

Victor Gurarie

Curriculum Vitae

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Employment History:

2015-current	Professor, University of Colorado, Boulder CO
2010-2015	Associate Professor, University of Colorado, Boulder CO
2003-2010	Assistant Professor, University of Colorado, Boulder CO
2002-2003	EPSRC Advanced Fellow, Oxford University, Oxford, UK
2000-2002	Postdoc with the Condensed Matter Theory Group, Oxford University, Oxford, UK
1997-2000	Postdoctoral Fellowship in Condensed Matter Theory at the Institute for Theoretical Physics, University of California Santa Barbara
1996-1997	Member of the Institute for Advanced Study, Princeton NJ

Education:

1996	Princeton University Ph.D. in Theoretical Physics. Advisor: Alexander Polyakov Thesis: "Statistics without Thermodynamic Equilibrium"
1992	M.A. in Physics Moscow Institute of Physics and Technology
1991	B.A. in Physics

Honors:

2009	Friedrich Wilhelm Bessel Research Award by the Humboldt Foundation, Germany
2005	National Science Foundation Career Award
2004	Junior Faculty Development Award, University of Colorado
2002	Advanced Research Fellowship by the Engineering and Physical Sciences Research Council, United Kingdom

Publications:

1. “Quenched-induced topological p -wave superfluids, M. S. Foster, V. Gurarie, M. Dzero and E. Yuzbashyan, Phys. Rev. Lett. **113**, 076403 (2014)
2. “Logarithmic operators and logarithmic conformal field theories”, V. Gurarie, J. of Phys. A: Math. Gen. **46**, 494003 (2013)
3. “Quantum quench in a $p + ip$ superfluid: Winding numbers and topological states far from equilibrium”, M. S. Foster, V. Gurarie, M. Dzero and E. Yuzbashyan, Phys. Rev. B **88**, 104511 (2013)
4. “From Cosmology to Cold Atoms: Observation of Sakharov Oscillations in a Quenched Atomic Superfluid”, C.-L. Hung, V. Gurarie, C. Chin, Science **341**, 1213 (2013)
5. “ Z_2 topological invariants in two dimensions from quantum Monte Carlo”, T. Lang, A. Essin, V. Gurarie, S. Wessel, Phys. Rev. B **87**, 205101 (2013)
6. “Topological invariants for fractional quantum Hall states”, V. Gurarie, A. Essin, JETP Lett. **97**, 223 (2013)
7. “Freezing of an unconventional two-dimensional plasma”, V. Herland, E. Babaev, P. Bonderson, V. Gurarie, C. Nayak, L. Radzihovsky, A. Sudbo, Phys. Rev. B **87**, 075117 (2013)
8. “Global large time dynamics and the generalized Gibbs ensemble”, V. Gurarie, J. State Mechanics - Theor. Exp. P02014 (2013)
9. “Reentrant BCS-BEC Crossover and a Superfluid-Insulator Transition in Optical Lattices”, Z. Shen, L. Radzihovsky, V. Gurarie, Phys. Rev. Lett. **109**, 245302 (2012)
10. “Topological invariants and interacting one-dimensional fermionic systems”, S. Manmana, A. Essin, A. M. Noack, M. Reinhard, V. Gurarie, Phys. Rev. B **86**, 205119 (2012)
11. “Antiferromagnetic topological insulators in cold atomic gases”, A. Essin, V. Gurarie, Phys. Rev. B **85**, 041604 (2012)
12. “High-temperature properties of fermionic alkaline-earth-metal atoms in optical lattices”, K. Hazzard, V. Gurarie, M. Hermele, A.-M. Rey, Phys. Rev. A **85**, 041604 (2012)
13. “Screening properties and phase transitions in unconventional plasmas for Ising-type quantum Hall states”, E. Harland, E. Babaev, P. Bonderson, V. Gurarie, C. Nayak, A. Sudbo, Phys. Rev. B **85**, 024520 (2012)
14. “Topological liquids and valence cluster states in two-dimensional SU(N) magnets”, M. Hermele, V. Gurarie, Phys. Rev. B **84**, 174441 (2011)
15. “Bulk-boundary correspondence of topological insulators from their respective Green’s functions”, A. Essin and V. Gurarie, Phys. Rev. B **84**, 125132 (2011)
16. “Lattice-Induced Resonances in One-Dimensional Bosonic Systems”, J. von Stecher, V. Gurarie, L. Radzihovsky, A.-M. Rey, Phys. Rev. Lett. **106**, 235301 (2011)
17. “Single-particle Green’s functions and interacting topological insulators”, V. Gurarie, Phys. Rev. B **83**, 085426 (2011)
18. “Plasma analogy and non-Abelian statistics for Ising-type quantum Hall states”, P. Bonderson, V. Gurarie, C. Nayak, Phys. Rev. B **73**, 075303 (2011)

