

PHYSICAL REVIEW B

For editorial and subscription correspondence,
please see inside front cover
(ISSN: 0163-1829)

PERIODICALS
Postmaster send address changes to:
American Institute of Physics
Suite 1N01
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 68, NUMBER 10

CONTENTS

SEPTEMBER 2003-1(II)

RAPID COMMUNICATIONS

Structure, structural phase transitions, mechanical properties, defects, etc.

- Ab initio* predicted metastable TII-like phase in the $B1$ to $B2$ high-pressure transition of CaO (4 pages) 100101(R)
Michele Catti
- Molecular character of the metallic high-pressure phase of oxygen (4 pages) 100102(R)
Alexander F. Goncharov, Eugene Gregoryanz, Russell J. Hemley, and Ho-kwang Mao

Magnetism

- Strain selection of charge and orbital ordering patterns in half-doped manganites (4 pages) 100401(R)
M. J. Calderón, A. J. Millis, and K. H. Ahn
- Field-induced transition from non-Fermi-liquid state to heavy Fermion state in $\text{Ce}_{0.5}\text{La}_{0.5}\text{B}_6$ (4 pages) 100402(R)
S. Nakamura, M. Endo, H. Aoki, N. Kimura, T. Nojima, and S. Kunii
- Impurity scattering and quantum confinement in giant magnetoresistive systems (4 pages) 100403(R)
Peter Zahn, Jörg Binder, and Ingrid Mertig
- Raman scattering studies of spin, charge, and lattice dynamics in $\text{Ca}_{2-x}\text{Sr}_x\text{RuO}_4$ ($0 \leq x < 0.2$) (4 pages) 100404(R)
H. Rho, S. L. Cooper, S. Nakatsuji, H. Fukazawa, and Y. Maeno
- Frozen quasi-long-range order in the random anisotropy Heisenberg magnet (4 pages) 100405(R)
M. Itakura
- Spin-orbital phase diagram of perovskite-type RVO_3 (R =rare-earth ion or Y) (4 pages) 100406(R)
S. Miyasaka, Y. Okimoto, M. Iwama, and Y. Tokura
- First-principles calculations of spin-polarized electron transport in a molecular wire: Molecular spin valve (4 pages) 100407(R)
Ranjit Pati, Laxmidhar Senapati, Pulikel M. Ajayan, and Saroj K. Nayak
- Crossover from two- to three-dimensional magnetic disorder in submonoatomic ferromagnetic layers (4 pages) 100408(R)
A. Frydman and R. C. Dynes
- Shot noise in a diffusive ferromagnetic-paramagnetic-ferromagnetic spin valve (4 pages) 100409(R)
E. G. Mishchenko

Superfluidity and superconductivity

- Mesoscopic josephson junctions of high- T_c superconductors (4 pages) 100501(R)
A. Ya. Tzalenchuk, T. Lindström, S. A. Charlebois, E. A. Stepantsov, Z. Ivanov, and A. M. Zagorskin
- Electronic ground state of heavily overdoped nonsuperconducting $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ (4 pages) 100502(R)
S. Nakamae, K. Behnia, N. Mangkorntong, M. Nohara, H. Takagi, S. J. C. Yates, and N. E. Hussey



Critical flux pinning and enhanced upper critical field in magnesium diboride films (<i>4 pages</i>)	100503(R)
Milind N. Kunchur, Cheng Wu, Daniel H. Arcos, Boris I. Ivlev, Eun-Mi Choi, Kijoon H. P. Kim, W. N. Kang, and Sung-Ik Lee	
Angle-resolved photoemission spectra in the cuprates from the <i>d</i> -density wave theory (<i>4 pages</i>)	100504(R)
Sudip Chakravarty, Chetan Nayak, and Sumanta Tewari	
Precursor diamagnetism above the superconducting transition in $\text{La}_{1.9}\text{Sr}_{0.1}\text{CuO}_4$ (<i>4 pages</i>)	100505(R)
A. Lascialfari, A. Rigamonti, L. Romano', A. A. Varlamov, and I. Zucca	
Broken time-reversal symmetry and superconducting states in the cuprates (<i>4 pages</i>)	100506(R)
R. P. Kaur and D. F. Agterberg	
Evidence for an interplay between superconductivity and antiferromagnetism of rare-earth ions in $\text{Gd}_{1+x}\text{Ba}_{2-x}\text{Cu}_3\text{O}_{7-\delta}$ (<i>4 pages</i>)	100507(R)
Krzysztof Rogacki	
Vortex imaging in magnesium diboride with $H \perp c$ (<i>4 pages</i>)	100508(R)
M. R. Eskildsen, N. Jenkins, G. Levy, M. Kugler, Ø. Fischer, J. Jun, S. M. Kazakov, and J. Karpinski	

ARTICLES

Structure, structural phase transitions, mechanical properties, defects, etc.

