Curriculum Vitae

1 Personal Information

Victor M. GALITSKI
Professor of Physics
in the Department of Physics
within the College of Computer, Mathematical, and Natural Sciences (CMNS)
at the University of Maryland, College Park
Fellow of the Joint Quantum Institute

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Degrees

August 2002 : Ph.D. in theoretical condensed matter physics with the focus on superconductivity
Thesis title: "Quantum Fluctuations in Superconductors" (Advisor: Prof. A. Larkin)
Theoretical Physics Institute, University of Minnesota, Minneapolis

August 1999 : Ph.D. in applied math (asymptotic methods for solving partial
differential equations applied to magneto-hydrodynamics of turbulent flows)
Thesis title: "Spectrum of Parker's equations" (Advisor: Prof. D. Sokoloff)
Moscow Engineering Physics Institute (MEPhI), Moscow, Russia

April 1998 : M.S. degree in Engineering (diploma *Cum Laude*), MEPhI

Employment

04/2019 onwards : Chesapeake Chair of Theoretical Physics, University of Maryland, College Park, MD

07/2013 onwards : Full Professor, Department of Physics, University of Maryland, College Park, MD

01/2016 onwards : Honorary Professor at Monash University, Melbourne, Australia

06/2017 onwards : Editor, Annals of Physics, New York, NY

09/2006 onwards : Fellow of the Joint Quantum Institute, University of Maryland, College Park

07/2011 – 6/2013 : Associate Professor with tenure, Department of Physics, University of Maryland

09/2006 – 6/2011 : Asst. Professor, Department of Physics, University of Maryland

08/2005 – 08/2006 : Asst. Professor, Department of Physics, Univ. of Virginia, Charlottesville

09/2004 – 08/2005 : Research Fellow, Kavli Institute for Theoretical Physics
University of California, Santa Barbara

09/2002 – 08/2004 : Postdoctoral Associate, Condensed Matter Theory Center
Department of Physics, University of Maryland, College Park

09/1999 – 08/2002 : Research/Teaching Assistant, Department of Physics, University of Minnesota

09/1997 – 03/1998 : Internship at the ISN, *Institut des Sciences Nucleaire de Grenoble*, France

2 Professional Research and Creative Activities

2.a Fellowships, Awards, and Other Distinctions

1996	: George Soros Fellowship for outstanding educational achievements at the undergraduate level
1997 – 1998	: Award of French Government (General Council of Isere, France)
1998	: Diploma *Cum Laude* from Moscow Engineering Physics Institute
May 2009	: National Science Foundation CAREER Award
Fall 2009, 2010, 2013 – 2016	: Named one of the University of Maryland Research Leaders
October 2009	: CMPS Board of Visitors Faculty Award
September 2011	: Recipient of the Richard A. Ferrell Distinguished Faculty Fellowship
August 2013	: Simons Investigator Award
September 2014	: Future Fellowship from the Australian Research Council
September 2016	: Elected Member of the Board of the Aspen Center for Physics, Aspen, CO

2.b Books

- "*Exploring Quantum Mechanics: A Collection of 700+ Solved Problems for Students, Lecturers, and Researchers*" by Galitskii, V. M., Karnakov, B. M., Kogan, V. I., and Galitski, V. M., Jr., Oxford University Press, London U.K. (2013)

http://www.amazon.com/Exploring-Quantum-Mechanics-Collection-Researchers/dp/0199232725

2.c Articles in Refereed Journals

1. Rozenbaum, E. B., Ganeshan, S., and Galitski, .V., "Lyapunov Exponent and Four-Point Correlator's Growth Rate in a Chaotic System," *Physical Review Letters* **118**, 086801 (2017)
2. Stern, A., Dzero, M., Galitski, V. M., Fisk, .Z., and Xia, J., "Surface-dominated conduction up to 240K in the Kondo insulator SmB_6 under strain," *NATURE Materials*, advance online publication, http://dx.doi.org/10.1038/nmat4888 (2017)
3. Aycock, L. M. Hurst, H. M., Genkina, D., Lu, H.-I., Galitski, V. and Spielman, I. B., "Impurity driven Brownian motion of solitons in elongated Bose-Einstein Condensates," *Proceedings of*

the National Academy of Sciences of the USA (PNAS) **114**, 2503 (2017)

