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 60, NUMBER 14 *CONTENTS* 1 OCTOBER 1999-II

RAPID COMMUNICATIONS

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

Tetragonal to monoclinic transition in the metallic antiferromagnet $Pr_{0.5}Sr_{0.5}MnO_3$ R9889
A. Llobet, J. L. García-Muñoz, C. Frontera, and C. Ritter

Direct observation of the temperature variation of the short positron lifetime in metals by using the positron age-momentum correlation technique R9893
N. Suzuki, Y. Nagai, and T. Hyodo

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

Neutron diffraction from thermally fixed gratings in photorefractive lithium niobate crystals R9896
I. Nee, K. Buse, F. Havermeyer, R. A. Rupp, M. Fally, and R. P. May

Magnetism

Observation of the coherence transition into a collective dense Kondo state by resonant inverse photoemission spectroscopy R9900
K. Kanai, T. Terashima, D. H. Eom, M. Ishikawa, and S. Shin

Exact ground state and kink-like excitations of a two-dimensional Heisenberg antiferromagnet R9904
Rahul Siddharthan

Anisotropic growth kinetics in the geometrically frustrated isosceles triangular Ising antiferromagnet $CoNb_2O_6$ R9908
S. Kobayashi, S. Mitsuda, T. Jogetsu, J. Miyamoto, H. Katagiri, and K. Kohn

K-edge resonant x-ray magnetic scattering from CoO R9912
W. Neubeck, C. Vettier, K.-B. Lee, and F. de Bergevin

Spiral spin-density-wave ground state of γ-Fe calculated with spin stiffness correction to the local-spin-density approximation R9916
D. M. Bylander and Leonard Kleinman

Evidence for a trivial ground-state structure in the two-dimensional Ising spin glass R9919
Matteo Palassini and A. P. Young

Understanding correlations between chemical and magnetic interfacial roughness R9923
J. W. Freeland, K. Bussmann, Y. U. Idzerda, and C.-C. Kao

Magnetic-field- and alloying-induced wetting of the ferroelectric domain structure in some smart materials R9927
Simon Dorfman, David Fuks, Alex Gordon, and Peter Wyder

Superfluidity and superconductivity

Adiabatic transport of Cooper pairs in arrays of Josephson junctions R9931
J. P. Pekola, J. J. Toppari, M. Aunola, M. T. Savolainen, and D. V. Averin

Copyright 1999 by The American Physical Society

0163-1829(19991001)60:14;1-K

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 60, NUMBER 14** **1 OCTOBER 1999-II**

Coexistence of $d_{x^2-y^2}$ superconductivity and antiferromagnetism in the two-dimensional t-J model and numerical estimation of Gutzwiller factors R9935
A. Himeda and M. Ogata

Second magnetization peak in flux lattices: The decoupling scenario R9939
Baruch Horovitz

Isotope shift of the 590-cm^{-1} Raman feature in underdoped $Bi_2Sr_2CaCu_2O_{8+\delta}$ R9943
K. C. Hewitt, N. L. Wang, J. C. Irwin, D. M. Pooke, A. E. Pantoja, and H. J. Trodahl

Responses of the pseudogap and d-wave superconductivity to high magnetic fields in the underdoped high-T_c superconductor $YBa_2Cu_4O_8$: An NMR study R9947
Guo-qing Zheng, W. G. Clark, Y. Kitaoka, K. Asayama, Y. Kodama, P. Kuhns, and W. G. Moulton

Evidence for planar pinning in heavily Pb-substituted $Bi_2Sr_2CaCu_2O_{8+y}$ single crystals R9951
K. Itaka, H. Taoka, S. Ooi, T. Shibauchi, and T. Tamegai

Anomalous slowing down of Cu-spin fluctuations observed by muon spin relaxation in the Zn-substituted $Bi_2Sr_2Ca_{1-x}Y_x(Cu_{1-y}Zn_y)_2O_{8+\delta}$ system around the hole concentration of $\frac{1}{8}$ per Cu R9955
I. Watanabe, M. Akoshima, Y. Koike, and K. Nagamine

ARTICLES

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

Luminescence and defect formation by visible and near-infrared irradiation of vitreous silica 9959
Mitsuru Watanabe, Saulius Juodkazis, Hong-Bo Sun, Shigeki Matsuo, and Hiroaki Misawa

Coherent x-ray diffraction imaging of silicon oxide growth 9965
I. K. Robinson, J. L. Libbert, I. A. Vartanyants, J. A. Pitney, D. M. Smilgies, D. L. Abernathy, and G. Grübel

