# PHYSICAL REVIEW B™

**For editorial and subscription correspondence, please see inside front cover**
**(ISSN: 2469-9950)**

**PERIODICALS**
**Postmaster send address changes to:**

**APS Subscription Services**
**P.O. Box 41**
**Annapolis Junction, MD 20701**

**THIRD SERIES, VOLUME 100, NUMBER 8** *CONTENTS* **AUGUST 2019-15(II)**


## RAPID COMMUNICATIONS

### Electronic structure and strongly correlated systems


Raman scattering from current-stabilized nonequilibrium phases in $Ca_2RuO_4$ *(5 pages)* . . . . . 081101(R)
K. Fürsich, J. Bertinshaw, P. Butler, M. Krautloher, M. Minola, and B. Keimer

Complete description of the magnetic ground state in spinel vanadates *(5 pages)* . . . . . 081102(R)
Jyoti Krishna, N. Singh, S. Shallcross, J. K. Dewhurst, E. K. U. Gross, T. Maitra, and S. Sharma

Classes of metastable thermodynamic quantum time crystals *(5 pages)* . . . . . 081103(R)
S. I. Mukhin and T. R. Galimzyanov

Topology and observables of the non-Hermitian Chern insulator *(7 pages)* . . . . . 081104(R)
Mark R. Hirsbrunner, Timothy M. Philip, and Matthew J. Gilbert

Topological surface states above the Fermi level in $Hf_2Te_2P$ *(5 pages)* . . . . . 081105(R)
T. J. Boyle, A. Rossi, M. Walker, P. Carlson, M. K. Miller, J. Zhao, P. Klavins, C. Jozwiak, A. Bostwick, E. Rotenberg, V. Taufour, I. M. Vishik, and E. H. da Silva Neto

Obtaining Majorana and other boundary modes from the metamorphosis of impurity-induced states: Exact solutions via the T-matrix *(5 pages)* . . . . . 081106(R)
Vardan Kaladzhyan and Cristina Bena

Topological proximity effects in a Haldane graphene bilayer system *(6 pages)* . . . . . 081107(R)
Peng Cheng, Philipp W. Klein, Kirill Plekhanov, Klaus Sengstock, Monika Aidelsburger, Christof Weitenberg, and Karyn Le Hur

Universal shift of the fidelity susceptibility peak away from the critical point of the Berezinskii-Kosterlitz-Thouless quantum phase transition *(5 pages)* . . . . . 081108(R)
Lukasz Cincio, Marek M. Rams, Jacek Dziarmaga, and Wojciech H. Zurek

Interplay between band crossing and charge density wave instabilities *(5 pages)* . . . . . 081109(R)
P. D. Grigoriev, A. A. Sinchenko, P. A. Vorobyev, A. Hadj-Azzem, P. Lejay, A. Bosak, and P. Monceau

Conjectures about the ground-state energy of the Lieb-Liniger model at weak repulsion *(4 pages)* . . . . . 081110(R)
Zoran Ristivojevic



**Copyright 2019 by American Physical Society**



*(Continued)*



2469-9950(20190815)100:8;1-5


The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

**PHYSICAL REVIEW B** **THIRD SERIES, VOLUME 100, NUMBER 8** **AUGUST 2019-15(II)**

**Semiconductors I: bulk**

Picosecond time-resolved dynamics of energy transfer between GaN and the various excited states of $Eu^{3+}$ ions *(5 pages)* . . . . . 081201(R)
Ruoqiao Wei, Brandon Mitchell, Dolf Timmerman, Tom Gregorkiewicz, Wanxin Zhu, Jun Tatebayashi, Shuhei Ichikawa, Yasufumi Fujiwara, and Volkmar Dierolf

Phonon- and charged-impurity-assisted indirect free-carrier absorption in $Ga_2O_3$ *(4 pages)* . . . . . 081202(R)
Hartwin Peelaers and Chris G. Van de Walle

Subband picture of high-harmonic generation in solids *(6 pages)* . . . . . 081203(R)
Tomohiro Tamaya and Takeo Kato