Local structure of condensed zinc oxide (<i>10 pages</i>)	104101
F. Decremps, F. Datchi, A. M. Saitta, A. Polian, S. Pascarelli, A. Di Cicco, J. P. Itié, and F. Baudelet	
Structural and electronic properties of <i>h</i> -BN (<i>8 pages</i>)	104102
Lei Liu, Y. P. Feng, and Z. X. Shen	
Test of a theoretical equation of state for elemental solids and liquids (<i>12 pages</i>)	104103
Eric D. Chisolm, Scott D. Crockett, and Duane C. Wallace	
Stress relaxation in heteroepitaxial $(\text{Ba,Sr})\text{TiO}_3/(001)\text{MgO}$ thin film studied by micro-Raman spectroscopy (<i>4 pages</i>)	104104
Yu. I. Yuzyuk, R. S. Katiyar, V. A. Alyoshin, I. N. Zakharchenko, D. A. Markov, and E. V. Sviridov	
Proper ferroelastic transitions in two dimensions: Anisotropic long-range kernels, domain wall orientations, and microstructure (<i>5 pages</i>)	104105
Dorian M. Hatch, Turab Lookman, Avadh Saxena, and Subodh R. Shenoy	
Phenomenological theory of lattice dynamics and polymorphism of ZrO_2 (<i>10 pages</i>)	104106
M. Smirnov, A. Mirgorodsky, and R. Guinebreière	
Polarized Raman study of the phonon dynamics in $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ crystal (<i>10 pages</i>)	104107
Oleksiy Svitelskiy, Jean Toulouse, Grace Yong, and Z.-G. Ye	
Light-induced structural changes by excitation of metastable states in $\text{Na}_2[\text{Fe}(\text{CN})_5\text{NO}]2\text{H}_2\text{O}$ single crystals (<i>11 pages</i>)	104108
D. Schaniel, J. Schefer, M. Imlau, and Th. Woike	

Inhomogeneous, disordered, and partially ordered systems

Isotopic disorder in Ge single crystals probed with ^{73}Ge NMR (<i>10 pages</i>)	104201
S. V. Verkhovskii, A. Yu. Yakubovsky, B. Z. Malkin, S. K. Saikin, M. Cardona, A. Trokiner, and V. I. Ozhogin	
High-temperature thermal transport properties of a single-grain decagonal $\text{Al}_{74}\text{Ni}_{10}\text{Co}_{16}$ quasicrystal (<i>4 pages</i>)	104202
J. A. Barrow, B. A. Cook, P. C. Canfield, and D. J. Sordelet	
Low-energy lattice vibrations of porous silica glass (<i>11 pages</i>)	104203
Susan K. Watson and R. O. Pohl	

