}_{12}$: A clue to the origin of the metal-insulator transition in $\text{PrRu}_4\text{P}_{12}$ (<i>4 pages</i>)	132502
S. R. Saha, H. Sugawara, Y. Aoki, H. Sato, Y. Inada, H. Shishido, R. Settai, Y. Ōnuki, and H. Harima	
Electronic structure of sodium cobalt oxide: Comparing mono- and bilayer hydrate (<i>4 pages</i>)	132503
Ryotaro Arita	
Angular magnetoresistance oscillations in organic conductors (<i>4 pages</i>)	132504
A. G. Lebed, Heon-Ick Ha, and M. J. Naughton	
Temperature dependence of the local tunneling conductance in cuprate superconductors with competing antiferromagnetic order (<i>4 pages</i>)	132505
Hong-Yi Chen and C. S. Ting	
Microwave-induced fluxon bunching in weakly coupled Josephson junctions (<i>4 pages</i>)	132506
Søren Madsen and Niels Grønbech-Jensen	
Bulk vortex matter in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$ using Corbinol disk contacts (<i>4 pages</i>)	132507
Y. M. Wang, M. S. Fuhrer, A. Zettl, S. Nagashima, K. Oka, and Y. Nishihara	
Pressure effect on competition between charge density wave and superconductivity in ZrTe_3 : Appearance of pressure-induced reentrant superconductivity (<i>4 pages</i>)	132508
R. Yomo, K. Yamaya, M. Abliz, M. Hedo, and Y. Uwatoko	
Frequency-dependent hydrodynamic inductance and the determination of the thermal and quantum noise of a superfluid gyroscope (<i>4 pages</i>)	132509
Talso Chui and Konstantin Penanen	
Mermin-Wagner theorem analogous treatment of the long-range order in La_2CuO_4 -type compound spin models (<i>4 pages</i>)	132510
M. Manojlović, M. Pavkov, M. Škrinjar, M. Pantić, D. Kapor, and S. Stojanović	
Vortex matter in the charged Bose liquid at absolute zero (<i>4 pages</i>)	132511
V. V. Kabanov and A. S. Alexandrov	
Raman scattering in pure and carbon-doped MgB_2 films (<i>4 pages</i>)	132512
D. A. Tenne, X. X. Xi, A. V. Pogrebnjakov, and J. M. Redwing	
Oscillatory dynamics of a superconductor vortex lattice in high amplitude ac magnetic fields (<i>4 pages</i>)	132513
A. J. Moreno, S. O. Valenzuela, G. Pasquini, and V. Bekeris	

ARTICLES**Structure, structural phase transitions, mechanical properties, defects**

Microscale modeling of kinking nonlinear elastic solids (<i>8 pages</i>)	134101
M. W. Barsoum, T. Zhen, A. Zhou, S. Basu, and S. R. Kalidindi	
Ion-irradiation-induced stresses and swelling in amorphous Ge thin films (<i>8 pages</i>)	134102
S. G. Mayr and R. S. Averback	
Heterophase states and dual structures in $(1-x)\text{PbZn}_{1/3}\text{Nb}_{2/3}\text{O}_{3-x}\text{PbTiO}_3$ single crystals (<i>10 pages</i>)	134103
V. Yu. Topolov	