Ideal type-II Weyl phonons in wurtzite CuI *(6 pages)* . . . . . 081204(R)
Jian Liu, Wenjie Hou, En Wang, Shengjie Zhang, Jia-Tao Sun, and Sheng Meng

**Semiconductors II: surfaces, interfaces, microstructures, and related topics**

Dynamic spin-charge coupling: ac spin Hall magnetoresistance in nonmagnetic conductors *(4 pages)* . . . . . 081301(R)
P. S. Alekseev and M. I. Dyakonov

**Surface physics, nanoscale physics, low-dimensional systems**

Electric circuits for non-Hermitian Chern insulators *(5 pages)* . . . . . 081401(R)
Motohiko Ezawa

Disentangling spin-orbit coupling and local magnetism in a quasi-two-dimensional electron system *(5 pages)* . . . . 081402(R)
Xinxin Cai, Yilikal Ayino, Jin Yue, Peng Xu, Bharat Jalan, and Vlad S. Pribiag

Quantum thermoelectrics based on two-dimensional semi-Dirac materials *(5 pages)* . . . . . 081403(R)
Alestin Mawrie and Bhaskaran Muralidharan

Fluctuation-driven Coulomb drag in interacting quantum dot systems *(6 pages)* . . . . . 081404(R)
Miguel A. Sierra, David Sánchez, Antti-Pekka Jauho, and Kristen Kaasbjerg

Theory of quantum oscillations in quasicrystals: Quantizing spiral Fermi surfaces *(6 pages)* . . . . . 081405(R)
Stephen Spurrier and Nigel R. Cooper

Examining the Casimir puzzle with an upgraded AFM-based technique and advanced surface cleaning *(5 pages)* . . . . . 081406(R)
Mingyue Liu, Jun Xu, G. L. Klimchitskaya, V. M. Mostepanenko, and U. Mohideen

Carrier recombination mechanism at defects in wide band gap two-dimensional materials from first principles *(6 pages)* . . . . . 081407(R)
Feng Wu, Tyler J. Smart, Junqing Xu, and Yuan Ping

℘ Spinning radiation from a topological insulator *(4 pages)* . . . . . 081408(R)
Emroz Khan and Evgenii E. Narimanov

Metasurface bilayer for slow microwave surface waves *(4 pages)* . . . . . 081409(R)
J. D. de Pineda, G. P. Ward, A. P. Hibbins, and J. R. Sambles

Nonreciprocal and collimated surface plasmons in drift-biased graphene metasurfaces *(6 pages)* . . . . . 081410(R)
D. Correas-Serrano and J. S. Gomez-Diaz

*(Continued)*

℘ The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

**PHYSICAL REVIEW B** **THIRD SERIES, VOLUME 100, NUMBER 8** **AUGUST 2019-15(II)**

Spectroscopic signatures of spin-orbit coupling and free excitons in individual suspended carbon nanotubes *(5 pages)* . . . . . 081411(R)
Morgane Gandil, Kazunari Matsuda, Brahim Lounis, and Philippe Tamarat

Optimized cavity-mediated dispersive two-qubit gates between spin qubits *(6 pages)* . . . . . 081412(R)
M. Benito, J. R. Petta, and Guido Burkard

## ARTICLES

### Electronic structure and strongly correlated systems

Hidden SU(2) symmetries, the symmetry hierarchy, and the emergent eightfold way in spin-1 quantum magnets *(17 pages)* . . . . . 085101
Hui-Ke Jin, Jian-Jian Miao, and Yi Zhou

Upper limit on shift current generation in extended systems *(5 pages)* . . . . . 085102
Liang Z. Tan and Andrew M. Rappe

Dimensional crossover in the SU(4) Heisenberg model in the six-dimensional antisymmetric self-conjugate representation revealed by quantum Monte Carlo and linear flavor-wave theory *(8 pages)* . . . . . 085103
Francisco H. Kim, Fakher F. Assaad, Karlo Penc, and Frédéric Mila

Doping-driven metal-insulator transition in correlated electron systems with strong Hund's exchange coupling *(10 pages)* . . . . . 085104
Jakob Steinbauer, Luca de' Medici, and Silke Biermann

