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 59, NUMBER 22 *CONTENTS* **1 JUNE 1999-II**

RAPID COMMUNICATIONS

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

Single-crystal elasticity of MgO at high pressure R14 141
S. V. Sinogeikin and J. D. Bass

Inhomogeneous, disordered, and partially ordered systems

Partial phonon density of states of Fe in an icosahedral quasicrystal $Al_{62}Cu_{25.5}{}^{57}Fe_{12.5}$ by inelastic nuclear-resonant absorption of 14.41-keV synchrotron radiation R14 145
R. A. Brand, G. Coddens, A. I. Chumakov, and Y. Calvayrac

Magnetism

Double-exchange magnets: Spin dynamics in the paramagnetic phase R14 149
Peter Horsch, Janez Jaklič, and Frank Mack
Interrelation between orbital polarization and magnetic structure in bilayer manganites R14 153
T. Akimoto, Y. Moritomo, K. Ohoyama, S. Okamoto, S. Ishihara, S. Maekawa, and A. Nakamura
Stochastic series expansion method with operator-loop update R14 157
Anders W. Sandvik

Superfluidity and superconductivity

Proximity-induced Josephson-quasiparticle process in a single-electron transistor R14 161
A. J. Manninen, R. S. Poikolainen, T. V. Ryynänen, and J. P. Pekola
Shot noise in a normal-metal–*d*-wave superconductor junction with a {110}-oriented interface R14 165
Jian-Xin Zhu and C. S. Ting
Magnetic scaling in the underdoped superconductor $Hg_{0.8}Re_{0.2}Ba_2Ca_2Cu_3O_8$ studied by ^{63}Cu NMR R14 169
Atsushi Goto, Tadashi Shimizu, P. V. P. S. S. Sastry, and Justin Schwartz
Absence of nonlinear Meissner effect in $YBa_2Cu_3O_{6.95}$ R14 173
A. Carrington, R. W. Giannetta, J. T. Kim, and J. Giapintzakis

ARTICLES

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

Equation of state for hydrogen below 10000 K: From the fluid to the plasma 14 177
Dieter Beule, Werner Ebeling, Andreas Förster, Hauke Juranek, Stefan Nagel, Ronald Redmer, and Gerd Röpke

Copyright 1999 by The American Physical Society

(Continued)

0163-1829(19990601)59:22;1-R

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 59, NUMBER 22** **1 JUNE 1999-II**

Effects of the nuclear transformation ^{111}Ag(I) to ^{111}Cd(II) in a single crystal of Ag[^{111}Ag] (imidazole)$_2$NO$_3$ 14 182
Bjarne Hansen, Jens T. Bukrinsky, Lars Hemmingsen, Morten J. Bjerrum, Kulwant Singh, and Rogert Bauer

Small-angle x-ray-scattering study of silver-nanocrystal disorder-order phase transitions 14 191
Brian A. Korgel and Donald Fitzmaurice

Defect structure of yttria-stabilized zirconia and its influence on the ionic conductivity at elevated temperatures ... 14 202
J. P. Goff, W. Hayes, S. Hull, M. T. Hutchings, and K. N. Clausen

Calculation of theoretical strengths and bulk moduli of bcc metals 14 220
Y. Song, R. Yang, D. Li, W. T. Wu, and Z. X. Guo

Nonuniform displacements in dilute alloys of Al and Cu 14 226
P. Singh and S. Prakash

Revised structural phase transitions in the archetype KMnF$_3$ perovskite crystal 14 235
Joanna Kapusta, Philippe Daniel, and Alicja Ratuszna

Ferroelastic transition triggered by an ordering mechanism in [(CH$_3$)$_4$N]SCN 14 246
M. Bonin, A. Fuith, K. J. Schenk, and P. Tolédano

Observation of optically stimulated reorientation of dipolar defects in Pr^{3+}-doped strontium fluoride 14 253
Forrest Charnock, G. Eric Matthews , Jr., Brian Pieslak, and R. T. Williams

Studies of periodic ferroelectric domains in KTiOPO$_4$ using high-resolution x-ray scattering and diffraction imaging 14 259
Z. W. Hu, P. A. Thomas, and W. P. Risk

Thermodynamic study of commensurate-incommensurate phase transitions in Rb$_2$ZnCl$_4$ 14 265
José-María Martín-Olalla, Saturio Ramos, and Arkadi Levanyuk

