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 1NO1
2 Huntington Quadrangle
Melville, NY 11747-4502

THIRD SERIES, VOLUME 67, NUMBER 14 *CONTENTS* **APRIL 2003-1(II)**

RAPID COMMUNICATIONS

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

Role of core polarization curvature of screw dislocations in determining the Peierls stress in bcc Ta: A criterion for designing high-performance materials *(4 pages)* . . . . . 140101(R)
Guofeng Wang, Alejandro Strachan, Tahir Çağın, and William A. Goddard III

Inhomogeneous, disordered, and partially ordered systems

Low-temperature saturation of variable-range hopping and delocalization of electron states by entanglement with phonons in two dimensions *(4 pages)* . . . . . 140201(R)
Ye Xiong, X. C. Xie, and Shi-Jie Xiong

Dynamics, dynamical systems, lattice effects, quantum solids, etc.

Pressure-induced phonon instabilities in copper chloride *(4 pages)* . . . . . 140301(R)
Yanming Ma, John S. Tse, and Dennis D. Klug

Magnetism

Pressure-induced intermediate-to-low spin state transition in $LaCoO_3$ *(4 pages)* . . . . . 140401(R)
T. Vogt, J. A. Hriljac, N. C. Hyatt, and P. Woodward

Optical probe of orbital ordering in heavily hole-doped manganites $Nd_{1-x}Sr_xMnO_3$ ($x=0.55$ and 0.7) *(4 pages)* . . . . . 140402(R)
K. Tobe, T. Kimura, and Y. Tokura

Self-interaction correction and contact hyperfine field *(4 pages)* . . . . . 140403(R)
P. Novák, J. Kuneš, W. E. Pickett, Wei Ku, and F. R. Wagner

Dynamic stiffness of spin valves *(4 pages)* . . . . . 140404(R)
Yaroslav Tserkovnyak, Arne Brataas, and Gerrit E. W. Bauer

Direct observation of remanent magnetic states in epitaxial fcc Co small disks *(4 pages)* . . . . . 140405(R)
C. A. F. Vaz, L. Lopez-Diaz, M. Kläui, J. A. C. Bland, T. L. Monchesky, J. Unguris, and Z. Cui

Spin angular gradient approximation in the density functional theory *(4 pages)* . . . . . 140406(R)
M. I. Katsnelson and V. P. Antropov

Superfluidity and superconductivity

Noncubic layered structure of $Ba_{1-x}K_xBiO_3$ superconductor *(4 pages)* . . . . . 140501(R)
L. A. Klinkova, M. Uchida, Y. Matsui, V. I. Nikolaichik, and N. V. Barkovskii

Reversal of thermopower oscillations in the mesoscopic Andreev interferometer *(4 pages)* . . . . . 140502(R)
A. Parsons, I. A. Sosnin, and V. T. Petrashov

Copyright 2003 by The American Physical Society

0163-1829(20030401)67:14;1-0

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 67, NUMBER 14** **APRIL 2003-1(II)**

Synchrotron x-ray diffraction study of a charge stripe order in $\frac{1}{8}$-doped $La_{1.875}Ba_{0.125-x}Sr_xCuO_4$ *(4 pages)* .... 140503(R)
H. Kimura, H. Goka, M. Fujita, Y. Noda, K. Yamada, and N. Ikeda
Condensation energy in strongly coupled superconductors *(4 pages)* ..... 140504(R)
Robert Haslinger and Andrey V. Chubukov
Decoupling and decommensuration in layered superconductors with columnar defects *(4 pages)* ..... 140505(R)
A. Morozov, B. Horovitz, and P. Le Doussal
Deviations from mean-field behavior in disordered nanoscale superconductor–normal-metal–superconductor arrays *(4 pages)* ..... 140506(R)
Taejoon Kouh and J. M. Valles, Jr.
Antiferromagnetic and superconducting proximity effects in $YBa_2Cu_3O_{7-\delta}/PrBa_2Cu_3O_{7-\delta}$ superlattices *(4 pages)* ..... 140507(R)
D. Budelmann, J. Holmlund, J. Andreasson, H. Rodríguez, J. Bäckström, L. Börjesson, H. Adrian, U. Merkt, and M. Rübhausen
Nonequilibrium order-disorder vortex transitions in $Bi_2Sr_2CaCu_2O_{8+\delta}$ *(4 pages)* ..... 140508(R)
B. Kalisky, D. Giller, A. Shaulov, and Y. Yeshurun