Diffusive transport in a quasiperiodic Fibonacci chain: Absence of many-body localization at weak interactions *(14 pages)* . . . . . 085105
Vipin Kerala Varma and Marko Žnidarič

Strain tuning and anisotropic spin correlations in iron-based systems *(10 pages)* . . . . . 085106
Roland Willa, Max Fritz, and Jörg Schmalian

Tunneling density of states, correlation energy, and spin polarization in the fractional quantum Hall regime *(10 pages)* . . . . . 085107
Gaurav Chaudhary, Dmitry K. Efimkin, and Allan H. MacDonald

Magnetic field-dependent low-energy magnon dynamics in $\alpha$-$RuCl_3$ *(9 pages)* . . . . . 085108
Ilkem Ozge Ozel, Carina A. Belvin, Edoardo Baldini, Itamar Kimchi, Seunghwan Do, Kwang-Yong Choi, and Nuh Gedik

Magic angle hierarchy in twisted graphene multilayers *(9 pages)* . . . . . 085109
Eslam Khalaf, Alex J. Kruchkov, Grigory Tarnopolsky, and Ashvin Vishwanath

Non-Hermitian Majorana modes protect degenerate steady states *(7 pages)* . . . . . 085110
Simon Lieu

Berry curvature unravelled by the anomalous Nernst effect in $Mn_3Ge$ *(10 pages)* . . . . . 085111
Christoph Wuttke, Federico Caglieris, Steffen Sykora, Francesco Scaravaggi, Anja U. B. Wolter, Kaustuv Manna, Vicky Süss, Chandra Shekhar, Claudia Felser, Bernd Büchner, and Christian Hess

Effect of propagator renormalization on the band gap of insulating solids *(7 pages)* . . . . . 085112
Sergei Iskakov, Alexander A. Rusakov, Dominika Zgid, and Emanuel Gull

*(Continued)*

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

**PHYSICAL REVIEW B** **THIRD SERIES, VOLUME 100, NUMBER 8** **AUGUST 2019-15(II)**


Generalized route to effective field theories for quantum systems with local constraints *(17 pages)* . . . . . 085113
Attila Szabó, Garry Goldstein, Claudio Castelnovo, and Alexei M. Tsvelik

Nonequilibrium spectral functions from multiterminal steady-state density functional theory *(6 pages)* . . . . . 085114
Stefan Kurth, David Jacob, Nahual Sobrino, and Gianluca Stefanucci

Construction of many-body eigenstates with displacement transformations in disordered systems *(10 pages)* . . . . . 085115
Miguel Ortuño, Andres M. Somoza, and Louk Rademaker

Non-Abelian twist to integer quantum Hall states *(12 pages)* . . . . . 085116
Pedro L. S. Lopes, Victor L. Quito, Bo Han, and Jeffrey C. Y. Teo

Catalysis of dynamical chiral symmetry breaking by chiral chemical potential in Dirac semimetals *(9 pages)* . . . . 085117
V. V. Braguta, M. I. Katsnelson, A. Yu. Kotov, and A. M. Trunin

Topologically protected photonic modes in composite quantum Hall/quantum spin Hall waveguides *(7 pages)* . . . 085118
Shukai Ma, Bo Xiao, Yang Yu, Kueifu Lai, Gennady Shvets, and Steven M. Anlage

Comparison of quantum spin Hall states in quasicrystals and crystals *(7 pages)* . . . . . 085119
Huaqing Huang and Feng Liu

Influence of crystal structure on charge carrier effective masses in $BiFeO_3$ *(10 pages)* . . . . . 085120
J. Kane Shenton, David R. Bowler, and Wei Li Cheah

Interplay of disorder and interactions in a system of subcritically tilted and anisotropic three-dimensional Weyl fermions *(13 pages)* . . . . . 085121
Tycho S. Sikkenk and Lars Fritz

Magnetic phase diagrams of the ferromagnetic Kondo lattice $CePd_2Al_8$ *(6 pages)* . . . . . 085122
Le Wang, Cuixiang Wang, Ziyi Liu, Jinguang Cheng, Shanshan Miao, Youting Song, Youguo Shi, and Yi-feng Yang