Inhomogeneous, disordered, and partially ordered systems

Embedded-atom-method study of structural, thermodynamic, and atomic-transport properties of liquid Ni-Al alloys 14 271
Mark Asta, Dane Morgan, J. J. Hoyt, Babak Sadigh, J. D. Althoff, D. de Fontaine, and S. M. Foiles

Positron diffusion in solid and liquid metals 14 282
E. Gramsch, K. G. Lynn, J. Throwe, and I. Kanazawa

Coherency of phason dynamics in Fibonacci chains 14 302
G. G. Naumis, Chumin Wang, M. F. Thorpe, and R. A. Barrio

Physical analysis of the state- and rate-dependent friction law: Static friction 14 313
P. Berthoud, T. Baumberger, C. G'Sell, and J.-M. Hiver

Persistent spectral hole burning in deuterated CaF$_2$:Tm^{3+} 14 328
N. M. Strickland, R. L. Cone, and R. M. Macfarlane

Ultrafast photogeneration mechanisms of triplet states in *para*-hexaphenyl 14 336
C. Zenz, G. Cerullo, G. Lanzani, W. Graupner, F. Meghdadi, G. Leising, and S. De Silvestri

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

Remote Wigner polaron in a magnetic field 14 342
H. Kato and F. M. Peeters

Anomalous percolation transition in carbon-black–epoxy composite materials 14 349
L. Flandin, T. Prasse, R. Schueler, K. Schulte, W. Bauhofer, and J.-Y. Cavaille

Microscopic spin-phonon coupling constants in CuGeO$_3$ 14 356
Ralph Werner, Claudius Gros, and Markus Braden

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 59, NUMBER 22** **1 JUNE 1999-II**

Magnetism

Phase diagram for a class of spin-$\frac{1}{2}$ Heisenberg models interpolating between the square-lattice, the triangular-lattice, and the linear-chain limits 14 367
Zheng Weihong, Ross H. McKenzie, and Rajiv R. P. Singh
Sine-Gordon low-energy effective theory for copper benzoate 14 376
Fabian H. L. Eßler
Field theory of ferrimagnetic Hubbard chains 14 384
E. P. Raposo and M. D. Coutinho-Filho
Spin dynamics in $S=3/2$ one-dimensional Heisenberg antiferromagnets $CsVCl_3$ and $CsVBr_3$ 14 406
Shinichi Itoh, Yasuo Endoh, Kazuhisa Kakurai, Hidekazu Tanaka, Steve M. Bennington, Toby G. Perring, Kenji Ohoyama, Mark J. Harris, Kenji Nakajima, and Chris D. Frost
Calculated magnetic properties of an $Fe_{1-x}Ni_x$ monolayer on Cu(001) 14 417
E. A. Smirnova, I. A. Abrikosov, B. Johansson, Yu. Kh. Vekilov, A. N. Baranov, V. S. Stepanyuk, W. Hergert, and P. H. Dederichs
Electronic and magnetic phase diagram of $SmNi_{1-x}Co_xO_3$ 14 424
J. Pérez-Cacho, J. Blasco, J. García, and J. Stankiewicz
Impurity-induced spin polarization and NMR line broadening in underdoped cuprates 14 432
R. Kilian, S. Krivenko, G. Khaliullin, and P. Fulde
Wigner-crystal and bi-stripe models for the magnetic and crystallographic superstructures of $La_{0.333}Ca_{0.667}MnO_3$ 14 440
P. G. Radaelli, D. E. Cox, L. Capogna, S.-W. Cheong, and M. Marezio
Structural and magnetic characterization of the frustrated triangular-lattice antiferromagnets $CsFe(SO_4)_2$ and $RbFe(SO_4)_2$ 14 451
H. Serrano-González, S. T. Bramwell, K. D. M. Harris, B. M. Kariuki, L. Nixon, I. P. Parkin, and C. Ritter
RKKY theory of oscillatory exchange coupling in the generalized random-phase approximation 14 461
M. Noshiravani, A. Koohi, F. Ebrahimi, and M. M. Tehranchi
First-principles investigations of the magnetocrystalline anisotropy in strained fcc Co 14 466
G. Y. Guo, D. J. Roberts, and G. A. Gehring
Electronic properties of UX_3 ($X=$Ga, Al, and Sn) compounds in high magnetic fields: Transport, specific heat, magnetization, and quantum oscillations 14 473
A. L. Cornelius, A. J. Arko, J. L. Sarrao, J. D. Thompson, M. F. Hundley, C. H. Booth, N. Harrison, and P. M. Oppeneer
Effective Hamiltonian for an extended Kondo-lattice model and a possible origin of charge ordering in half-doped manganites 14 484
Shun-Qing Shen and Z. D. Wang
Transition to long-range magnetic order in the highly frustrated insulating pyrochlore antiferromagnet $Gd_2Ti_2O_7$ 14 489
N. P. Raju, M. Dion, M. J. P. Gingras, T. E. Mason, and J. E. Greedan
Ferrimagnetism and defect clusters in $Fe_{1-x}O$ films 14 499
D. V. Dimitrov, K. Unruh, G. C. Hadjipanayis, V. Papaefthymiou, and A. Simopoulos
Oscillating tunneling magnetoresistance in magnetic double-tunnel-junction structures 14 505
Zhiming Zheng, Yunong Qi, D. Y. Xing, and Jinming Dong
Induced spin polarization in V:Fe_nV_m superlattices and thin V films on Fe substrates 14 510
J. Izquierdo, A. Vega, O. Elmouhssine, H. Dreyssé, and C. Demangeat
Spin reorientations induced by morphology changes in Fe/Ag(001) 14 516
D. M. Schaller, D. E. Bürgler, C. M. Schmidt, F. Meisinger, and H.-J. Güntherodt
Exchange coupling through spin-density waves in Cr(001) structures: Fe-whisker/Cr/Fe(001) studies 14 520
B. Heinrich, J. F. Cochran, T. Monchesky, and R. Urban
Trigonometric models for scaling behavior near criticality 14 533
Michael E. Fisher, Shun-yong Zinn, and Paul J. Upton