ARTICLES

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

Model of high-temperature plastic deformation of nanocrystalline materials: Application to yttria tetragonal zirconia *(8 pages)* 144101
D. Gómez-García, C. Lorenzo-Martín, A. Muñoz-Bernabé, and A. Domínguez-Rodríguez
Dielectric and polarization switching anomalies near the morphotropic phase boundary in $Pb(Zr_{1-x}Ti_x)O_3$ ferroelectric thin films *(8 pages)* 144102
Dongsun Sheen and Jong-Jean Kim
Relaxor ferroelectric behavior of γ-irradiated poly(vinylidene fluoride-trifluoroethylene) copolymers *(7 pages)* 144103
C. Welter, L. O. Faria, and R. L. Moreira
Metal impurities in an oxide: *Ab initio* study of electronic and structural properties of Cd in rutile TiO_2 *(10 pages)* 144104
Leonardo A. Errico, Gabriel Fabricius, and Mario Rentería
Freezing and melting of Ar in mesopores studied by optical transmission *(7 pages)* 144105
Victor P. Soprunyuk, Dirk Wallacher, Patrick Huber, Klaus Knorr, and Andriy V. Kityk
Phenomenological theory of the reconstructive phase transition between the NaCl and CsCl structure types *(15 pages)* 144106
P. Tolédano, K. Knorr, L. Ehm, and W. Depmeier
Appearance of icosahedral atomic clusters in the formation of the $MgCu_2$-type structure from the bcc structure in Ti-Cr alloys *(9 pages)* 144107
A. Hirata, Y. Koyama, and M. Tanimura

Inhomogeneous, disordered, and partially ordered systems

Optical activity of the boson peak and two-level systems in silica-germania glasses *(8 pages)* 144201
B. E. Hubbard, J. J. Tu, N. I. Agladze, and A. J. Sievers

Dynamics, dynamical systems, lattice effects, quantum solids, etc.

Two-dimensional phononic crystals studied using a variational method: Application to lattices of locally resonant materials *(10 pages)* 144301
Cécile Goffaux and José Sánchez-Dehesa

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 67, NUMBER 14** **APRIL 2003-1(II)**

Discrete breathers in a polyethylene chain *(5 pages)* 144302
A. V. Savin and L. I. Manevitch
Fast noise in the Landau-Zener theory *(11 pages)* 144303
V. L. Pokrovsky and N. A. Sinitsyn
Ab initio calculation of the linewidth of various phonon modes in germanium and silicon *(6 pages)* 144304
G. Deinzer, G. Birner, and D. Strauch
Role of nonpairwise interactions on phonon thermal transport *(7 pages)* 144305
A. Sparavigna