Critical behavior of the three-dimensional compressible Ising antiferromagnet at constant volume: A Monte Carlo study (7 pages)	134104
Luigi Cannavacciuolo and D. P. Landau	
Discrete models of dislocations and their motion in cubic crystals (10 pages)	134105
A. Carpio and L. L. Bonilla	
Pressure dependence of the melting mechanism at the limit of overheating in Lennard-Jones crystals (6 pages)	134106
L. Gómez, C. Gazza, H. Dacharry, L. Peñaranda, and A. Dobry	
Elemental identification of a three-dimensional environment by complex x-ray holography (4 pages)	134107
Yukio Takahashi, Kouichi Hayashi, and Eiichiro Matsubara	
Piezoelectric resonance and sound attenuation in the Rochelle salt $\text{NaKC}_4\text{H}_4\text{O}_6 \cdot 4\text{H}_2\text{O}$ (8 pages)	134108
A. P. Moina, R. R. Levitskii, and I. R. Zachek	
Iron-oxygen vacancy defect centers in PbTiO_3 : Newman superposition model analysis and density functional calculations (10 pages)	134109
H. Meštrić, R.-A. Eichel, T. Kloss, K.-P. Dinse, So. Laubach, St. Laubach, P. C. Schmidt, K. A. Schönau, M. Knapp, and H. Ehrenberg	
Low-temperature phases in $\text{PbZr}_{0.52}\text{Ti}_{0.48}\text{O}_3$: A neutron powder diffraction study (10 pages)	134110
D. E. Cox, B. Noheda, and G. Shirane	
Dopant-induced stabilization of rhombohedral LiMnO_2 against Jahn-Teller distortion (11 pages)	134111
R. Prasad, R. Benedek, and M. M. Thackeray	
Inhomogeneous, disordered, and partially ordered systems	
Determination of structural alloy equilibrium properties from quantum approximate methods (10 pages)	134201
Jorge E. Garcés and Guillermo Bozzolo	
Disorder-induced transitions in layered Coulomb gases and application to flux lattices in superconductors (19 pages)	134202
Baruch Horovitz and Pierre Le Doussal	
Supersymmetry for disordered systems with interaction (17 pages)	134203
G. Schwiete and K. B. Efetov	
Electronic transport in a Cantor stub waveguide network (7 pages)	134204
Sheelan Sengupta, Arunava Chakrabarti, and S. Chattopadhyay	
Dependence of the structural relaxation of amorphous silicon on implantation temperature (7 pages)	134205
J.-F. Mercure, R. Karmouch, Y. Anahory, S. Roorda, and F. Schiettekatte	
Constriction effect in the nearly constant loss of alkali metaphosphate glasses (7 pages)	134206
D. L. Sidebottom	
Continuous spectra of a family of lattices containing the modified rectangle lattice of Dhar (10 pages)	134207
William A. Schwalm and Brian J. Moritz	
<i>Ab initio</i> x-ray absorption study of copper <i>K</i> -edge XANES spectra in Cu(II) compounds (7 pages)	134208
Jesús Chaboy, Adela Muñoz-Páez, Flora Carrera, Patrick Merkling, and Enrique Sánchez Marcos	

Dynamics, dynamical systems, lattice effects, quantum solids

Polaron effects and electron correlations in two-electron systems: Arbitrary value of electron-phonon interaction (<i>13 pages</i>)	134301
N. I. Kashirina, V. D. Lakhno, and V. V. Sychyov	
Dielectric properties and long-wavelength optical modes of the high- κ oxide LaAlO_3 (<i>6 pages</i>)	134302
Pietro Delugas, Vincenzo Fiorentini, and Alessio Filippetti	
Equilibrium contact probabilities in dense plasmas (<i>10 pages</i>)	134303
B. Militzer and E. L. Pollock	
Point-dipole approximation for surface plasmon polariton scattering: Implications and limitations (<i>9 pages</i>) . .	134304
A. B. Evlyukhin and S. I. Bozhevolnyi	
Positronium in a SrF_2 single crystal: Temperature-induced transition from the localized to the delocalized state (<i>6 pages</i>)	134305
K. Inoue, N. Suzuki, and T. Hyodo	