19. "Structure and consequences of vortex-core states in p-wave superfluids", G. Moller, N. R. Cooper, V. Gurarie, Phys. Rev. B **83**, 014513 (2011)
19. "Heavy fermions in an optical lattice", M. Foss-Feig, M. Hermele, V. Gurarie, A.-M. Rey, Phys. Rev. A **82**, 053624 (2010)
21. "Relation between ac Josephson effect and double-well Bose-Einstein-condensate oscillations", L. Radzihovsky, V. Gurarie, Phys. Rev. A **81**, 063609 (2011)
22. "Two-orbital SU(N) magnetism with ultracold alkaline-earth atoms", A. V. Gorshkov, M. Hermele, V. Gurarie, C. Xu, P. S. Julienne, J. Ye, P. Zoller, E. Demler, M. D. Lukin, A. M. Rey, Nat. Phys. **6**, 289 (2010)
23. "Mott Insulators of Ultracold Fermionic Alkaline Earth Atoms: Underconstrained Magnetism and Chiral Spin Liquid", Michael Hermele, Victor Gurarie, Ana Maria Rey, Phys. Rev. Lett. **103**, 135301 (2009)
24. "Nonequilibrium dynamics of weakly and strongly paired superconductors", V. Gurarie, Phys. Rev. Lett. **103**, 075301 (2009)
25. "Central Charge and Quasihole Scaling Dimensions From Model Wavefunctions: Towards Relating Jack Wavefunctions to W-algebras", B. Andrei Bernevig, Victor Gurarie, Steven H. Simon, J. Phys. A: Math. Theor. **42**, 245206 (2009)
26. "Feshbach molecule production in fermionic atomic gases", V. Gurarie, Phys. Rev. A **80**, 023626 (2009)
27. "Non-adiabaticity and large fluctuations in a many particle Landau Zener problem", A. Altland, V. Gurarie, T. Kriecherbauer, A. Polkovnikov, Phys. Rev. A **79**, 042703 (2009)
28. "Stability of the fermionic gases close to a p-wave Feshbach resonance", J. Levinsen, N. R. Cooper, V. Gurarie, Phys. Rev. A **78**, 063616 (2008)
29. "Excitations of the One Dimensional Bose-Einstein Condensates in a Random Potential", V. Gurarie, G. Refael, J. T. Chalker, Phys. Rev. Lett. **101**, 170407 (2008)
30. "Collapse and revivals of a the photon field in a many-body Landau-Zener process", J. Keeling and V. Gurarie, Phys. Rev. Lett. **101**, 170407
31. "Many body generalization of the Landau Zener problem", A. Altland and V. Gurarie, Phys. Rev. Lett. **100**, 063602
32. "Strongly resonant p-wave superfluids", J. Levinsen, N. Cooper, V. Gurarie, Phys. Rev. Lett. **99**, 210402 (2007)
33. "Zero modes of two dimensional chiral p-wave superconductors", V. Gurarie and L. Radzihovsky, Phys. Rev. B **75**, 212509 (2007)
34. "Resonantly paired fermionic superfluids", V. Gurarie and L. Radzihovsky, Ann. Phys. **322**, 2 (2007)
35. "The equivalence between the canonical and microcanonical ensembles when applied to large systems", V. Gurarie, Am. J. Phys. **75**, 747 (2007)
36. "Superfluid transition in a rotating resonantly-interacting Fermi gas", M. Y. Veillette, D. E. Sheehy, L. Radzihovsky, V. Gurarie, Phys. Rev. Lett. **97**, 250401 (2006).
37. "Properties of strongly paired fermionic condensates", V. Gurarie and J. Levinsen, Phys. Rev. A **73**, 053607 (2006).