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 59, NUMBER 22** **1 JUNE 1999-II**

High-frequency dielectric and magnetic anomaly at the phase transition in NaV_2O_5 . . . . . 14 546
A. I. Smirnov, M. N. Popova, A. B. Sushkov, S. A. Golubchik, D. I. Khomskii, M. V. Mostovoy, A. N. Vasil'ev, M. Isobe, and Y. Ueda

Fully relativistic spin-polarized LMTO calculations of the magneto-optical Kerr effect of *d* and *f* ferromagnetic materials. I. Chromium spinel chalcogenides 14 552
V. N. Antonov, V. P. Antropov, B. N. Harmon, A. N. Yaresko, and A. Ya. Perlov

Fully relativistic spin-polarized LMTO calculations of the magneto-optical Kerr effect of *d* and *f* ferromagnetic materials. II. Neodymium chalcogenides 14 561
V. N. Antonov, B. N. Harmon, A. Ya. Perlov, and A. N. Yaresko

Fully relativistic spin-polarized LMTO calculations of the magneto-optical Kerr effect of *d* and *f* ferromagnetic materials. III. Uranium chalcogenides and pnictides 14 571
V. N. Antonov, B. N. Harmon, A. N. Yaresko, and A. Ya. Perlov

Superfluidity and superconductivity

Correlated disorder in a *p*-wave superfluid 14 583
J. V. Porto and J. M. Parpia

Prediction of superconductivity in $Am_{2-z}Ce_zCuO_4$ 14 593
Howard A. Blackstead and John D. Dow

p-wave and *d*-wave superconductivity in quasi-two-dimensional metals 14 598
P. Monthoux and G. G. Lonzarich

Finite-bias resistance peaks in nanoscale superconductor–normal-metal Ta-W point contacts 14 606
P. S. Westbrook and A. Javan

Photoresponse and nonequilibrium properties of a superconductor–normal-metal point contact 14 612
P. S. Westbrook and A. Javan

Neutron scattering and the B_{1g} phonon in the cuprates 14 618
T. P. Devereaux, A. Virosztek, and A. Zawadowski

Magnetization peak around $H \| a$ axis in $La_{2-x}Sr_xCuO_4$ single crystals with different anisotropy 14 624
H. Iwasaki, F. Matsuoka, and K. Tanigawa

Penetration depth in conventional layered superconductors: A proximity-effect model 14 630
S. P. Zhao and Q. S. Yang

Suppressed superconductivity of the surface conduction layer in $Bi_2Sr_2CaCu_2O_{8+x}$ single crystals probed by *c*-axis tunneling measurements 14 639
Nam Kim, Yong-Joo Doh, Hyun-Sik Chang, and Hu-Jong Lee

Phase-dependent energy spectrum in Josephson weak links 14 644
R. Zikić, L. Dobrosavljević-Grujić, and Z. Radović