Magnetism

Magnetic ground state of $\text{CeNi}_{1-x}\text{Cu}_x$: A calorimetric investigation (<i>11 pages</i>)	134401
N. Marcano, J. I. Espeso, J. C. Gómez Sal, J. Rodríguez Fernández, J. Herrero-Albillos, and F. Bartolomé	
Bulk magnetic properties of $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ ($0 \leq x \leq 0.14$): Signatures of local ferromagnetic order (<i>6 pages</i>) ..	134402
Hirotoshi Terashita and J. J. Neumeier	
Coherent optical and acoustic phonon generation correlated with the charge-ordering phase transition in $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ (<i>5 pages</i>)	134403
D. Lim, V. K. Thorsmølle, R. D. Averitt, Q. X. Jia, K. H. Ahn, M. J. Graf, S. A. Trugman, and A. J. Taylor	
Correlation length of the two-dimensional Ising spin glass with bimodal interactions (<i>4 pages</i>)	134404
Helmut G. Katzgraber and L. W. Lee	
Small-amplitude magnetization dynamics in permalloy elements investigated by time-resolved wide-field Kerr microscopy (<i>9 pages</i>)	134405
Andreas Neudert, Jeffrey McCord, Dmitry Chumakov, Rudolf Schäfer, and Ludwig Schultz	
Numerical study of the exchange bias effects in magnetic nanoparticles with core/shell morphology (<i>6 pages</i>)	134406
E. Eftaxias and K. N. Trohidou	
First-order reversal curve diagram analysis of a perpendicular nickel nanopillar array (<i>12 pages</i>)	134407
C. R. Pike, C. A. Ross, R. T. Scalettar, and G. Zimanyi	
Aperiodic quantum XXZ chains: Renormalization-group results (<i>22 pages</i>)	134408
André P. Vieira	
Finite-size effects on transverse magnetoresistance of NbSe_3 (<i>4 pages</i>)	134409
Yamaguchi Takahide, Shinya Uji, Kengo Enomoto, Takako Konoike, Taichi Terashima, Mitsuka Nishimura, Taku Tsuneta, Katsuhiko Inagaki, Satoshi Tanda, and Kazuhiko Yamaya	
Magnetization processes in nanostructured metals and small-angle neutron scattering (<i>15 pages</i>)	134410
J. F. Löffler, H. B. Braun, W. Wagner, G. Kostorz, and A. Wiedenmann	

Magnetic anisotropy of $L1_0$ FePt and $\text{Fe}_{1-x}\text{Mn}_x\text{Pt}$ (8 pages)	134411
Till Burkert, Olle Eriksson, Sergei I. Simak, Andrei V. Ruban, Biplab Sanyal, Lars Nordström, and John M. Wills	
Longitudinal magnetic dynamics and dimensional crossover in the quasi-one-dimensional spin- $\frac{1}{2}$ Heisenberg antiferromagnet KCuF_3 (13 pages)	134412
B. Lake, D. A. Tennant, and S. E. Nagler	
Small-angle neutron scattering study of a magnetically inhomogeneous amorphous alloy with reentrant behavior (9 pages)	134413
R. García Calderón, L. Fernández Barquín, S. N. Kaul, J. C. Gómez Sal, Pedro Gorria, J. S. Pedersen, and R. K. Heenan	
Transport and magnetic properties of $\text{GdBaCo}_2\text{O}_{5+x}$ single crystals: A cobalt oxide with square-lattice CoO_2 planes over a wide range of electron and hole doping (28 pages)	134414
A. A. Taskin, A. N. Lavrov, and Yoichi Ando	
Behavior of one-magnon frequency in antiferromagnetic $\text{Ni}_c\text{Mg}_{1-c}\text{O}$ solid solutions (5 pages)	134415
E. Cazzanelli, A. Kuzmin, N. Mironova-Ulmane, and G. Mariotto	
Admixture of excited states and ground states of a Eu^{3+} ion in $\text{Eu}_3\text{Fe}_5\text{O}_{12}$ by means of magnetic circular dichroism (8 pages)	134416
M. Mizumaki, T. Uozumi, A. Agui, N. Kawamura, and M. Nakazawa	
Magnetism in the two-dimensional t - t' Hubbard model: From low- to over-doping (5 pages)	134417
H. Taniguchi, Y. Morita, and Y. Hatsugai	
Training effect by the applied magnetic field in the double-doped $\text{Pr}_{0.5+0.5x}\text{Ca}_{0.5-0.5x}\text{Mn}_{1-x}\text{Cr}_x\text{O}_3$ system (6 pages)	134418
Li Pi, Jianwei Cai, Quan Zhang, Shun Tan, and Yuheng Zhang	
Enhanced magnetic moment and conductive behavior in NiFe_2O_4 spinel ultrathin films (7 pages)	134419
Ulrike Lüders, Manuel Bibes, Jean-François Bobo, Matteo Cantoni, Riccardo Bertacco, and Josep Fontcuberta	
Vortex motion in a finite-size easy-plane ferromagnet and application to a nanodot (15 pages)	134420
Denis D. Sheka, Juan P. Zagorodny, Jean-Guy Caputo, Yuri Gaididei, and Franz G. Mertens	
Magnetic structure of Ni-rich $\text{Ni}_{1-x}\text{Ta}_x$ and permalloy-Ta alloys (8 pages)	134421
Nassrin Y. Moghadam and G. Malcolm Stocks	
Temperature dependence of the magnetic susceptibility for triangular-lattice antiferromagnets with spatially anisotropic exchange constants (12 pages)	134422
Weihong Zheng, Rajiv R. P. Singh, Ross H. McKenzie, and Radu Coldea	
Neutron irradiation effect on permeability and magnetoimpedance of amorphous and nanocrystalline magnetic materials (5 pages)	134423
Manh-Huong Phan, Hua-Xin Peng, Michael R. Wisnom, Seong-Cho Yu, Cheol Gi Kim, and Manuel Vázquez	
Hysteresis and avalanches in the $T=0$ random-field Ising model with two-spin-flip dynamics (8 pages)	134424
Eduard Vives, Martin Luc Rosinberg, and Gilles Tarjus	
Anomalous Hall effects in amorphous $\text{Ni}_{74}\text{Mn}_{24}\text{Pt}_2$ film (5 pages)	134425
Yildirhan Öner	
Magnetotransport in NdB_6 single crystals (6 pages)	134426
Jolanta Stankiewicz, Satoru Nakatsuji, and Zachary Fisk	

