

VALERI N. KOTOV

Refereed Publications

Total citations = 2721, h-index = 23

Citation metrics and links to articles available at:

<http://scholar.google.com/citations?user=NebmKN8AAAAJ>

Most articles (including recently submitted) also available at:

http://arxiv.org/find/cond-mat/1/au:+Kotov_V/0/1/0/all/0/1

53. “Theory of liquid film growth and wetting instabilities on graphene,”
Sanghita Sengupta, Nathan S. Nichols, Adrian Del Maestro, and Valeri N. Kotov,
Physical Review Letters **120**, 236802 (2018).
Preprint at: <http://arxiv.org/abs/1711.09901>
52. “Excitonic Mass Gap in Uniaxially Strained Graphene,”
A. Sharma, V.N. Kotov, and A.H. Castro Neto,
Physical Review B **95**, 235124 (2017)
51. “Infrared Dynamics of Cold Atoms on Hot Graphene Membranes,”
S. Sengupta, V.N. Kotov, and D.P. Clougherty,
Physical Review B **93**, 235437 (2016)
50. “Adsorption by design: tuning atom-graphene van der Waals interactions via mechanical strain,”
N.S. Nichols, A. Del Maestro, C. Wexler, and V.N. Kotov,
Physical Review B **93**, 205412 (2016)
49. “Designing Quantum Spin-Orbital Liquids in Artificial Mott Insulators,”
X. Dou, V.N. Kotov, and B. Uchoa,
Scientific Reports **6**:31737 (2016),
<http://www.nature.com/articles/srep31737>
48. “Valley Order and Loop Currents in Graphene on Hexagonal Boron Nitride,”
B. Uchoa, V.N. Kotov, and M. Kindermann,
Physical Review B **91**, 121412(R) (2015), Rapid Communication,
Preprint at: <http://arxiv.org/abs/1404.5005>
47. “Van der Waals forces and electron-electron interactions in two strained graphene layers,”
A. Sharma, P. Harnish, A. Sylvester, V.N. Kotov, and A.H. Castro Neto,
Physical Review B **89**, 235425 (2014),
Preprint at: <http://arxiv.org/abs/1402.3369>
46. “Effect of Uniaxial Strain on Ferromagnetic Instability and Formation of Localized Magnetic States on Adatoms in Graphene,”
A. Sharma, V.N. Kotov, and A.H. Castro Neto,
Physical Review B **87**, 155431 (2013),
Preprint at: <http://arxiv.org/abs/1301.3169>

45. “Interacting Anisotropic Dirac Fermions in Strained Graphene and Related Systems,”
A. Sharma, V.N. Kotov, and A.H. Castro Neto,
submitted to Physical Review Letters (2012),
Preprint at: <http://arxiv.org/abs/1206.5427>
44. “Electron-Electron Interactions in Graphene: Current Status and Perspectives,”
V.N. Kotov, B. Uchoa, V.M. Pereira, F. Guinea, and A.H. Castro Neto,
Reviews of Modern Physics **84**, 1067 (2012).
43. “Thermodynamics of a gas of deconfined bosonic spinons in two dimensions,”
A.W. Sandvik, V.N. Kotov, and O.P. Sushkov,
Physical Review Letters **106**, 207203 (2011).
42. Reply to Comment on “Quantum Phase Transition in the Four-Spin Exchange
Antiferromagnet,”
V.N. Kotov, D.X. Yao, A.H. Castro Neto, and D.K. Campbell,
Physical Review B **82**, 136402 (2010).
41. “ $1/N$ Expansion in Correlated Graphene,”
V.N. Kotov, B. Uchoa, and A.H. Castro Neto,
Physical Review B **80**, 165424 (2009).
40. “Weak Antiferromagnetic Order in Anisotropic Quantum Pyrochlores,”
V.N. Kotov, submitted to Physical Review B, under revision, Preprint: <http://arxiv.org/abs/0810.1051>
39. “Quantum Phase Transition in the Four-Spin Exchange Antiferromagnet,”
V.N. Kotov, D.X. Yao, A.H. Castro Neto, and D.K. Campbell,
Physical Review B **80**, 174403 (2009).
38. “Adatoms in Graphene,”
A.H. Castro Neto, V.N. Kotov, J. Nilsson, V.M. Pereira, N.M.R. Peres, and B. Uchoa,
for the Proceedings of the “Graphene Week 2008,” ICTP, Trieste, arXiv:0812.2072.
Solid State Communications **149**, 1094 (2009).
37. “Polarization Charge Distribution in Gapped Graphene: Perturbation Theory and Exact
Diagonalization Analysis,”
V.N. Kotov, V.M. Pereira, and B. Uchoa,
Physical Review B **78**, 075433 (2008).
Selected for the Virtual Journal of Nanoscale Science & Technology (September 8, 2008).
36. “Supercritical Coulomb Impurities in Gapped Graphene,”
V.M. Pereira, V.N. Kotov, and A.H. Castro Neto,
Physical Review B **78**, 085101 (2008).
Selected for the Virtual Journal of Nanoscale Science & Technology (August 18, 2008).
35. “Localized Magnetic States in Graphene,”
B. Uchoa, V.N. Kotov, N.M.R. Peres, and A.H. Castro Neto,
Physical Review Letters **101**, 026805 (2008).
Selected for the Virtual Journal of Nanoscale Science & Technology (July 21, 2008).