Dynamics of compact quantum electrodynamics at large fermion flavor *(12 pages)* . . . . . 085123
Wei Wang, Da-Chuan Lu, Xiao Yan Xu, Yi-Zhuang You, and Zi Yang Meng

Quantum oscillations in strongly correlated topological Kondo insulators *(11 pages)* . . . . . 085124
Robert Peters, Tsuneya Yoshida, and Norio Kawakami

Cancellation of vacuum diagrams and the long-time limit in out-of-equilibrium diagrammatic quantum Monte Carlo *(11 pages)* . . . . . 085125
Alice Moutenet, Priyanka Seth, Michel Ferrero, and Olivier Parcollet

Band edge evolution of transparent $ZnM_2^{III}O_4$ ($M^{III}$ = Co, Rh, Ir) spinels *(7 pages)* . . . . . 085126
Matthew J. Wahila, Zachary W. Lebens-Higgins, Adam J. Jackson, David O. Scanlon, Tien-Lin Lee, Jiaye Zhang, Kelvin H. L. Zhang, and Louis F. J. Piper

Foliated fracton order in the Majorana checkerboard model *(12 pages)* . . . . . 085127
Taige Wang, Wilbur Shirley, and Xie Chen

Proximity exchange effects in $MoSe_2$ and $WSe_2$ heterostructures with $CrI_3$: Twist angle, layer, and gate dependence *(10 pages)* . . . . . 085128
Klaus Zollner, Paulo E. Faria Junior, and Jaroslav Fabian


*(Continued)*

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

**PHYSICAL REVIEW B** **THIRD SERIES, VOLUME 100, NUMBER 8** **AUGUST 2019-15(II)**

Interaction-dependent anisotropy of fractional quantum Hall states *(11 pages)* . . . . . 085129
Akshay Krishna, Fan Chen, Matteo Ippoliti, and R. N. Bhatt

Exact zero modes in a quantum compass chain under inhomogeneous transverse fields *(16 pages)* . . . . . 085130
Ning Wu and Wen-Long You

Momentum-resolved lattice dynamics of parent and electron-doped $Sr_2IrO_4$ *(8 pages)* . . . . . 085131
C. D. Dashwood, H. Miao, J. G. Vale, D. Ishikawa, D. A. Prishchenko, V. V. Mazurenko, V. G. Mazurenko, R. S. Perry, G. Cao, A. de la Torre, F. Baumberger, A. Q. R. Baron, D. F. McMorrow, and M. P. M. Dean

Nearly degenerate $p_x + ip_y$ and $d_{x^2-y^2}$ pairing symmetry in the heavy fermion superconductor $YbRh_2Si_2$ *(6 pages)* 085132
Yu Li, Qianqian Wang, Yuanji Xu, Wenhui Xie, and Yi-feng Yang

Bond particle theory for the pseudogap phase of underdoped cuprates *(14 pages)* . . . . . 085133
R. Eder

Transport across junctions of pseudospin-one fermions *(11 pages)* . . . . . 085134
Sourav Nandy, K. Sengupta, and Diptiman Sen

Deformation induced pseudomagnetic fields in complex carbon architectures *(13 pages)* . . . . . 085135
R. Gupta, S. Maisel, F. Rost, D. Weckbecker, M. Fleischmann, H. Soni, S. Sharma, A. Görling, and S. Shallcross

℘ Chiral twist on the high-$T_c$ phase diagram in moiré heterostructures *(18 pages)* . . . . . 085136
Yu-Ping Lin and Rahul M. Nandkishore

Highly anisotropic interlayer magnetoresitance in ZrSiS nodal-line Dirac semimetal *(7 pages)* . . . . . 085137
M. Novak, S. N. Zhang, F. Orbanić, N. Biliškov, G. Eguchi, S. Paschen, A. Kimura, X. X. Wang, T. Osada, K. Uchida, M. Sato, Q. S. Wu, O. V. Yazyev, and I. Kokanović