38. "One-dimensional gas of bosons with Feshbach-resonant interactions", V. Gurarie, Phys. Rev. A **73**, 033612 (2006).
39. "Phonons in Random Disordered Media and the Boson Peak", V. Gurarie and A. Altland, Phys. Rev. Lett. **94**, 245502 (2005).
40. "Quantum Phase Transitions across a p-Wave Feshbach Resonance", V. Gurarie, L. Radzihovsky, A. Andreev, Phys. Rev. Lett. **94**, 230403 (2005).
41. "Spectra of pinned charge density waves with background current", V. Gurarie and J. Levinsen, J. Phys. A: Math. Gen. **38**, 4085 (2005).
42. "Conformal Field Theory at central charge $c=0$ and Two-Dimensional Critical Systems with Quenched Disorder", V. Gurarie and A. Ludwig. A review article in the Ian Kogan Memorial Collection "From Fields to Strings: Circumnavigating Theoretical Physics", World Scientific (2005) (*non peer-reviewed*).
43. "Nonequilibrium dynamics and thermodynamics of a degenerate Fermi gas across a Feshbach resonance", A. V. Andreev, V. Gurarie, L. Radzihovsky, Phys. Rev. Lett. **93**, 130402 (2004).
44. "Magnon localization in Mattis glass", Gurarie and A. Altland, J. Phys. A: Math. Gen. **37**, 9357 (2004).
45. "A superconductor-insulator transition in a one-dimensional array of Josephson junctions", V. Gurarie and A. Tsvelik, J. Low Temp. Phys. **135**, 245 (2004).
46. "Bosonic Excitations in Random Media", V. Gurarie and J.T. Chalker), Phys. Rev. B **68**, 134207 (2003).
47. "Some Generic Aspects of Bosonic Excitations in Disordered Systems", V. Gurarie and J.T. Chalker, Phys. Rev. Lett. **89**, 136801 (2002).
48. "Tracer Diffusion in a Dislocated Lamellar System", V. Gurarie and A. Lobkovsky, Phys. Rev. Lett. **88**, 178301 (2002).
49. "Integer Quantum Hall Transition and Random SU(N) Rotation", S. Boldyrev and V. Gurarie, J. Phys. Cond. Mat. **15**, L125 (2003).
50. "Quantum Hall Transition in the Classical Limit", V. Gurarie and A. Zee, Int. J. Mod. Phys. **15**, 1225 (2001).
51. "Conformal Algebras of 2D Disordered Systems", V. Gurarie and A.W.W. Ludwig, J. Phys. A: Math. Gen. **35**, L377 (2002).
52. "Orthogonality Catastrophe and Spontaneous Symmetry Breaking in Double-layer Fermi-liquid-like States", V. Gurarie and Y.-B. Kim, Europhys. Lett. **52**, 667 (2000).
53. "Parafermion Statistics and Quasihole Excitations for the Generalizations of the Paired Quantum Hall States", V. Gurarie and E. Rezayi, Phys. Rev. **B61**, 5473 (2000)
54. "c-Theorem for Disordered Systems", V. Gurarie, Nucl. Phys. **B546**, 765 (1999)
55. "Density of States in the non-Hermitian Lloyd model", V. Gurarie, C. Mudry, P.W. Brouwer, B.I. Halperin and A. Zee, Phys. Rev. **B58**, 13539 (1998).
56. "A Plasma Analogy and Berry Matrices for Non-Abelian Quantum Hall States", V. Gurarie and C. Nayak, Nucl. Phys. **B506**, 685 (1997).

57. "The Haldane-Rezayi Quantum Hall State and Conformal Field Theory", V. Gurarie, M. Flohr and C. Nayak, Nucl. Phys. **B498**, 513 (1997).
58. "Instantons in the Burgers Equation", V. Gurarie and A. Migdal, Phys. Rev. **E54**, 4908 (1996).
59. "Field Theory and the Phenomenon of Turbulence", V. Gurarie, in Recent Progress in Statistical Mechanics and Quantum Field Theory, edited by P Bouwknecht *et al* (World Scientific, 1995), p 131 (*non peer-reviewed*)
60. "Runaway Quarks", Phys. Rev. **D52**(3), 1639 (1995)
61. "Probability Density, Diagrammatic Technique, and Epsilon Expansion in the Theory of Wave Turbulence", V. Gurarie, Nucl. Phys. **B441**, 569 (1995).
62. "Logarithmic Operators in Conformal Field Theory", V. Gurarie, Nucl. Phys. **B410**, 535 (1993)