Magnetism

Theory of the Shubnikov–de Haas effect in quasi-two-dimensional metals *(8 pages)* 144401
P. D. Grigoriev
Magnetic phase diagram of cubic perovskites $SrMn_{1-x}Fe_xO_3$ *(7 pages)* 144402
S. Kolesnik, B. Dabrowski, J. Mais, D. E. Brown, R. Feng, O. Chmaissem, R. Kruk, and C. W. Kimball
Low-temperature static and dynamic behavior of the easy-axis Heisenberg antiferromagnet on the Kagome lattice *(9 pages)* 144403
S. Bekhechi and B. W. Southern
Charge ordered ferromagnetic phase in manganites *(5 pages)* 144404
Tran Minh-Tien
Cluster-glass state and photon-induced effects in perovskite manganite $(La_{0.3}Nd_{0.7})_{2/3}Ca_{1/3}MnO_3$ films *(6 pages)* 144405
J. M. Dai, W. H. Song, J. J. Du, J. N. Wang, and Y. P. Sun
Magnetic ordering in the rutile molecular magnets $M^{II}[N(CN)_2]_2$ ($M=$Ni, Co, Fe, Mn, $Ni_{0.5}Co_{0.5}$, and $Ni_{0.5}Fe_{0.5}$) *(8 pages)* 144406
Alexandros Lappas, Andrew S. Wills, Mark A. Green, Kosmas Prassides, and Mohamedally Kurmoo
Dilatometry study of the ferromagnetic order in single-crystalline URhGe *(5 pages)* 144407
S. Sakarya, N. H. van Dijk, A. de Visser, and E. Brück
Field-induced magnetic transition in the heavy-fermion antiferromagnet Ce_7Ni_3 *(6 pages)* 144408
K. Umeo, Y. Echizen, M. H. Jung, T. Takabatake, T. Sakakibara, T. Terashima, C. Terakura, C. Pfleiderer, M. Uhlarz, and H. v. Löhneysen
Large moment formation and thermodynamic properties of disordered spin ladders with site dilution *(8 pages)* 144409
Eddy Yusuf and Kun Yang
Magnetism of adsorbed oxygen at low coverage *(6 pages)* 144410
Igor S. Altman, Peter V. Pikhitsa, Young-Jeong Kim, and Mansoo Choi
Linear theory of magnetocrystalline anisotropy in $3d$-$4f$ intermetallics: A generalization to J-mixing compounds *(8 pages)* 144411
N. Magnani, S. Carretta, E. Liviotti, and G. Amoretti
Transitions of magnetic configuration at the interface of exchange-coupled bilayers: TbFe/GdFe as a model system *(13 pages)* 144412
F. Montaigne, S. Mangin, and Y. Henry
Quantum-classical escape-rate crossover of antiferromagnetic particles in an external magnetic field *(6 pages)* 144413
Gwang-Hee Kim
Doping effects on the phase separation in perovskite $La_{0.67-x}Bi_xCa_{0.33}MnO_3$ *(10 pages)* 144414
J. R. Sun, J. Gao, Y. Fei, R. W. Li, and B. G. Shen
Theory of dopants and defects in Co-doped TiO_2 anatase *(7 pages)* 144415
James M. Sullivan and Steven C. Erwin
Two-impurity Anderson model in the zero-bandwidth limit *(6 pages)* 144416
R. Allub

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 67, NUMBER 14** **APRIL 2003-1(II)**

Magnetic properties of rare-earth metal tritellurides $R\mathrm{Te}_3$ ($R=$Ce,Pr,Nd,Gd,Dy) *(7 pages)* 144417
Yuji Iyeiri, Teppei Okumura, Chishiro Michioka, and Kazuya Suzuki

Gilbert damping in magnetic multilayers *(12 pages)* 144418
E. Šimánek and B. Heinrich

Anisotropic colossal magnetoresistance effects in $\mathrm{Fe}_{1-x}\mathrm{Cu}_x\mathrm{Cr}_2\mathrm{S}_4$ *(8 pages)* 144419
V. Fritsch, J. Deisenhofer, R. Fichtl, J. Hemberger, H.-A. Krug von Nidda, M. Mücksch, M. Nicklas, D. Samusi, J. D. Thompson, R. Tidecks, V. Tsurkan, and A. Loidl

Mechanisms by which oxygen acts as a surfactant in giant magnetoresistance film growth *(4 pages)* 144420
D. J. Larson, A. K. Petford-Long, A. Cerezo, S. P. Bozeman, A. Morrone, Y. Q. Ma, A. Georgalakis, and P. H. Clifton