Measurement of the local Jahn-Teller distortion in $LaMnO_{3.006}$ 9973
Th. Proffen, R. G. DiFrancesco, S. J. L. Billinge, E. L. Brosha, and G. H. Kwei

Phenomenological theory of size effects in ultrafine ferroelectric particles of lead titanate 9978
B. Jiang and L. A. Bursill

Raman scattering study of the orthorhombic-to-tetragonal phase transition of a Li_3ThF_7 crystal 9983
M. A. S. Oliveira, J.-Y. Gesland, M. A. Pimenta, and R. L. Moreira

Calculated spectral properties of self-trapped holes in pure and Ge-doped SiO_2 9990
Gianfranco Pacchioni and Andrea Basile

Dynamical and thermodynamical instabilities in the disordered Re_xW_{1-x} system 9999
Kristin Persson, Mathias Ekman, and Göran Grimvall

Inhomogeneous, disordered, and partially ordered systems

Deep inelastic neutron scattering from fluid hydrogen and deuterium: From vibrational excitations to the impulse approximation 10 008
C. Andreani, D. Colognesi, and E. Pace

Phase structures and morphologies determined by competitions among self-organization, crystallization, and vitrification in a disordered poly(ethylene oxide)-b-polystyrene diblock copolymer 10 022
Lei Zhu, Yan Chen, Anqiu Zhang, Bret H. Calhoun, Moonseok Chun, Roderic P. Quirk, Stephen Z. D. Cheng, Benjamin S. Hsiao, Fengji Yeh, and Takeji Hashimoto

Physical nature of critical modes in Fibonacci quasicrystals 10 032
Enrique Maciá

Existence of an intrinsic glass transition in a silicon rubber: Hypersonic versus calorimetric properties 10 037
Jan K. Krüger, P. Mesquida, and J. Baller

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 60, NUMBER 14** **1 OCTOBER 1999-II**

White light emission of Eu^{3+}-based hybrid xerogels 10 042
L. D. Carlos, R. A. Sá Ferreira, V. De Zea Bermudez, Celso Molina, Luciano A. Bueno, and Sidney J. L. Ribeiro

Effects of deterministic aperiodic and self-similar on-site potentials on the structure of the Hofstadter butterfly 10 054
Bruno Lindquist and Rolf Riklund

Simulation of the zero-temperature behavior of a three-dimensional elastic medium 10 062
David McNamara, A. Alan Middleton, and Chen Zeng

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

Quasi-two-dimensional Feynman bipolarons 10 070
R. T. Senger and A. Erçelebi

Size effects investigated by Raman spectroscopy in Bi nanocrystals 10 080
E. Haro-Poniatowski, M. Jouanne, J. F. Morhange, M. Kanehisa, R. Serna, and C. N. Afonso

Negative modes and the decay-rate transition 10 086
Soo-Young Lee, Hungsoo Kim, D. K. Park, and Jae Kwan Kim

Dynamical properties of liquid lithium above the melting point 10 094
J. Casas, D. J. González, and L. E. González

Thermal expansion and hydrogen diffusion in nanocrystalline nickel 10 107
Barbara Szpunar, Laurent J. Lewis, Ian Swainson, and Uwe Erb

Localization of phonons in a two-component superlattice with random-thickness layers 10 114
David G. Sedrakyan and Ara G. Sedrakyan

Magnetism

Equation of state and spin-correlation functions of ultrasmall classical Heisenberg magnets 10 122
Orion Ciftja, Marshall Luban, Mark Auslender, and James H. Luscombe

Properties of some mean-field-like approximations for the triangular Ising antiferromagnet 10 134
Alessandro Pelizzola and Marco Pretti

High-pressure form of $(VO)_2P_2O_7$: A spin-$\frac{1}{2}$ antiferromagnetic alternating-chain compound with one kind of chain and a single spin gap 10 145
M. Azuma, T. Saito, Y. Fujishiro, Z. Hiroi, M. Takano, F. Izumi, T. Kamiyama, T. Ikeda, Y. Narumi, and K. Kindo

Critical behavior of disordered quantum magnets: The relevance of rare regions 10 150
Rajesh Narayanan, Thomas Vojta, D. Belitz, and T. R. Kirkpatrick

Temperature dependence of aging in spin glasses 10 164
Derek Walton

K-edge resonant x-ray magnetic scattering from $RbMnF_3$ 10 170
A. Stunault, F. de Bergevin, D. Wermeille, C. Vettier, Th. Brückel, N. Bernhoeft, G. J. McIntyre, and J. Y. Henry