Pressure effects on magnetic and transport properties of electron-doped $\text{La}_{1-x}\text{Ca}_x\text{MnO}_3$ ($x=0.8,0.9$) (6 pages)	134427
V. Markovich, I. Fita, R. Puzniak, E. Rozenberg, C. Martin, A. Wisniewski, Y. Yuzhelevski, and G. Gorodetsky	
Superfluidity and superconductivity	
Influence of low-frequency noise on macroscopic quantum tunneling in superconducting circuits (10 pages) . .	134501
Mathias Duckheim and Joachim Ankerhold	
Magnetoresistance of junctions made of underdoped $\text{YBa}_2\text{Cu}_3\text{O}_y$ separated by a $\text{YBa}_2\text{Cu}_{2.6}\text{Ga}_{0.4}\text{O}_y$ barrier (6 pages)	134502
L. Shkedy, G. Koren, and E. Polturak	
Optical response for the d -density-wave model (13 pages)	134503
B. Valenzuela, E. J. Nicol, and J. P. Carbotte	
Asymmetry and decoherence in a double-layer persistent-current qubit (8 pages)	134504
Guido Burkard, David P. DiVincenzo, P. Bertet, I. Chiorescu, and J. E. Mooij	
Field dependence of the vortex core size (8 pages)	134505
V. G. Kogan and N. V. Zhelezina	
Quantum computation with Josephson qubits using a current-biased information bus (12 pages)	134506
L. F. Wei, Yu-xi Liu, and Franco Nori	
Lifshitz transition in d -wave superconductors (5 pages)	134507
S. S. Botelho and C. A.R. Sá de Melo	
Microscopic theory of sound propagation in the superfluid ^3He -aerogel system (13 pages)	134508
S. Higashitani, M. Miura, M. Yamamoto, and K. Nagai	
Magnetic and superconducting properties of $\text{RuSr}_2\text{Gd}_{1.5}\text{Ce}_{0.5}\text{Cu}_2\text{O}_{10-\delta}$ samples: Dependence on the oxygen content and aging effects (7 pages)	134509
C. A. Cardoso, A. J. C. Lanfredi, A. J. Chiquito, F. M. Araújo-Moreira, V. P. S. Awana, H. Kishan, R. L. de Almeida, and O. F. de Lima	
Transport properties in the strange-metal phase of high- T_c cuprates: Spin-charge gauge theory versus experiments (10 pages)	134510
P. A. Marchetti, G. Orso, Z. B. Su, and L. Yu	
Carbon substitutions in MgB_2 within the two-band Eliashberg theory (6 pages)	134511
G. A. Ummarino, D. Daghero, R. S. Gonnelli, and A. H. Moudden	
Coulomb repulsion and T_c in BCS theory of superconductivity (9 pages)	134512
X. H. Zheng and D. G. Walmsley	
Vorticity and vortex-core states in type-II superconductors (10 pages)	134513
C. Berthod	
Quench dynamics of a superfluid Fermi gas (10 pages)	134514
G. L. Warner and A. J. Leggett	
Emission of continuous coherent terahertz waves with tunable frequency by intrinsic Josephson junctions (5 pages)	134515
Masashi Tachiki, Mikio Iizuka, Kazuo Minami, Syogo Tejima, and Hisashi Nakamura	

