

Corrected intensity data for a thermal neutron beam scattering off a potassium dihydrogen phosphate crystal. Spherical neutron waves, generated by scattering from hydrogen in the sample, should give rise to sharp conical intensity peaks, (*K* lines, previously seen in x-ray and in electron-scattering experiments), upon further interaction with the crystal lattice. The predicted *K* lines are shown in white; the observed intensity peaks are in red. See article 065505.

PHYSICAL REVIEW LETTERS

Contents

VOLUME 88, NUMBER 6 11 February 2002

General Physics

Spin Waves in a Bose-Einstein–Condensed Atomic Spin Chain 060401
Weiping Zhang, Han Pu, Chris Search, and Pierre Meystre

Experimental Observation of the Bogoliubov Transformation for a Bose-Einstein Condensed Gas 060402
J. M. Vogels, K. Xu, C. Raman, J. R. Abo-Shaeer, and W. Ketterle

Violating Bell's Inequality Beyond Cirel'son's Bound 060403
Adán Cabello

Gravitation and Astrophysics

Dielectric Black Hole Analogs 061101
Ralf Schützhold, Günter Plunien, and Gerhard Soff

Elementary Particles and Fields

Λ^0 Polarization in 800-GeV/$cpp \rightarrow p_f(\Lambda^0 K^+)$ 061801
J. Félix, M. C. Berisso, D. C. Christian, A. Gara, E. E. Gottschalk, G. Gutiérrez, E. P. Hartouni, B. C. Knapp, M. N. Kreisler, S. Lee, K. Markianos, G. Moreno, M. A. Reyes, M. Sosa, M. H. L. S. Wang, A. Wehmann, and D. Wesson

Observation of $\overline{B}^0 \rightarrow D^0\pi^0$ and $\overline{B}^0 \rightarrow D^{*0}\pi^0$ 062001
T. E. Coan *et al.* (CLEO Collaboration)

Nuclear Physics

Λ Spectra in 11.6*A* GeV/c Au-Au Collisions 062301
S. Albergo *et al.*

Second-Order Dissipative Fluid Dynamics for Ultrarelativistic Nuclear Collisions 062302
Azwinndini Muronga

Electrostatic Mapping of Nuclear Pairing 062501
J. Dukelsky, C. Esebbag, and S. Pittel

Neutron-Induced Fission Cross Section of ^{233}Pa between 1.0 and 3.0 MeV 062502
F. Tovesson, F.-J. Hambsch, A. Oberstedt, B. Fogelberg, E. Ramström, and S. Oberstedt

Atomic, Molecular, and Optical Physics

Observation of Magnetoelectric Linear Birefringence 063001
T. Roth and G. L. J. A. Rikken

Resonant Coupling of Free Quantum Rotors in Inclusion Compounds 063002
Alois Würger

Direct Probe of the Shape Resonance Mechanism in $2\sigma_g$-Shell Photoionization of the N_2 Molecule 063003
S. Motoki, J. Adachi, K. Ito, K. Ishii, K. Soejima, A. Yagishita, S. K. Semenov, and N. A. Cherepkov

(Continued on Third Cover)

Copyright 2002 by The American Physical Society

PRL 88 (6), 060401–069902, 11 February 2002 (296 total pages)

Narrow-Band Coherent Anti-Stokes Raman Signals from Broad-Band Pulses 063004
Dan Oron, Nirit Dudovich, Dvir Yelin, and Yaron Silberberg
Induced Long-Range Dipole-Field-Enhanced Antihydrogen Formation in the $\bar{p} + \mathrm{Ps}(n = 2) \rightarrow e^- + \bar{H}(n \leq 2)$ Reaction 063401
Chi Yu Hu, David Caballero, and Zoltán Papp
Manipulation of Photon Statistics of Highly Degenerate Incoherent Radiation 063601
M. Kindermann, Yu. V. Nazarov, and C. W. J. Beenakker

Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.

Multipulse Excitability in a Semiconductor Laser with Optical Injection 063901
Sebastian Wieczorek, Bernd Krauskopf, and Daan Lenstra
Experimental Observation of Wave Chaos in a Conventional Optical Resonator 064101
J. Dingjan, E. Altewischer, M. P. van Exter, and J. P. Woerdman
Coexistence of Two Granular Temperatures in Binary Vibrofluidized Beds 064301
R. D. Wildman and D. J. Parker
Heat-Flux Measurement in High-Prandtl-Number Turbulent Rayleigh-Bénard Convection 064501
Ke-Qing Xia, Siu Lam, and Sheng-Qi Zhou
Effect of Vorticity Production on the Structure and Velocity of Curved Flames 064502
Kirill A. Kazakov and Michael A. Liberman

Plasma and Beam Physics

Free-Electron RF-Pulse Compressor 064801
A. V. Savilov
Optimal Wire-Number Range for High X-Ray Power in Long-Implosion-Time Aluminum Z Pinches 065001
C. A. Coverdale, C. Deeney, M. R. Douglas, J. P. Apruzese, K. G. Whitney, J. W. Thornhill, and J. Davis
Transport Coefficients of the Yukawa One-Component Plasma 065002
Gwenaël Salin and Jean-Michel Caillol
Numerical Simulation of Ultracold Plasmas: How Rapid Intrinsic Heating Limits the Development of Correlation 065003
S. G. Kuzmin and T. M. O'Neil

Condensed Matter: Structure, etc.