Temperature behavior of the magnon modes of the square-lattice antiferromagnet 10 180
A. Sherman and M. Schreiber

Correlation between coherent Jahn-Teller distortion and magnetic spin orientation in $La_{1-x}Sr_xMnO_3$ 10 186
X. Xiong, B. Dabrowski, O. Chmaissem, Z. Bukowski, S. Kolesnik, R. Dybzinski, C. W. Kimball, and J. D. Jorgensen

Magnetization of Pt in the Co/Pt(110) system investigated with surface x-ray magnetic diffraction: Evidence for in-plane magnetic anisotropy 10 193
J. Alvarez, E. Lundgren, X. Torrelles, H. Isern, K. F. Peters, P. Steadman, and S. Ferrer

ESR and magnetization in Jahn-Teller-distorted $LaMnO_{3+\delta}$: Correlation with crystal structure 10 199
M. Tovar, G. Alejandro, A. Butera, A. Caneiro, M. T. Causa, F. Prado, and R. D. Sánchez

Anisotropic superexchange for nearest and next-nearest coppers in chain, ladder, and lamellar cuprates 10 206
Sabine Tornow, O. Entin-Wohlman, and Amnon Aharony

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 60, NUMBER 14** **1 OCTOBER 1999-II**

Magnetization reversal dynamics in epitaxial Fe/GaAs(001) thin films 10 216
W. Y. Lee, B.-Ch. Choi, Y. B. Xu, and J. A. C. Bland
Effects of interplay of dipole-dipole interactions and single-ion easy-plane anisotropy on two-dimensional ferromagnets 10 222
Liangbin Hu, Haijin Li, and Ruibao Tao
Theoretical study of the magnetism within Gd/Mo and Gd/W multilayers 10 233
A. C. Jenkins and W. M. Temmerman
Magnetoresistance and magnetic properties of Fe/Cu/Fe/GaAs(100) 10 242
T. L. Monchesky, B. Heinrich, R. Urban, K. Myrtle, M. Klaua, and J. Kirschner
Fourier analysis of exchange biased $Ni_{80}Fe_{20}/Fe_{50}Mn_{50}/Ni_{80}Fe_{20}$ trilayers 10 252
S. Maat, L. Shen, and G. J. Mankey
Magnetoresistance and atomic structure of ultrathin films of $La_{0.73}Ca_{0.27}MnO_3$ on $SrTiO_3$ 10 259
H. W. Zandbergen, S. Freisem, T. Nojima, and J. Aarts
Magnetoelastic interaction and domain walls in a magnetic sandwich structure 10 263
K. V. Lamonova, A. L. Sukstanskii, and V. N. Varyukhin
Domain structures in ferromagnetic ultrathin films with in-plane magnetization 10 271
J. Castro, S. T. Chui, and V. N. Ryzhov
Magnetotransport phenomena in a metallic ferromagnet on the verge of Mott transition: $Sm_2Mo_2O_7$ 10 280
Y. Taguchi and Y. Tokura
Magnetoresistance and phase composition of La-Sn-Mn-O systems 10 284
Z. W. Li, A. H. Morrish, and J. Z. Jiang
Giant magnetoresistance of magnetic multilayer point contacts 10 291
K. Wellock, S. J. C. H. Theeuwen, J. Caro, N. N. Gribov, R. P. van Gorkom, S. Radelaar, F. D. Tichelaar, B. J. Hickey, and C. H. Marrows
Sites and dynamics of hydrogen and deuterium in V-H-D alloys studied by ^{1}H and ^{2}H NMR 10 302
Bilwadal Bandyopadhyay and Shigenobu Hayashi
Equilibrium properties of an axial next-nearest-neighbor Ising model in two dimensions 10 316
A. Sato and F. Matsubara
Parisi symmetry of the many-body quantum theory of randomly interacting fermionic systems 10 325
R. Oppermann and B. Rosenow
Coherent-incoherent crossover of charge dynamics in the ferromagnetic ground state of manganites: $R_{0.6}Sr_{0.4}MnO_3$ (R=La-Sm) 10 362
E. Saitoh, Y. Okimoto, Y. Tomioka, T. Katsufuji, and Y. Tokura
Electronic transition in $La_{1-x}Sr_xTiO_3$ 10 367
C. C. Hays, J.-S. Zhou, J. T. Markert, and J. B. Goodenough
Competition between the antiferromagnetic charge-ordered and ferromagnetic states in doped manganites 10 374
Y. Moritomo
Correlation of local Jahn-Teller distortions to the magnetic/conductive states of $La_{1-x}Sr_xCoO_3$ 10 378
Despina Louca, J. L. Sarrao, J. D. Thompson, H. Röder, and G. H. Kwei
Antiferromagnetic Kondo-lattice systems $Ce_2Rh_3Ge_5$ and $Ce_2Ir_3Ge_5$ with moderate heavy-fermion behavior 10 383
Z. Hossain, H. Ohmoto, K. Umeo, F. Iga, T. Suzuki, T. Takabatake, N. Takamoto, and K. Kindo