Laser-induced SnO ₂ crystallization and fluorescence properties in Eu ³⁺ -doped SnO ₂ -SiO ₂ glasses (7 pages)	104204
Masayuki Nogami, Atsusi Ohno, and Hongpeng You	
Electronic valence bands in decagonal Al-Ni-Co (4 pages)	104205
W. Theis, Eli Rotenberg, K. J. Franke, P. Gille, and K. Horn	
Dynamics, dynamical systems, lattice effects, quantum solids, etc.	
Spontaneous localization of electrons in lattices with nonlocal interactions (11 pages)	104301
L. Brizhik, A. Eremko, B. Piette, and W. Zakrzewski	
Collective excitations in metal-ammonia systems as a function of electron density (8 pages)	104302
A. H. Said, C. A. Burns, E. E. Alp, H. Sinn, and A. Alatas	
Vibrational properties of nanoscale materials: From nanoparticles to nanocrystalline materials (9 pages)	104303
R. Meyer, Laurent J. Lewis, S. Prakash, and P. Entel	
Magnetism	
Thermal conductivity of spin- $\frac{1}{2}$ chains (15 pages)	104401
E. Shimshoni, N. Andrei, and A. Rosch	
Giant frequency dependence of dynamic freezing in nanocrystalline ferromagnetic LaCo _{0.5} Mn _{0.5} O ₃ (4 pages)	104402
R. Mahendiran, Y. Bréard, M. Hervieu, B. Raveau, and P. Schiffer	
Mixing of magnetic states in a Cr ₈ molecular ring (5 pages)	104403
M. Affronte, T. Guidi, R. Caciuffo, S. Carretta, G. Amoretti, J. Hinderer, I. Sheikin, A. G. M. Jansen, A. A. Smith, R. E. P. Winpenny, J. van Slageren, and D. Gatteschi	
Interplay between magnetism and non-Fermi-liquid behavior in Sc _{1-x} U _x Pd ₃ (5 pages)	104404
R. P. Dickey, V. S. Zapf, P.-C. Ho, E. J. Freeman, N. A. Frederick, and M. B. Maple	
Theoretical study of half-doped models for manganites: Fragility of CE phase with disorder, two types of colossal magnetoresistance, and charge-ordered states for electron-doped materials (14 pages)	104405
H. Aliaga, D. Magnoux, A. Moreo, D. Poilblanc, S. Yunoki, and E. Dagotto	
Quantum two-dimensional Heisenberg antiferromagnet: Bridging the gap between field-theoretical and semiclassical approaches (5 pages)	104406
Bernard B. Beard, Alessandro Cuccoli, Ruggero Vaia, and Paola Verrucchi	
Quantum tunneling of two coupled single-molecular magnets (5 pages)	104407
Jian-Ming Hu, Zhi-De Chen, and Shun-Qing Shen	
Magnetic circular dichroism and spin polarization in 3d→4f resonant photoemission from Tb metal in the perpendicular geometry (9 pages)	104408
M. Taguchi, G. van der Laan, E. Arenholz, S. S. Dhesi, and E. Dudzik	
Interplay of quantum and thermal fluctuations in a frustrated magnet (9 pages)	104409
S. V. Isakov and R. Moessner	
Effect of atomic relaxations on magnetic properties of adatoms and small clusters (5 pages)	104410
Š. Pick, V. S. Stepanyuk, A. N. Baranov, W. Hergert, and P. Bruno	
Electronic structure of half-metallic double perovskites (6 pages)	104411
Z. Szotek, W. M. Temmerman, A. Svane, L. Petit, and H. Winter	
Resonant x-ray-diffraction study of the charge ordering in NaV ₂ O ₅ (4 pages)	104412
Y. Joly, S. Grenier, and J. E. Lorenzo	
Coercivity ratio and anisotropy distribution in chemically synthesized L1 ₀ FePt nanoparticle systems (7 pages)	104413
S. Wang, S. S. Kang, J. W. Harrell, X. W. Wu, and R. W. Chantrell	
Non-Vegard behavior of the U _x La _{1-x} S system (7 pages)	104414
A. Bombardi, F. d'Acapito, K. Mattenberger, O. Vogt, and G. H. Lander	