34. “Screening of Coulomb Impurities in Graphene,”
I.S. Terekhov, A.I. Milstein, V.N. Kotov, and O.P. Sushkov,
Physical Review Letters **100**, 076803 (2008).
Selected for the Virtual Journal of Nanoscale Science & Technology (March 10, 2008).
33. “Electron-Electron Interactions in the Vacuum Polarization of Graphene,”
V.N. Kotov, B. Uchoa, and A.H. Castro Neto,
Physical Review B **78**, 035119 (2008).
32. “AC Hopping Magnetotransport Across the Spin Flop Transition in Lightly Doped La_2CuO_4 ,”
O.P. Sushkov and V.N. Kotov,
Physical Review B **77**, 054506 (2008).
31. “Quantum Phase Transitions beyond the Dilute Bose Gas Limit,”
V.N. Kotov, D.X. Yao, A.H. Castro Neto, and D.K. Campbell,
for Proceedings of SCES07, Houston, arXiv:0704.2439.
30. “Negative Hopping Magnetoresistance and Dimensional Crossover in Lightly Doped Cuprate Superconductors,”
V.N. Kotov, O.P. Sushkov, M.B. Silva Neto, L. Benfatto, and A.H. Castro Neto,
Physical Review B **76**, 224512 (2007).
29. “Stability of the Spiral Phase and Superconductivity in the Two-Dimensional t-J model,”
O.P. Sushkov and V.N. Kotov,
Journal of Physics and Chemistry of Solids **67**, 99 (2006).
28. “Spiral Spin Order and Transport Anisotropy in Underdoped Cuprates,”
V.N. Kotov and O.P. Sushkov,
AIP Conference Proceedings **816**, 112 (2006), arXiv:cond-mat/0510416.
27. “Theory of Anisotropic Hopping Transport due to Spiral Correlations in the Spin-Glass Phase of Underdoped Cuprates,”
V.N. Kotov and O.P. Sushkov,
Physical Review B **72**, 184519 (2005).
26. “Dzyaloshinsky-Moriya Induced Order in the Spin-Liquid Phase of the Pyrochlore Antiferromagnet,”
V.N. Kotov, M. Elhajal, M.E. Zhitomirsky, and F. Mila,
Physical Review B **72**, 014421 (2005).
25. “Theory of Incommensurate Magnetic Correlations across the Insulator-Superconductor Transition in underdoped $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$,”
O.P. Sushkov and V.N. Kotov,
Physical Review Letters **94**, 097005 (2005).
24. “Weak Antiferromagnetism and Dimer Order in Quantum Systems of Coupled Tetrahedra,”
V.N. Kotov, M.E. Zhitomirsky, M. Elhajal, and F. Mila,
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23. “Stability of the Spiral Phase in the Two-Dimensional Extended t-J Model,”
V.N. Kotov and O.P. Sushkov,
Physical Review B **70**, 195105 (2004).
22. “Soliton Binding and Low-lying Singlets in Frustrated odd-legged $S=1/2$ Spin Tubes,”
A. Läuscher, R.M. Noack, Gr. Misguich, V.N. Kotov, and F. Mila,
Physical Review B **70**, 060405(R) (2004).
21. “Superconducting Spiral Phase in the Two-Dimensional t-J Model,”
O.P. Sushkov and V.N. Kotov,
Physical Review B **70**, 024503 (2004).
20. “Patterns of Symmetry Breaking in Systems of Coupled Tetrahedra,”
V.N. Kotov, M.E. Zhitomirsky, M. Elhajal, and F. Mila,
Journal of Physics: Condensed Matter **16**, S905 (2004).
19. “The Kondo Lattice Model from Strong-Coupling Viewpoint,”
V.N. Kotov and P.J. Hirschfeld,
Physica B **312**, 174 (2002); arXiv:cond-mat/0111587.
18. “The Magnetic Spin Ladder $(\text{C}_5\text{H}_{12}\text{N})_2\text{CuBr}_4$: High Field Magnetization and Scaling Near Quantum Criticality,”
B.C. Watson, V.N. Kotov, M.W. Meisel, D.W. Hall, G.E. Granroth, M.T. Montfrooij, S.E. Nagler, D.A. Jensen, R. Backov, M.A. Petruska, G.E. Fanucci, and D.R. Talham,
Physical Review Letters **86**, 5168 (2001).
17. “Critical Dynamics of Singlet Excitations in a Frustrated Spin System,”
V.N. Kotov, M.E. Zhitomirsky, and O.P. Sushkov, Physical Review B **63**, 064412 (2001).
16. “Collective Singlet Excitations and Evolution of Raman Spectral Weights in the 2D Spin Dimer Compound $\text{SrCu}_2(\text{BO}_3)_2$,”
P. Lemmens, M. Grove, M. Fischer, G. Güntherodt, V.N. Kotov, H. Kageyama, K. Onizuka, and Y. Ueda,
Physical Review Letters **85**, 2605 (2000).
15. “Spontaneous Dimer Order, Spectrum of Excitations, and Quantum Phase Transitions in the $J_1 - J_2$ Heisenberg Model,”
V.N. Kotov, J. Oitmaa, O.P. Sushkov, and W.H. Zheng,
Philosophical Magazine B **80**, 1483 (2000).
14. “Spin-Peierls Transition in NaV_2O_5 in High Magnetic Fields,”
S.G. Bompadre, A.F. Hebard, V.N. Kotov, D. Hall, G. Maris, J. Baas, and T.T.M. Palstra,
Physical Review B **61**, R13321 (2000).
13. “Nature of the Transition from the Spontaneously Dimerized to the Neel Phase in the Two-Dimensional $J_1 - J_2$ Model,”
V.N. Kotov and O.P. Sushkov,
Physical Review B **61**, 11820 (2000).