Spin dynamics in a doped-Mott-insulator superconductor (<i>15 pages</i>)	134516
W. Q. Chen and Z. Y. Weng	
Theoretical analysis of the transport critical-state ac loss in arrays of superconducting rectangular strips (<i>12 pages</i>)	134517
Enric Pardo, Alvaro Sanchez, Du-Xing Chen, and Carles Navau	
Doping and temperature dependence of superfluid weight and spectral function: Universal scaling behavior of the pseudogap (<i>10 pages</i>)	134518
Sung-Sik Lee and Sung-Ho Suck Salk	
Entry of magnetic flux into a magnetically shielded type-II superconductor filament (<i>12 pages</i>)	134519
S. V. Yampolskii and Yu. A. Genenko	
Evidence of midgap-state-mediated transport in 45° symmetric [001] tilt YBa ₂ Cu ₃ O _{7-x} bicrystal grain-boundary junctions (<i>7 pages</i>)	134520
G. Testa, E. Sarnelli, A. Monaco, E. Esposito, M. Ejrnaes, D.-J. Kang, S. H. Mennema, E. J. Tarte, and M. G. Blamire	
Meservey-Tedrow effect in ferromagnet/superconductor/ferromagnet double tunnel junctions (<i>6 pages</i>)	134521
Gerd Bergmann, Jia Lu, and Dawei Wang	
Spin dynamics in the antiferromagnetic phase of electron-doped cuprate superconductors (<i>5 pages</i>)	134522
Qingshan Yuan, T. K. Lee, and C. S. Ting	
Structure-properties relationship in ferromagnetic superconducting RuSr ₂ GdCu ₂ O ₈ (<i>8 pages</i>)	134523
O. I. Lebedev, G. Van Tendeloo, G. Cristiani, H.-U. Habermeier, and A. T. Matveev	
Magnetic phase transitions in Heisenberg antiferromagnetic films with cubic lattices (<i>9 pages</i>)	134524
Kok-Kwei Pan	
Pressure dependence of superconducting and magnetic critical temperatures in the ruthenocuprates (<i>7 pages</i>) ..	134525
R. Citro, G. G. N. Angilella, M. Marinaro, and R. Pucci	
Dimensionality of superconductivity and vortex dynamics in the infinite-layer cuprate Sr _{0.9} M _{0.1} CuO ₂ (<i>M=La, Gd</i>) (<i>5 pages</i>)	134526
V. S. Zapf, N.-C. Yeh, A. D. Beyer, C. R. Hughes, C. H. Mielke, N. Harrison, M. S. Park, K. H. Kim, and S.-I. Lee	
Physics of cuprates with the two-band Hubbard model: The validity of the one-band Hubbard model (<i>13 pages</i>)	134527
A. Macridin, M. Jarrell, Th. Maier, and G. A. Sawatzky	

COMMENTS

Comment on “Correlation between configurational entropy and structural relaxation time in glass-forming liquids” (<i>2 pages</i>)	136201
Martin Goldstein	
Reply to “Comment on ‘Correlation between configurational entropy and structural relaxation time in glass-forming liquids’ ” (<i>2 pages</i>)	136202
D. Prevosto, S. Capaccioli, M. Lucchesi, P. A. Rolla, and R. Casalini	

ERRATA

Publisher's Note: Evidence of coherent c -axis charge transport in underdoped $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ superconductors [Phys. Rev. B 71 , 092508 (2005)] (<i>1 page</i>)	139901(E)
Y. H. Kim, P. H. Hor, X. L. Dong, F. Zhou, Z. X. Zhao, Z. Wu, and J. W. Xiong	
Publisher's Note: Small-amplitude magnetization dynamics in permalloy elements investigated by time-resolved wide-field Kerr microscopy [Phys. Rev. B 71 , 134405 (2005)] (<i>1 page</i>)	139902(E)
Andreas Neudert, Jeffrey McCord, Dmitry Chumakov, Rudolf Schäfer, and Ludwig Schultz	
Erratum: First-principles equation of state and phase stability for the Ni-Al system under high pressures [Phys. Rev. B 70 , 094203 (2004)] (<i>1 page</i>)	139903(E)
H. Y. Geng, N. X. Chen, and M. H. F. Sluiter	