Critical behavior of frustrated spin systems with nonplanar orderings (5 pages)	104415
Pietro Parruccini	
Valence and spin state of Co and Ni ions and their relation to metallicity and ferromagnetism in $\text{LaCo}_{0.5}\text{Ni}_{0.5}\text{O}_3$ (6 pages)	104416
Tôru Kyômen, Ryutaro Yamazaki, and Mitsuru Itoh	
Evolution from long-range order to Kondo lattice in $\text{Gd}_{1-x}\text{Yb}_x\text{Ni}_2\text{B}_2\text{C}$ (8 pages)	104417
S. L. Bud'ko, J. D. Strand, N. E. Anderson, Jr., R. A. Ribeiro, and P. C. Canfield	
Strong anharmonicity and spin-phonon coupling in the quasi-two-dimensional quantum spin system $\text{Sr}_{1-x}\text{Ba}_x\text{Cu}_2(\text{BO}_3)_2$ (9 pages)	104418
K.-Y. Choi, Yu. G. Pashkevich, K. V. Lamonova, H. Kageyama, Y. Ueda, and P. Lemmens	
Polarization effects in coherent scattering from magnetic specimen: Implications for x-ray holography, lensless imaging, and correlation spectroscopy (6 pages)	104419
S. Eisebitt, M. Lörger, W. Eberhardt, J. Lüning, J. Stöhr, C. T. Rettner, O. Hellwig, E. E. Fullerton, and G. Denbeaux	
On-site Coulomb energy versus crystal-field splitting for the insulator-metal transition in $\text{La}_{1-x}\text{Sr}_x\text{TiO}_3$ (5 pages)	104420
T. Higuchi, D. Baba, T. Takeuchi, T. Tsukamoto, Y. Taguchi, Y. Tokura, A. Chainani, and S. Shin	
Magnetic and electrical properties of $(\text{La}_{1-x}\text{Dy}_x)_{0.7}\text{Ca}_{0.3}\text{MnO}_3$ perovskites (10 pages)	104421
S. M. Yusuf, K. R. Chakraborty, S. K. Paranjpe, R. Ganguly, P. K. Mishra, J. V. Yakhmi, and V. C. Sahni	
High-temperature magnetic order and coexisting spin dynamics in PrCu_2 : Manifestations of multipolar effects (18 pages)	104422
A. Schenck, F. N. Gygax, and Y. Ônuki	
Ordering instability of weakly interacting electrons in a dirty metal (12 pages)	104423
Chetan Nayak and Xiao Yang	
First-order reversal-curve diagrams and reversible magnetization (5 pages)	104424
C. R. Pike	
Electrical transport and magnetotransport studies in WEAK ITINERANT amorphous $\text{Fe}_{90-x}\text{Mn}_x\text{Zr}_{10}$ ($0 \leq x \leq 16$) alloys (12 pages)	104425
V. Srinivas, A. Perumal, A. K. Nigam, G. Chandra, A. E. George, and R. A. Dunlap	
Magnetic ordering and spin-liquid state of YMnO_3 (6 pages)	104426
Junghwan Park, J.-G. Park, Gun Sang Jeon, Han-Yong Choi, Changhee Lee, W. Jo, R. Bewley, K. A. McEwen, and T. G. Perring	
Absence of phase stiffness in the quantum rotor phase glass (7 pages)	104427
Philip Phillips and Denis Dalidovich	
Inhomogeneous states in a small magnetic disk with single-ion surface anisotropy (9 pages)	104428
V. E. Kireev and B. A. Ivanov	
Renormalization and damping of dipole-exchange spin waves in ultrathin antiferromagnetic films (10 pages)	104429
J. Milton Pereira, Jr. and M. G. Cottam	
Magnetic, structural, and transport properties of the Heusler alloys Co_2MnSi and NiMnSb (6 pages)	104430
Lance Ritchie, Gang Xiao, Y. Ji, T. Y. Chen, C. L. Chien, Ming Zhang, Jinglan Chen, Zhuhong Liu, Guangheng Wu, and X. X. Zhang	
Large magnetovolume effects and band structure of itinerant-electron metamagnetic $\text{La}(\text{Fe}_x\text{Si}_{1-x})_{13}$ compounds (6 pages)	104431
A. Fujita, K. Fukamichi, J.-T. Wang, and Y. Kawazoe	
Thermoelectric power of cerium and ytterbium intermetallics (11 pages)	104432
V. Zlatić, B. Horvatić, I. Milat, B. Coqblin, G. Czycholl, and C. Grenzebach	
Spiral phase and phase separation of the double-exchange model in the large- S limit (4 pages)	104433
Lan Yin	