Transitions from Vortex Lines to Sheets: Interplay of Topology and Dynamics in an Anisotropic Superfluid 065301
V. B. Eltsov, R. Blaauwgeers, N. B. Kopnin, M. Krusius, J. J. Ruohio, R. Schanen, and E. V. Thuneberg
Ferromagnetism of ^{3}He Films in the Low-Field Limit 065302
H. M. Bozler, Yuan Gu, Jinshan Zhang, K. S. White, and C. M. Gould
Kinetic Theory of Symmetry-Dependent Strength in Carbon Nanotubes 065501
Georgii G. Samsonidze, Guram G. Samsonidze, and Boris I. Yakobson
Chiral Polymer Hexatics: A New Twist on DNA 065502
M. J. Linehan
Cooperative Nucleation of Shear Dislocation Loops 065503
Y. Q. Sun, P. M. Hazzledine, and P. B. Hirsch
Induced Anticlinic Ordering and Nanophase Segregation of Bow-Shaped Molecules in a Smectic Solvent 065504
Prabal K. Maiti, Yves Lansac, Matthew A. Glaser, and Noel A. Clark
Observation of Kossel and Kikuchi Lines in Thermal Neutron Incoherent Scattering 065505
B. Sur, R. B. Rogge, R. P. Hammond, V. N. P. Anghel, and J. Katsaras
Free Volume and Density and Temperature Dependence of Diffusion Coefficients of Liquid Mixtures 065901
Kyunil Rah and Byung Chan Eu
Spontaneous Assembly of Perfectly Ordered Identical-Size Nanocluster Arrays 066101
Jian-Long Li, Jin-Feng Jia, Xue-Jin Liang, Xi Liu, Jun-Zhong Wang, Qi-Kun Xue, Zhi-Qiang Li, John S. Tse, Zhenyu Zhang, and S. B. Zhang
Intermolecular Bond Length of Ice on Ag(111) 066102
Karina Morgenstern and Jouko Nieminen
First-Principles Surface Phase Diagram for Hydrogen on GaN Surfaces 066103
Chris G. Van de Walle and J. Neugebauer

(Continued on Preceding Page)

Condensed Matter: Electronic Properties, etc.

Field-Dependent Anisotropy Change in a Supramolecular Mn(II)-[3 × 3] Grid 066401
O. Waldmann, L. Zhao, and L. K. Thompson

Shallow Donor State Due to Nitrogen-Hydrogen Complex in Diamond 066402
Takehide Miyazaki, Hideyo Okushi, and Tsuyoshi Uda

Vertex Corrections near the Stripe Phase 066403
S. Caprara, C. Di Castro, P. Werner, and W. Zwerger

Excitonic Effects in Solids Described by Time-Dependent Density-Functional Theory 066404
Lucia Reining, Valerio Olevano, Angel Rubio, and Giovanni Onida

Bipolar Doping and Band-Gap Anomalies in Delafossite Transparent Conductive Oxides 066405
Xiliang Nie, Su-Huai Wei, and S. B. Zhang

Spin Filtering of Free Electrons by Magnetic Multilayers: Towards an Efficient Self-Calibrated Spin Polarimeter ... 066601
C. Cacho, Y. Lassailly, H.-J. Drouhin, G. Lampel, and J. Peretti

Band-Gap Tuning and Linear Magnetoresistance in the Silver Chalcogenides 066602
M. Lee, T. F. Rosenbaum, M.-L. Saboungi, and H. S. Schnyders

Spin-Polarized Transport in Inhomogeneous Magnetic Semiconductors: Theory of Magnetic/Nonmagnetic p-n Junctions 066603
Igor Žutić, Jaroslav Fabian, and S. Das Sarma

Experimental Demonstration of Fermi Surface Effects at Filling Factor $5/2$ 066801
R. L. Willett, K. W. West, and L. N. Pfeiffer

Spectroscopic and Magnetic Mirages of Impurities in Nanoscopic Systems 066802
K. Hallberg, A. A. Correa, and C. A. Balseiro

Spin-Polarized Tunneling Spectroscopy of Co(0001) Surface States 066803
S. N. Okuno, T. Kishi, and K. Tanaka

One-Dimensional Energy Dispersion of Single-Walled Carbon Nanotubes by Resonant Electron Scattering 066804
Min Ouyang, Jin-Lin Huang, and Charles M. Lieber

Role of Bulk and Surface Phonons in the Decay of Metal Surface States 066805
A. Eiguren, B. Hellsing, F. Reinert, G. Nicolay, E. V. Chulkov, V. M. Silkin, S. Hüfner, and P. M. Echenique

Detection of Spin-Polarized Electrons Injected into a Two-Dimensional Electron Gas 066806
P. R. Hammar and Mark Johnson