℘ Higher-order Floquet topological phases with corner and bulk bound states *(12 pages)* . . . . . 085138
Martin Rodriguez-Vega, Abhishek Kumar, and Babak Seradjeh

Spin-orbit entangled $j = \frac{1}{2}$ moments in $Ba_2CeIrO_6$: A frustrated fcc quantum magnet *(10 pages)* . . . . . 085139
A. Revelli, C. C. Loo, D. Kiese, P. Becker, T. Fröhlich, T. Lorenz, M. Moretti Sala, G. Monaco, F. L. Buessen, J. Attig, M. Hermanns, S. V. Streltsov, D. I. Khomskii, J. van den Brink, M. Braden, P. H. M. van Loosdrecht, S. Trebst, A. Paramekanti, and M. Grüninger

Theory of collective magnetophonon resonance and melting of a field-induced Wigner solid *(11 pages)* . . . . . 085140
Luca V. Delacrétaz, Blaise Goutéraux, Sean A. Hartnoll, and Anna Karlsson

Crystal electric field splitting and $f$-electron hybridization in heavy-fermion $CePt_2In_7$ *(6 pages)* . . . . . 085141
Yu-Xia Duan, Cheng Zhang, Ján Rusz, Peter M. Oppeneer, Tomasz Durakiewicz, Yasmine Sassa, Oscar Tjernberg, Martin Månsson, Magnus H. Berntsen, Fan-Ying Wu, Yin-Zou Zhao, Jiao-Jiao Song, Qi-Yi Wu, Yang Luo, Eric D. Bauer, Joe D. Thompson, and Jian-Qiao Meng

Higher-form symmetries and $d$-wave superconductors from doped Mott insulators *(12 pages)* . . . . . 085142
Ki-Seok Kim and Yuji Hirono

Resonant x-ray emission and valence-band lifetime broadening in $LiNO_3$ *(8 pages)* . . . . . 085143
John Vinson, Terrence Jach, Matthias Müller, Rainer Unterumsberger, and Burkhard Beckhoff

Optical signatures of the chiral anomaly in mirror-symmetric Weyl semimetals *(7 pages)* . . . . . 085144
Aaron Hui, Yi Zhang, and Eun-Ah Kim

*(Continued)*

℘ The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

**PHYSICAL REVIEW B** **THIRD SERIES, VOLUME 100, NUMBER 8** **AUGUST 2019-15(II)**

Origin of quasilocal plasmons in Nb-substituted $EuTiO_3$ *(9 pages)* . . . . . 085145
A. Chaudhuri, A. Midya, K. Rubi, X. Chi, T. C. Asmara, X. J. Yu, R. Mahendiran, and A. Rusydi

DFT+DMFT study of oxygen vacancies in a Mott insulator *(6 pages)* . . . . . 085146
Jaime Souto-Casares, Nicola A. Spaldin, and Claude Ederer

Origin of the enhanced ferroelectricity in multiferroic $SmMn_2O_5$ *(9 pages)* . . . . . 085147
S. Mansouri, S. Jandl, M. Balli, P. Fournier, Y. Ishii, H. Kimura, M. Orlita, and M. Chaker

**Semiconductors I: bulk**

Interseries transitions between Rydberg excitons in $Cu_2O$ *(13 pages)* . . . . . 085201
Sjard Ole Krüger and Stefan Scheel

Electronic structure as a guide in screening for potential thermoelectrics: Demonstration for half-Heusler compounds *(11 pages)* . . . . . 085202
Zhenzhen Feng, Yuhao Fu, Aditya Putatunda, Yongsheng Zhang, and David J. Singh

Generalized Fourier's law for nondiffusive thermal transport: Theory and experiment *(11 pages)* . . . . . 085203
Chengyun Hua, Lucas Lindsay, Xiangwen Chen, and Austin J. Minnich

Hole mobility of strained GaN from first principles *(16 pages)* . . . . . 085204
Samuel Poncé, Debdeep Jena, and Feliciano Giustino