Magnetic phase diagram of $\mathrm{GdNi}_2\mathrm{B}_2\mathrm{C}$: Two-ion magnetoelasticity and anisotropic exchange couplings *(9 pages)* 144421
M. El Massalami, H. Takeya, K. Hirata, M. Amara, R.-M. Galera, and D. Schmitt

Magnetic behavior of poly(3-methylthiophene): Metamagnetism and room-temperature weak ferromagnetism *(5 pages)* 144422
O. R. Nascimento, A. J. A. de Oliveira, A. A. Correa, L. O. S. Bulhões, E. C. Pereira, V. M. Souza, and L. Walmsley

Spin current in the Kondo lattice model *(5 pages)* 144423
Shun-Qing Shen and X. C. Xie

Negative cooperative effect on the spin-state excitation in LaCoO_3 *(6 pages)* 144424
Tôru Kyômen, Yoshinori Asaka, and Mitsuru Itoh

Finite-size effects in the conductance and giant magnetoresistance of Fe/Cr and Co/Cu nanowires *(5 pages)* 144425
Julian Velev and Yia-Chung Chang

Competing interactions in the XYZ model *(5 pages)* 144426
M. Arlego, D. C. Cabra, J. E. Drut, and M. D. Grynberg

Spin wave theory for antiferromagnetic XXZ spin model on a triangle lattice in the presence of an external magnetic field *(7 pages)* 144427
J. Y. Gan, F. C. Zhang, and Z. B. Su

Superfluidity and superconductivity

Renormalization of the upper critical field by superconducting fluctuations *(6 pages)* 144501
V. M. Galitski and S. Das Sarma

Superconducting fluctuation probed by in-plane and out-of-plane conductivities in $\mathrm{Tl}_2\mathrm{Ba}_2\mathrm{CaCuO}_{8+y}$ single crystals *(7 pages)* 144502
Heon-Jung Kim, P. Chowdhury, W. N. Kang, Dong-Jin Zang, and Sung-Ik Lee

Effect of the magnetic resonance on the electronic spectra of high-T_c superconductors *(23 pages)* 144503
M. Eschrig and M. R. Norman

Surface impedance anisotropy of $\mathrm{YBa}_2\mathrm{Cu}_3\mathrm{O}_{6.95}$ single crystals: Electrodynamic basis of the measurements *(9 pages)* 144504
Yu. A. Nefyodov, M. R. Trunin, A. A. Zhohov, I. G. Naumenko, G. A. Emel'chenko, D. Yu. Vodolazov, and I. L. Maksimov

Low-temperature ordered states of rare-earth magnetic dipoles in $R_2\mathrm{Ba}_4\mathrm{Cu}_7\mathrm{O}_{15-\delta}$ as effected by dipole-dipole and exchange interactions: Extension of generalized Luttinger-Tisza method *(8 pages)* 144505
Sushil K. Misra and Joshua Felsteiner

Models for enhanced absorption in inhomogeneous superconductors *(7 pages)* 144506
Sergey V. Barabash and David Stroud

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 67, NUMBER 14** **APRIL 2003-1(II)**

Nearly localized nature of f electrons in $CeTIn_5$ (T=Rh, Ir) *(5 pages)* 144507
Shin-ichi Fujimori, Tetsuo Okane, Jun Okamoto, Kazutoshi Mamiya, Yasuji Muramatsu, Atsushi Fujimori, Hisatomo Harima, Dai Aoki, Shugo Ikeda, Hiroaki Shishido, Yoshifumi Tokiwa, Yoshinori Haga, and Yoshichika Onuki

Measuring the hole-state anisotropy in MgB_2 by electron energy-loss spectroscopy *(7 pages)* 144508
Robert F. Klie, Haibin Su, Yimei Zhu, James W. Davenport, Juan-Carlos Idrobo, Nigel D. Browning, and Peter D. Nellist