Superfluidity and superconductivity

Model boson-fermion mixture within the self-consistent-field approximation 10 388
I. Al-Hayek and B. Tanatar
Universal width for the zero-bias conductance peak in high-T_c superconductors 10 395
M. B. Walker and P. Pairor
Phase transition from a $d_{x^2-y^2}$ to a $d_{x^2-y^2}+d_{xy}$ superconductor 10 401
Angsula Ghosh and Sadhan K. Adhikari

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 60, NUMBER 14** **1 OCTOBER 1999-II**

Search for orbital moments in underdoped cuprate metals 10 405
S.-H. Lee, C. F. Majkrzak, S. K. Sinha, C. Stassis, H. Kawano, G. H. Lander, P. J. Brown, H. F. Fong, S-W. Cheong, H. Matsushita, K. Yamada, and Y. Endoh

Linear-field dependence of the normal-state in-plane magnetoresistance of Sr_2RuO_4 . . . . . 10 418
R. Jin, Y. Liu, and F. Lichtenberg

Vortex core spectroscopy and vortex cooling: A photovoltaic effect 10 423
C. A. R. Sá de Melo

Asymptotic theory for the inverse problem in magnetic force microscopy of superconductors 10 436
A. Badía

Correlation-renormalized electron-phonon interaction in the two-dimensional Hubbard model 10 442
M. Mierzejewski, J. Zieliński, and P. Entel

Electromagnetic response of a vortex in layered superconductors 10 447
M. Eschrig, J. A. Sauls, and D. Rainer

Charge frustration effects in capacitively coupled two-dimensional Josephson-junction arrays 10 455
Minchul Lee, Mahn-Soo Choi, and M. Y. Choi

Thermal fluctuations and disorder effects in vortex lattices 10 460
Dingping Li and Baruch Rosenstein

Dimensional crossover in a mesoscopic superconducting loop of finite width 10 468
V. Bruyndoncx, L. Van Look, M. Verschuere, and V. V. Moshchalkov

Resistivity of clean $YBa_2Cu_3O_{7-\delta}$ in the pinned-liquid state 10 477
S. N. Gordeev, A. P. Rassau, R. M. Langan, P. A. J. de Groot, V. B. Geshkenbein, R. Gagnon, and L. Taillefer

ab-plane restrained flux motion of (110) $YBa_2Cu_3O_{7-\delta}$ thin-film superconductors 10 484
J. Z. Qu, Q. Y. Chen, W. N. Kang, and W. K. Chu

Role of bromine in restoring superconductivity in $YBa_2Cu_3O_y$ 10 489
D. M. Potrepka, J. I. Budnick, D. B. Fenner, W. A. Hines, M. Balasubramanian, and A. R. Moodenbaugh

Conventional superconductorlike behavior of the superconducting transition of $La_{2-x}Sr_xCuO_4$ ($x\sim0.12$) in magnetic fields 10 500
T. Suzuki, Y. Oshima, K. Chiba, T. Fukase, T. Goto, H. Kimura, and K. Yamada

Role of structural disorder in artificially layered high-temperature superconductors 10 504
G. Balestrino, A. Crisan, S. Lavanga, P. G. Medaglia, G. Petrocelli, and A. A. Varlamov

Edge barrier pinning for a single superconducting vortex 10 508
D. Kouzoudis, M. Breitwisch, and D. K. Finnemore

Crossover effects for critical currents within Landau-Ginzburg phenomenology incorporating Josephson weak links in superconducting thin films of $YBaCu_2O_{7-\delta}$ 10 513
J. A. Tuszyński, D. Sept, and J. M. Dixon

Nonequilibrium superconductivity under spin-polarized quasiparticle currents in perovskite ferromagnet-insulator-superconductor heterostructures 10 522
N.-C. Yeh, R. P. Vasquez, C. C. Fu, A. V. Samoilov, Y. Li, and K. Vakili

Superconductivity in heavy-fermion $U(Pt,Pd)_3$ and its interplay with magnetism 10 527
R. J. Keizer, A. de Visser, M. J. Graf, A. A. Menovsky, and J. J. M. Franse

Cumulative Author Index 10539