**Semiconductors II: surfaces, interfaces, microstructures, and related topics**

Effect of optically induced potential on the energy of trapped exciton polaritons below the condensation threshold *(11 pages)* . . . . . 085301
M. Pieczarka, M. Boozarjmehr, E. Estrecho, Y. Yoon, M. Steger, K. West, L. N. Pfeiffer, K. A. Nelson, D. W. Snoke, A. G. Truscott, and E. A. Ostrovskaya

Pseudodrag of a polariton superfluid *(7 pages)* . . . . . 085302
Igor Y. Chestnov, Yuri G. Rubo, and Alexey V. Kavokin

Non-Abelian Berry phase for open quantum systems: Topological protection versus geometric dephasing *(23 pages)* . . . . . 085303
Kyrylo Snizhko, Reinhold Egger, and Yuval Gefen

Evolution of the free energy of the GaN(0001) surface based on first-principles phonon calculations *(12 pages)* . . . . . 085304
Pawel Kempisty and Yoshihiro Kangawa

Hyperfine interaction for holes in quantum dots: $k \cdot p$ model *(12 pages)* . . . . . 085305
Paweł Machnikowski, Krzysztof Gawarecki, and Łukasz Cywiński

Topologically protected wave packets and quantum rings in silicene *(11 pages)* . . . . . 085306
Bartłomiej Szafran, Bartłomiej Rzeszotarski, and Alina Mreńca-Kolasińska

Dynamics of crosshatch patterns in heteroepitaxy *(6 pages)* . . . . . 085307
Fabrizio Rovaris, Marvin H. Zoellner, Peter Zaumseil, Anna Marzegalli, Luciana Di Gaspare, Monica De Seta, Thomas Schroeder, Peter Storck, Georg Schwalb, Giovanni Capellini, and Francesco Montalenti

*(Continued)*

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

PHYSICAL REVIEW B THIRD SERIES, VOLUME 100, NUMBER 8 AUGUST 2019-15(II)

Floquet dynamical quantum phase transitions *(11 pages)* . . . . . 085308
Kai Yang, Longwen Zhou, Wenchao Ma, Xi Kong, Pengfei Wang, Xi Qin, Xing Rong, Ya Wang, Fazhan Shi, Jiangbin Gong, and Jiangfeng Du

Tuning the topological features of quantum-dot hydrogen and helium by a magnetic field *(11 pages)* . . . . . 085309
Wenchen Luo and Tapash Chakraborty

**Surface physics, nanoscale physics, low-dimensional systems**

Chemical doping induced zone-edge phonon renormalization in single-layer $MoS_2$ *(9 pages)* . . . . . 085401
Ziqian Wang, Guangxue Zhao, Ruichun Luo, Isaac Johnson, Hamzeh Kashani, and Mingwei Chen

Tunable visible-light excitonic absorption and high photoconversion efficiency in two-dimensional group-VI monolayer materials *(7 pages)* . . . . . 085402
Jingjing Min, Chunxiang Zhao, Zaiping Zeng, Yu Jia, and Zuliang Du

Layer-dependent intrinsic anomalous Hall effect in $Fe_3GeTe_2$ *(6 pages)* . . . . . 085403
Xianqing Lin and Jun Ni

Gate-tunable quantum Hall effects in defect-suppressed $Bi_2Se_3$ films *(5 pages)* . . . . . 085404
Nikesh Koirala, Maryam Salehi, Jisoo Moon, and Seongshik Oh

Supremacy of incoherent sudden cycles *(5 pages)* . . . . . 085405
Jukka P. Pekola, Bayan Karimi, George Thomas, and Dmitri V. Averin

Berry curvature induced thermopower in type-I and type-II Weyl semimetals *(14 pages)* . . . . . 085406
Kamal Das and Amit Agarwal

Spin-orbit coupling induced robust spin-Seebeck effect and pure thermal spin currents in achiral molecule systems *(8 pages)* . . . . . 085407
Hua-Hua Fu, Gui-Fang Du, Dan-Dan Wu, Qing-Bo Liu, and Ruqian Wu

Topology protection–unprotection transition: Example from multiterminal superconducting nanostructures *(11 pages)* . . . . . 085408
Xiao-Li Huang and Yuli V. Nazarov

