PHYSICAL REVIEW B

covering condensed matter and materials physics

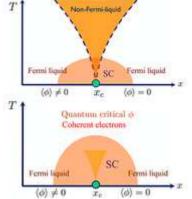
Volume 91, Issue 11, 15 March 2015

HIGHLIGHTED ARTICLES

Editors' Suggestion

Cooper pairing in non-Fermi liquids

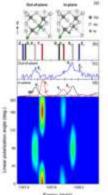
Max A. Metlitski, David F. Mross, Subir Sachdev, and T. Senthil Phys. Rev. B **91**, 115111 (2015) – Published 4 March 2015



Whether the non-Fermi-liquid behavior of fermionic systems, developing in the proximity of a quantum critical point, is stable or not toward the formation of Cooper pairs is an interesting and challenging open question in the physics of strongly correlated systems. In this new and interesting contribution to the field, the authors study systems where the non-Fermi-liquid behavior arises as a result of the interaction of a gapless bosonic mode with fermions in the vicinity of the Fermi surface. **Editors' Suggestion**

Dynamics of excitons bound to nitrogen isoelectronic centers in GaAs P. St-Jean, G. Éthier-Majcher, and S. Francoeur



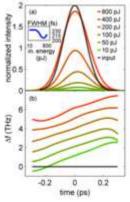


The first comprehensive study is made of the exciton dynamics and spin-relaxation processes in isoelectronic centers in GaAs, single excitons bound to two nitrogen atoms. Such atomic defects may offer advantageous properties for quantum information applications over the more established quantum dots and NV centers in diamond. Time-resolved spectroscopy is coupled with a unique analytical model.

Editors' Suggestion

Nonlinear pulse propagation in InAs/InP quantum dot optical amplifiers: Rabi oscillations in the presence of nonresonant nonlinearities

O. Karni, A. K. Mishra, G. Eisenstein, and J. P. Reithmaier Phys. Rev. B **91**, 115304 (2015) – Published 9 March 2015



There is interest in what happens to ultrashort light pulses propagating through a quantum-dot semiconductor optical amplifier waveguide. In this experiment, the influence of nonresonant propagation effects, such as linear dispersion, two-phonon absorption, and Kerr-like, on the intensity and frequency profile of the pulses is shown to be strong enough that they must be included in any modeling.

ARTICLES

Electronic structure and strongly correlated systems X-ray spectroscopic study of BaFeO3 thin films: An Fe4+ ferromagnetic insulator T. Tsuyama, T. Matsuda, S. Chakraverty, J. Okamoto, E. Ikenaga, A. Tanaka, T. Mizokawa, H. Y. Hwang, Y. Tokura, and H. Wadati Phys. Rev. B 91, 115101 (2015) – Published 2 March 2015 Nonequilibrium gap collapse near a first-order Mott transition Matteo Sandri and Michele Fabrizio Phys. Rev. B 91, 115102 (2015) – Published 2 March 2015 Interplay between pair- and charge-density-wave orders in underdoped cuprates Yuxuan Wang, Daniel F. Agterberg, and Andrey Chubukov Phys. Rev. B 91, 115103 (2015) – Published 2 March 2015 Diagrammatic expansion for positive density-response spectra: Application to the electron gas A.-M. Uimonen, G. Stefanucci, Y. Pavlyukh, and R. van Leeuwen Phys. Rev. B 91, 115104 (2015) – Published 2 March 2015 Convergence of guasiparticle self-consistent GW calculations of transition-metal monoxides Suvadip Das, John E. Coulter, and Efstratios Manousakis Phys. Rev. B 91, 115105 (2015) – Published 2 March 2015 Iterative backflow renormalization procedure for many-body ground-state wave functions of strongly interacting normal Fermi liquids Michele Taddei, Michele Ruggeri, Saverio Moroni, and Markus Holzmann Phys. Rev. B 91, 115106 (2015) – Published 2 March 2015 Localization length index and subleading corrections in a Chalker-Coddington model: A numerical study W. Nuding, A. Klümper, and A. Sedrakyan Phys. Rev. B 91, 115107 (2015) - Published 3 March 2015 Ultrafast electronic photoinduced phase transition in a two-dimensional charge-ordering system K. Iwano Phys. Rev. B 91, 115108 (2015) - Published 3 March 2015 Probing the v=52 quantum Hall state with electronic Mach-Zehnder interferometry Guang Yang Phys. Rev. B 91, 115109 (2015) – Published 3 March 2015 High-field ultrasound measurements in UPt3 and the single-energy-scale model of metamagnetism B. S. Shivaram, V. W. Ulrich, Pradeep Kumar, and V. Celli

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Transport and optical properties of single- and bilayer black phosphorus with defects Shengjun Yuan, A. N. Rudenko, and M. I. Katsnelson Phys. Rev. B 91, 115436 (2015) – Published 27 March 2015 Exciton binding energies and luminescence of phosphorene under pressure L. Seixas, A. S. Rodin, A. Carvalho, and A. H. Castro Neto Phys. Rev. B 91, 115437 (2015) – Published 27 March 2015 Interference and multiparticle effects in a Mach-Zehnder interferometer with single-particle sources Guillem Rosselló, Francesca Battista, Michael Moskalets, and Janine Splettstoesser Phys. Rev. B 91, 115438 (2015) – Published 27 March 2015 Tuning antiferromagnetism of vacancies with magnetic fields in graphene nanoflakes Matthias Droth and Guido Burkard Phys. Rev. B 91, 115439 (2015) – Published 30 March 2015 Aharonov-Bohm oscillations and electron gas transitions in hexagonal core-shell nanowires with an axial magnetic field Miguel Royo, Carlos Segarra, Andrea Bertoni, Guido Goldoni, and Josep Planelles Phys. Rev. B 91, 115440 (2015) – Published 30 March 2015 Measuring the local quantum capacitance of graphene using a strongly coupled graphene nanoribbon D. Bischoff, M. Eich, A. Varlet, P. Simonet, T. Ihn, and K. Ensslin Phys. Rev. B 91, 115441 (2015) – Published 30 March 2015 Diamagnetism and suppression of screening as hallmarks of electron-hole pairing in a double layer graphene system K. V. Germash and D. V. Fil Phys. Rev. B 91, 115442 (2015) – Published 31 March 2015 ERRATA Erratum: Quantization of surface polaritons [Phys. Rev. B 82, 165318 (2010)] G. D. Mahan Phys. Rev. B 91, 119901 (2015) - Published 13 March 2015 Erratum: van der Waals density functional made accurate [Phys. Rev. B 89, 121103(R) (2014)] Ikutaro Hamada Phys. Rev. B 91, 119902 (2015) - Published 20 March 2015 Publisher's Note: Molecular dynamics simulation of the growth of Cu nanoclusters from Cu ions in a plasma [Phys. Rev. B 90, 165421 (2014)] Alexey A. Tal, E. Peter Münger, Igor A. Abrikosov, Nils Brenning, Iris Pilch, and Ulf Helmersson Phys. Rev. B 91, 119903 (2015) – Published 24 March 2015 Publisher's Note: Analytic theory of Hund's metals: A renormalization group perspective [Phys. Rev. B 91, 041110(R) (2015)] Camille Aron and Gabriel Kotliar Phys. Rev. B 91, 119904 (2015) – Published 31 March 2015