Phase locking and flux-flow resonances in Josephson oscillators driven by homogeneous microwave fields 14 653
M. Salerno and M. R. Samuelsen

Enhancement of superconductivity by decreased magnetic spin-flip scattering: Nonmonotonic T_C dependence with enhanced magnetic ordering 14 659
M. Vélez, M. C. Cyrille, S. Kim, J. L. Vicent, and Ivan K. Schuller

From microscopic theory to Boltzmann kinetic equation: Application to vortex dynamics 14 663
G. Blatter, V. B. Geshkenbein, and N. B. Kopnin

Magnetic properties of submicron Co islands and their use as artificial pinning centers 14 674
M. J. Van Bael, K. Temst, V. V. Moshchalkov, and Y. Bruynseraede

Electron-fluctuation interaction in a non-Fermi-liquid superconductor 14 680
M. Crisan, C. P. Moca, and I. Tifrea

Self-organization of vortices in type-II superconductors during magnetic relaxation 14 687
R. Prozorov and D. Giller

Spin-polarized neutron reflectivity: A probe of vortices in thin-film superconductors 14 692
S.-W. Han, J. F. Ankner, H. Kaiser, P. F. Miceli, E. Paraoanu, and L. H. Greene

(Continued)

PHYSICAL REVIEW B **THIRD SERIES, VOLUME 59, NUMBER 22** **1 JUNE 1999-II**

Electron-phonon interaction in the cuprates: Breathing versus buckling mode 14 697
P. Piekarz, J. Konior, and J. H. Jefferson
Field-dependent antiferromagnetism and ferromagnetism of the two copper sublattices in $Sr_2Cu_3O_4Cl_2$ 14 702
M. A. Kastner, Amnon Aharony, R. J. Birgeneau, F. C. Chou, O. Entin-Wohlman, M. Greven, A. B. Harris, Y. J. Kim, Y. S. Lee, M. E. Parks, and Q. Zhu
Glassy nature of stripe ordering in $La_{1.6-x}Nd_{0.4}Sr_xCuO_4$ 14 712
J. M. Tranquada, N. Ichikawa, and S. Uchida
Hall effect and resistivity in high-T_c superconductors: The conserving approximation 14 723
Hiroshi Kontani, Kazuki Kanki, and Kazuo Ueda
Strong-coupling theory of electronic Raman scattering in high-temperature superconductors 14 740
T. Dahm, D. Manske, and L. Tewordt
Thermodynamics of $YBa_2Cu_3O_{6+2x}$: Predictions of the asymmetric next-nearest-neighbor Ising model versus experimental data 14 748
R. Tétot, V. Pagot, and C. Picard
Normal-state magnetotransport in $La_{1.905}Ba_{0.095}CuO_4$ single crystals 14 753
Yasushi Abe, Yoichi Ando, J. Takeya, H. Tanabe, T. Watauchi, I. Tanaka, and H. Kojima
Anomalous line shape of photoemission spectra in the underdoped high-T_c cuprates 14 757
Bumsoo Kyung
Hall effect in $LuNi_2B_2C$ and YNi_2B_2C borocarbides: A comparative study 14 762
V. N. Narozhnyi, J. Freudenberger, V. N. Kochetkov, K. A. Nenkov, G. Fuchs, A. Handstein, and K.-H. Müller
Evidence of two-dimensional Josephson strings in high-purity $YBa_2Cu_3O_{7-\delta}$ single crystals 14 772
K. Deligiannis, S. Kokkaliaris, M. Oussena, P. A. J. de Groot, L. Früchter, R. Gagnon, and L. Taillefer

COMMENTS

Comment on ''Uniqueness of the complex diffraction amplitude in x-ray Bragg diffraction'' 14 781
Ming Li, W. Faschinger, G. Landwehr, and Z. H. Mai
Reply to ''Comment on 'Uniqueness of the complex diffraction amplitude in x-ray Bragg diffraction' '' 14 784
A. Yu. Nikulin
Comment on ''Grain-boundary structure and magnetic behavior in nanocrystalline ball-milled iron'' 14 786
J. Balogh, T. Kemény, I. Vincze, S. Szabó, D. L. Beke, and J. Tóth
Reply to ''Comment on 'Grain-boundary structure and magnetic behavior in nanocrystalline ball-milled iron' '' . . . 14 788
L. Del Bianco, A. Hernando, E. Bonetti, and C. Ballesteros

Cumulative Author Index 14790