Consistent description of mesoscopic transport: Case study of current-dependent magnetoconductance in single GaN:Ge nanowires *(7 pages)* . . . . . 085409
Patrick Uredat, Pascal Hille, Jörg Schörmann, Martin Eickhoff, Peter J. Klar, and Matthias T. Elm

Nonlocal transport in superconducting heterostructures based on Weyl semimetals *(12 pages)* . . . . . 085410
Hai Li and Gang Ouyang

Distinctive optoelectronic properties of nanostructured $MoS_2$ bilayers *(17 pages)* . . . . . 085411
Vladan Mlinar

Induced spin-orbit coupling in twisted graphene–transition metal dichalcogenide heterobilayers: Twistronics meets spintronics *(15 pages)* . . . . . 085412
Alessandro David, Péter Rakyta, Andor Kormányos, and Guido Burkard

Formation of two-dimensional small polarons at the conducting $LaAlO_3/SrTiO_3$ interface *(7 pages)* . . . . . 085413
Weilong Kong, Jun Zhou, Yong Zheng Luo, Tong Yang, Shijie Wang, Jingsheng Chen, Andrivo Rusydi, Yuan Ping Feng, and Ming Yang

*(Continued)*

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

**PHYSICAL REVIEW B** **THIRD SERIES, VOLUME 100, NUMBER 8** **AUGUST 2019-15(II)**

Quasiparticles of a periodically driven quantum dot coupled between superconducting and normal leads *(9 pages)* 085414
B. Baran and T. Domański

Ballistic thermoelectric properties of monolayer semiconducting transition metal dichalcogenides and oxides *(10 pages)* . . . . . 085415
G. Özbal, R. T. Senger, C. Sevik, and H. Sevinçli

Stability, efficiency, and mechanism of *n*-type doping by hydrogen adatoms in two-dimensional transition metal dichalcogenides *(10 pages)* . . . . . 085416
Sehoon Oh, June Yeong Lim, Seongil Im, and Hyoung Joon Choi

*Ab initio* approach to lattice softening of an Al slab driven by collective electronic excitations after ultrashort laser pulse irradiation *(6 pages)* . . . . . 085417
Hiroki Katow and Yoshiyuki Miyamoto

Levitons in superconducting point contacts *(10 pages)* . . . . . 085418
Matteo Acciai, Flavio Ronetti, Dario Ferraro, Jérôme Rech, Thibaut Jonckheere, Maura Sassetti, and Thierry Martin

Protocol for a resonantly driven three-qubit Toffoli gate with silicon spin qubits *(7 pages)* . . . . . 085419
M. J. Gullans and J. R. Petta

*Ab initio* investigation of single-layer high thermal conductivity boron compounds *(14 pages)* . . . . . 085420
Hang Fan, Huan Wu, Lucas Lindsay, and Yongjie Hu

Optical excitation of surface plasmons and terahertz emission from metals *(5 pages)* . . . . . 085421
I. V. Oladyshkin, D. A. Fadeev, and V. A. Mironov

Effect of stacking structure on lithium adsorption and diffusion in bilayer black phosphorene *(13 pages)* . . . . . 085422
Ruina Hu, Guigui Xu, Yanmin Yang, Jian-Min Zhang, Kehua Zhong, and Zhigao Huang

Effects of strain on electronic and magnetic properties of $Co/WS_2$ nanolayer: A density functional and Monte Carlo study *(9 pages)* . . . . . 085423
Hamideh Kahnouji, S. Javad Hashemifar, Nafiseh Rezaei, and Mojtaba Alaei

Quantized Fermi arc mediated transport in Weyl semimetal nanowires *(12 pages)* . . . . . 085424
Vardan Kaladzhyan and Jens H. Bardarson

Temperature dependence of the side-jump spin Hall conductivity *(5 pages)* . . . . . 085425
Cong Xiao, Yi Liu, Zhe Yuan, Shengyuan A. Yang, and Qian Niu