12. “Low-Energy Singlet and Triplet Excitations in the Spin-Liquid Phase of the Two-Dimensional $J_1 - J_2$ Model,”
V.N. Kotov, J. Oitmaa, O.P. Sushkov, and W.H. Zheng,
Physical Review B **60**, 14613 (1999).
11. “Spectrum of Elementary and Collective Excitations in the Dimerized $S=1/2$ Heisenberg Chain with Frustration,”
P.V. Shevchenko, V.N. Kotov, and O.P. Sushkov,
Physical Review B **60**, 3305 (1999).
10. “Excitation Spectrum and Ground State Properties of the $S=1/2$ Heisenberg Ladder with Staggered Dimerization,”
V.N. Kotov, J. Oitmaa, and W.H. Zheng,
Physical Review B **59**, 11377 (1999).
9. “Novel Approach to Description of Spin Liquid Phases in Low-Dimensional Quantum Antiferromagnets,”
O.P. Sushkov, V.N. Kotov, W.H. Zheng, and J. Oitmaa,
Physica B **261**, 1023 (1999).
8. “Excitation Spectrum of the $S=1/2$ Spin Ladder with Frustration: Elementary Quasiparticles and Many-Particle Bound States,”
V.N. Kotov, O.P. Sushkov, and R. Eder,
Physical Review B **59**, 6266 (1999).
7. “Bound States of Magnons in the $S=1/2$ Quantum Spin Ladder,”
O.P. Sushkov and V.N. Kotov,
Physical Review Letters **81**, 1941 (1998).
6. “Magnetic Impurity in the Two-Dimensional Heisenberg Antiferromagnet,”
V.N. Kotov, J. Oitmaa, and O.P. Sushkov,
Physical Review B **58**, 8495 (1998).
5. “Novel Approach to Description of Spin Liquid Phases in Low-Dimensional Quantum Antiferromagnets,”
V.N. Kotov, O.P. Sushkov, W.H. Zheng, and J. Oitmaa,
Physical Review Letters **80**, 5790 (1998).
4. “Local Magnetic Impurities in the 2D Quantum Heisenberg Antiferromagnet,”
V.N. Kotov, J. Oitmaa, and O.P. Sushkov,
Physical Review B **58**, 8500 (1998).
3. “Two-Chain Spin Ladder with Frustrating Second-Neighbor Interactions,”
W.H. Zheng, V. Kotov, and J. Oitmaa,
Physical Review B **57**, 11439 (1998).
2. “Local Impurities in Two-Dimensional Quantum Antiferromagnets,”
V.N. Kotov, J. Oitmaa, and O.P. Sushkov,
Journal of Magnetism and Magnetic Materials **177**, 727 (1998).

1. “The Lifshitz Tail in a Model of Interacting Particles,”
G. Forgacs and V. Kotov,
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Thesis Work

Ph.D. Thesis: “The Instanton Method in the Theory of Disordered Interacting Particle Systems,” Clarkson University (1996).

M.S. Thesis: “Electronic Spectrum of Quasicrystals with Impurities,” Sofia University (1991), (in bulgarian).