Reflection of electrons from a domain wall in magnetic nanojunctions (6 pages)	104434
V. K. Dugaev, J. Berakdar, and J. Barnaś	
Haldane-gapped spin chains: Exact low-temperature expansions of correlation functions (27 pages)	104435
Robert M. Konik	
First-principles relativistic study of spin waves in thin magnetic films (11 pages)	104436
L. Udvardi, L. Szunyogh, K. Palotás, and P. Weinberger	
Superfluidity and superconductivity	
Static semifluxons in a long Josephson junction with π -discontinuity points (8 pages)	104501
H. Susanto, S. A. van Gils, T. P. P. Visser, Ariando, H. J. H. Smilde, and H. Hilgenkamp	
Effect of flux flow on microwave losses in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ superconducting films (5 pages)	104502
A. G. Zaitsev, R. Schneider, G. Linker, F. Ratzel, R. Smithey, and J. Geerk	
Upper critical field in dirty two-band superconductors: Breakdown of the anisotropic Ginzburg-Landau theory (11 pages)	104503
A. A. Golubov and A. E. Koshelev	
Pressure-induced insulating state in an organic superconductor (10 pages)	104504
J. Hagel, J. Wosnitza, C. Pfleiderer, J. A. Schlueter, J. Mohtasham, and G. L. Gard	
Fractionalization of a flux quantum in a one-dimensional parallel Josephson junction array with alternating π junctions (6 pages)	104505
Mahesh Chandran and R. V. Kulkarni	
Strong three-dimensional correlations in the vortex system for $(\text{Bi}_{0.7}\text{Pb}_{0.3})_{2.2}\text{Sr}_2\text{CaCu}_2\text{O}_8$ (8 pages)	104506
L. S. Uspenskaya, A. B. Kulakov, and A. L. Rakhmanov	
Temperature-dependent local structure in the Nb_3Ge superconductor studied by high-resolution Ge K -edge EXAFS measurements (6 pages)	104507
N. L. Saini, M. Filippi, H. Oyanagi, H. Ihara, A. Iyo, and A. Bianconi	
Superconductivity in CoO_2 layers and the resonating valence bond mean-field theory of the triangular lattice t - J model (7 pages)	104508
Brijesh Kumar and B. Sriram Shastry	
Impurity resonances in the mixed state of high- T_c superconductors (4 pages)	104509
K. V. Samokhin	
Instabilities of interacting electrons on the triangular lattice (8 pages)	104510
Carsten Honerkamp	
Meissner response of anisotropic superconductors (7 pages)	104511
V. G. Kogan	
Superconductivity in a two-dimensional hole-doped spin-orbital system (4 pages)	104512
Bo Song and Yupeng Wang	
Out-of-plane and in-plane anisotropy of upper critical field in MgB_2 (7 pages)	104513
Z. X. Shi, M. Tokunaga, T. Tamegai, Y. Takano, K. Togano, H. Kito, and H. Ihara	
Flux-pinning properties of single crystalline and dense polycrystalline MgB_2 (6 pages)	104514
Z. X. Shi, A. K. Pradhan, M. Tokunaga, K. Yamazaki, T. Tamegai, Y. Takano, K. Togano, H. Kito, and H. Ihara	
Oxygen-ordering superstructures in underdoped $\text{YBa}_2\text{Cu}_3\text{O}_{6+x}$ studied by hard x-ray diffraction (13 pages) ...	104515
M. v. Zimmermann, J. R. Schneider, T. Frello, N. H. Andersen, J. Madsen, M. Käll, H. F. Poulsen, R. Liang, P. Dosanjh, and W. N. Hardy	
Pr at Gd or Ba site in $\text{GdBa}_2\text{Cu}_3\text{O}_7$: Appearance of superconductivity (13 pages)	104516
M. R. Mohammadzadeh and M. Akhavan	
Specific-heat discontinuity in impure two-band superconductors (8 pages)	104517
Todor M. Mishonov, Evgeni S. Penev, Joseph O. Indekeu, and Valery L. Pokrovsky	

Theory of spin response in underdoped cuprates as strongly fluctuating <i>d</i> -wave superconductors (10 pages)	104518
Igor F. Herbut and Dominic J. Lee	
Generalized coherent-state derivation of time-dependent density-functional theory equations for superconductors (8 pages)	104519
Oleg Berman and Shaul Mukamel	
Thermal conductivity in the stripe-ordered phase of cuprates and nickelates (6 pages)	104520
J.-Q. Yan, J.-S. Zhou, and J. B. Goodenough	
Transverse phase locking in fully frustrated Josephson junction arrays: A different type of fractional giant steps (13 pages)	104521
Verónica I. Marconi, Alejandro B. Kolton, Daniel Domínguez, and Niels Grønbech-Jensen	
Surface superconducting states and paramagnetism in mesoscopic superconductors (5 pages)	104522
C. Meyers	
Ising spin glass by the transfer matrix approach (9 pages)	104523
R. F. S. Andrade, E. Nogueira Jr., and Sérgio Coutinho	
Magnetic phase diagram of $\text{Nd}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4+\delta}$ from magnetization and muon spin relaxation measurements (4 pages)	104524
A. Lascialfari, P. Ghigna, and F. Tedoldi	
Cumulative Author Index	i