Metasurface-mediated anisotropic radiative heat transfer between nanoparticles *(12 pages)* . . . . . 085426
Yong Zhang, Mauro Antezza, Hong-Liang Yi, and He-Ping Tan

Exotic impurity-induced states in single-layer *h*-BN: The role of sublattice structure and intervalley interactions *(12 pages)* . . . . . 085427
Saif Ullah, Fernando Sato, Marcos G. Menezes, and Rodrigo B. Capaz

Jackiw-Rebbi zero modes in non-uniform topological insulator nanowire *(6 pages)* . . . . . 085428
Sayan Jana, Arijit Saha, and Sourin Das

Manipulating Majorana zero modes in double quantum dots *(12 pages)* . . . . . 085429
Jesus D. Cifuentes and Luis G. G. V. Dias da Silva

*(Continued)*

The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).

**PHYSICAL REVIEW B** **THIRD SERIES, VOLUME 100, NUMBER 8** **AUGUST 2019-15(II)**

℘ Phonon engineering with superlattices: Generalized nanomechanical potentials *(11 pages)* . . . . . 085430
O. Ortíz, M. Esmann, and N. D. Lanzillotti-Kimura

Dynamic anapole in metasurfaces made of sculptured cylinders *(11 pages)* . . . . . 085431
Evangelia Takou, Anna C. Tasolamprou, Odysseas Tsilipakos, and Eleftherios N. Economou

Hydrogen ion scattering from a potassium impurity adsorbed on graphene *(15 pages)* . . . . . 085432
M. A. Romero, A. Iglesias-García, Evelina A. García, and E. C. Goldberg

Charge transfer statistics and qubit dynamics at the tunneling Fermi-edge singularity *(12 pages)* . . . . . 085433
V. V. Ponomarenko and I. A. Larkin

RKKY interaction in biased single-layer silicene *(12 pages)* . . . . . 085434
Moslem Zare

Single atom laser in normal-superconductor quantum dots *(12 pages)* . . . . . 085435
Gianluca Rastelli and Michele Governale

Giant optical activity and Kerr effect in type-I and type-II Weyl semimetals *(16 pages)* . . . . . 085436
Kabyashree Sonowal, Ashutosh Singh, and Amit Agarwal

Scanning tunneling microscope study of quantum Hall isospin ferromagnetic states in the zero Landau level in a graphene monolayer *(6 pages)* . . . . . 085437
Si-Yu Li, Yu Zhang, Long-Jing Yin, and Lin He

Many-electron effective potential in low-dimensional nanostructures: Towards understanding the Wigner crystallization *(8 pages)* . . . . . 085438
Reyna Méndez-Camacho, Esteban Cruz-Hernández, and Ramón Castañeda-Priego

Cavity quantum electrodynamic analysis of spasing in nanospherical dimers *(13 pages)* . . . . . 085439
Tharindu Warnakula, Sarath D. Gunapala, Mark I. Stockman, and Malin Premaratne

Isotropic charge screening of anisotropic black phosphorus revealed by potassium adatoms *(6 pages)* . . . . . 085440
Zhen Tian, Yu Gan, Taiming Zhang, Binbin Wang, Hengxing Ji, Yexin Feng, and Jiamin Xue

## ERRATA

Erratum: Spin dynamics of hot excitons in diluted magnetic semiconductors with spin-orbit interaction [Phys. Rev. B **100**, 045306 (2019)] *(1 page)* . . . . . 089901(E)
F. Ungar, P. I. Tamborenea, and V. M. Axt

Erratum: Role of intermediate-range order in predicting the fragility of network-forming liquids near the rigidity transition [Phys. Rev. B **87**, 054202 (2013)] *(1 page)* . . . . . 089902(E)
D. L. Sidebottom and S. E. Schnell

Erratum: Dynamic light scattering in network-forming sodium ultraphosphate liquids near the glass transition [Phys. Rev. B **80**, 064201 (2009)] *(1 page)* . . . . . 089903(E)
R. Fabian, Jr. and D. L. Sidebottom

℘ The editors and referees of PRB find these papers to be of particular interest, importance, or clarity. Please see our Announcement Phys. Rev. B 77, 130001 (2008).