Transport properties in the d-density-wave state in an external magnetic field: The Wiedemann-Franz law *(22 pages)* 144509
S. G. Sharapov, V. P. Gusynin, and H. Beck

Optimum pinning of the vortex lattice in extremely type-II layered superconductors *(5 pages)* 144510
C. E. Creffield and J. P. Rodriguez

Formation of stripes and incommensurate peaks in the orthorhombic phase of underdoped $La_{2-x}Sr_xCuO_4$ *(8 pages)* 144511
J. M. Tipper and K. J. E. Vos

Quantum superposition of charge states on capacitively coupled superconducting islands *(5 pages)* 144512
C. P. Heij, D. C. Dixon, C. H. van der Wal, P. Hadley, and J. E. Mooij

Corbino geometry Josephson junction *(7 pages)* 144513
Robert H. Hadfield, Gavin Burnell, Dae-Joon Kang, Chris Bell, and Mark G. Blamire

Search for a vortex loop blowout transition in a type-II superconductor in a finite magnetic field *(10 pages)* 144514
P. Olsson and S. Teitel

Shear and loading in channels: Oscillatory shearing and edge currents of superconducting vortices *(7 pages)* 144515
J. F. Wambaugh, F. Marchesoni, and Franco Nori

Stability of driven Josephson vortex lattice in layered superconductors revisited *(6 pages)* 144516
S. N. Artemenko and S. V. Remizov

Effects of gap fluctuations on the pair-transfer correlation function in nanometer-scale superconducting grains *(9 pages)* 144517
R. Rossignoli, N. Canosa, and P. Ring

Doping dependence of the low-energy excitations in superconducting $Bi_2Sr_2CaCu_2O_{8+\delta}$: Evidence for thermal phase fluctuations *(7 pages)* 144518
G. Lamura, J. Le Cochec, A. Gauzzi, F. Licci, D. Di Castro, A. Bianconi, and J. Bok

Formation and mobility of oxygen vacancies in $RuSr_2GdCu_2O_8$ *(7 pages)* 144519
F. Cordero, M. Ferretti, M. R. Cimberle, and R. Masini

Kohn-Luttinger pseudopairing in a two-dimensional Fermi liquid *(6 pages)* 144520
V. M. Galitski and S. Das Sarma

Shubnikov–de Haas effect in the quantum vortex liquid state of the organic superconductor κ-(BEDT-TTF)$_2$Cu(NCS)$_2$ *(6 pages)* 144521
T. Sasaki, T. Fukuda, N. Yoneyama, and N. Kobayashi

Penetration of vortices into the ferromagnet/type-II superconductor bilayer *(7 pages)* 144522
R. Laiho, E. Lähderanta, E. B. Sonin, and K. B. Traito

Structure and electronic properties of the orthorhombic MoRuP superconductor prepared at high pressure *(9 pages)* 144523
W. Wong-Ng, W. Y. Ching, Yong-Nian Xu, J. A. Kaduk, I. Shirotani, and L. Swartzendruber

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 67, NUMBER 14** **APRIL 2003-1(II)**

COMMENTS

Comment on ''Collapse of the vortex-lattice inductance and shear modulus at the melting transition in untwinned $YBa_2Cu_3O_7$'' *(2 pages)* 146501
A. Pautrat, C. Goupil, Ch. Simon, B. Plaçais, and P. Mathieu

Reply to ''Comment on 'Collapse of the vortex-lattice inductance and shear modulus at the melting transition in untwinned $YBa_2Cu_3O_7$' '' *(1 page)* 146502
P. Matl and N. P. Ong

ERRATA

Publisher's Note: Phase diagram of a spin ladder with cyclic four-spin exchange [Phys. Rev. B **67**, 100409 (2003)] *(1 page)* . . . . . 149901(E)
A. Läuchli, G. Schmid, and M. Troyer

Cumulative Author Index i