Strong Renormalization of Phonon Frequencies in $Mg_{1-x}Al_xB_2$ 067001
B. Renker, K. B. Bohnen, R. Heid, D. Ernst, H. Schober, M. Koza, P. Adelmann, P. Schweiss, and T. Wolf

Electrostatic Tuning of the Hole Density in $NdBa_2Cu_3O_{7-\delta}$ Films and its Effect on the Hall Response 067002
S. Gariglio, C. H. Ahn, D. Matthey, and J.-M. Triscone

Vortex Configurations, Matching, and Domain Structure in Large Arrays of Artificial Pinning Centers 067003
S. B. Field, S. S. James, J. Barentine, V. Metlushko, G. Crabtree, H. Shtrikman, B. Ilic, and S. R. J. Brueck

Pinpointing Chiral Structures with Front-Back Polarized Neutron Reflectometry 067201
K. V. O'Donovan, J. A. Borchers, C. F. Majkrzak, O. Hellwig, and E. E. Fullerton

Magnetic Relaxations of Antiferromagnetic Nanoparticles in Magnetic Fields 067202
H. Mamiya, I. Nakatani, and T. Furubayashi

Order by Distortion and String Modes in Pyrochlore Antiferromagnets 067203
Oleg Tchernyshyov, R. Moessner, and S. L. Sondhi

Dynamics of Coherent Anharmonic Phonons in Bismuth Using High Density Photoexcitation 067401
Muneaki Hase, Masahiro Kitajima, Shin-ichi Nakashima, and Kohji Mizoguchi

Coherent Control of Femtosecond Energy Localization in Nanosystems 067402
Mark I. Stockman, Sergey V. Faleev, and David J. Bergman

Femtosecond Study of Self-Trapped Vibrational Excitons in Crystalline Acetanilide 067403
J. Edler, P. Hamm, and A. C. Scott

Direct Observation of Optically Forbidden Energy Transfer between CuCl Quantum Cubes via Near-Field Optical Spectroscopy 067404
Tadashi Kawazoe, Kiyoshi Kobayashi, Jungshik Lim, Yoshihito Narita, and Motoichi Ohtsu

Reappearance of Fine Structure as a Probe of Lifetime Broadening Mechanisms in the $4f^N \rightarrow 4f^{N-1}5d$ Excitation Spectra of Tb^{3+}, Er^{3+}, and Tm^{3+} in CaF_2 and $LiYF_4$ 067405
L. van Pieterson, M. F. Reid, and A. Meijerink

(Continued on Preceding Page)

Interdisciplinary Physics: Biological Physics, Quantum Information, etc.

Quantum Computation with Trapped Polar Molecules 067901
D. DeMille

Model for Bone Strength and Osteoporotic Fractures 068101
Gemunu H. Gunaratne, Chamith S. Rajapaksa, Kevin E. Bassler, Kishore K. Mohanty, and Sunil J. Wimalawansa

Optimal Intracellular Calcium Signaling 068102
J. W. Shuai and P. Jung

Tank Treading and Unbinding of Deformable Vesicles in Shear Flow: Determination of the Lift Force 068103
Manouk Abkarian, Colette Lartigue, and Annie Viallat

Coevolution of Quasispecies: B-Cell Mutation Rates Maximize Viral Error Catastrophes 068104
Christel Kamp and Stefan Bornholdt

Global Optimization by Energy Landscape Paving 068105
Ulrich H. E. Hansmann and Luc T. Wille

Sequence Determination from Overlapping Fragments: A Simple Model of Whole-Genome Shotgun Sequencing ... 068106
Bernard Derrida and Thomas M. A. Fink

Scaling Theory for Migration-Driven Aggregate Growth 068301
F. Leyvraz and S. Redner

Waiting-Time Statistics of Self-Organized-Criticality Systems 068302
R. Sánchez, D. E. Newman, and B. A. Carreras

Comments

Comment on "Elastoplastic Contact between Randomly Rough Surfaces" 069601
F. M. Borodich

Persson Replies 069602
B. N. J. Persson

Comment on "Reetrant Behavior of Relaxation Time with Viscosity at Varying Composition in Binary Mixtures" ... 069603
N. G. Almarza

Comment on "Chaotic Domain Patterns in Periodic Inhomogeneous Magnetic Films" 069701
A. N. Bogdanov and U. K. Rößler

Garcia *et al.* Reply 069702
N. Garcia, V. V. Osipov, E. V. Ponizovskaya, and A. del Moral

Misfolded Loops Decrease the Effective Rate of DNA Hairpin Formation 069801
A. Ansari, Y. Shen, and S. V. Kuznetsov

Goddard *et al.* Reply 069802
Noel Goddard, Grégoire Bonnet, Oleg Krichevsky, and Albert Libchaber

Errata

Erratum: Coulomb Explosion Patterns of Fast C_{60} Clusters in Solids [Phys. Rev. Lett. **85**, 1448 (2000)] 069901
You-Nian Wang, Hua-Tan Qiu, and Z. L. Mišković

Publisher's Note: Observation of $\overline{B}^0 \to D^0\pi^0$ and $\overline{B}^0 \to D^{*0}\pi^0$ [Phys. Rev. Lett. **88**, 062001 (2002)] 069902
T. E. Coan *et al.*