4. Gong, X., Kargarian, M., Stern, A., Yue, D., Zhou, H., Jin, X., Galitski, V. M., Yakovenko, V. M., and Xia, J., "Time-reversal symmetry-breaking superconductivity in epitaxial bismuth/nickel bilayers," *Science Advances* **3**, e1602579 (2017)
5. Ganeshan, S. Gorshkov, A. V., Gurarie, V., and Galitski, V. M., "Exactly soluble model of boundary degeneracy," Editors' Suggestion in *Physical Review B* **95**, 045309 (2017)
6. Rozenbaum, E. B. and Galitski, V., "Dynamical localization of coupled relativistic kicked rotors," *Physical Review B* **95**, 064303 (2017)
7. Hurst, H. M., Efimkin, D. K., Spielman, I. B., and Galitski, V. M., "Kinetic theory of dark solitons with tunable friction," *Physical Review A* **95**, 053604 (2017)
8. Sedrakyan, T. A., Galitski, V. M., and Kamenev, A., "Topological spin ordering via Chern-Simons superconductivity," *Physical Review B* **95**, 094511 (2017)
9. Raines, Z. and Galitski, V., "Enriched axial anomaly in Weyl materials," Rapid Communication in *Physical Review B* **96**, 161115 (2017)
10. Kargarian, M., Efimkin, D. K. and Galitski, V. M., "Amperean Pairing at the Surface of Topological Insulators," *Physical Review Letters* **117**, 076806 (2016)
11. Efimkin, D. K., Hofmann, J., and Galitski, V. M., "Non-Markovian Quantum Friction of Bright Solitons in Superfluids," *Physical Review Letters* **116**, 225301 (2016)
12. Efimkin, D. K. and Galitski, V. M., "Anomalous Coulomb Drag in Electron-Hole Bilayers due to the Formation of Excitons," *Physical Review Letters* **116**, 046801 (2016)
13. Stern, A., Efimkin, D. K., Galitski, V., Fisk, Z., and Xia, J., "Radio Frequency Tunable Oscillator Device Based on a SmB_6 Microcrystal," *Physical Review Letters* **116**, 166603 (2016)
14. Hofmann, J., Lobos, A. M., and Galitski, V. M., "Parity effect in a mesoscopic Fermi gas," Rapid Communication in *Physical Review A* **93**, 061602(R) (2016)
15. Raines, Z. M., Stanev, V. G., and Galitski, V. M., "Hybridization of Higgs modes in a bond-density-wave state in cuprates," *Physical Review B* **92**, 184511 (2015)
16. Hurst, H., Efimkin, D. K. and Galitski, V. M., "Transport of Dirac electrons in a random magnetic field in topological heterostructures," *Physical Review B* **93**, 245111 (2016)
17. Cem Keser, A., Ganeshan, S., Refael, G., and Galitski, V. M., "Dynamical many-body localization in an integrable model," *Physical Review A* **94**, 085120 (2016)
18. Dzero, M., Xia, J., Galitski, V. M., and Coleman, P., "Review: Topological Kondo Insulators," Invited review article article in the *Annual Review of Condensed Matter Physics* **7**, 249 (2016)
19. Sedrakyan, T., Galitski, V. M., and Kamenev, A.,"Statistical transmutation in Floquet driven optical lattices," *Physical Review Letters* **115**, 195301 (2015)
20. Nuepane, M., Xu, S.-Y., Ishida, Y., Jia, S., Fregoso, B. M., Liu, C., Belopolski, I., Bian, G., Alidoust, N., Durakiewicz, T., Galitski, V., Shin, S., Cava, R. J., and Hasan, M. Z., "Gigantic Surface Lifetime of an Intrinsic Topological Insulator," Editors' suggestion in *Physical Review Letters* **115**, 116801 (2015)
21. Lobos, A. M., Dobry, A. O., and Galitski, V. M., "Magnetic end-states in a strongly-interacting one-dimensional topological Kondo insulator," *Physical Review X* **5**, 021017 (2015)

22. Roy, B., Hofmann, J., Stanev, V. G., Sau, J. D., and Galitski, V. M., "Excitonic and Nematic Instabilities on the Surface of Topological Kondo Insulators," *Physical Review B* **92**, 245431 (2015)

23. Dzero, M., Vavilov, M. G., Kechedzhi, K., and Galitski, V. M., "Non-universal weak antilocalization effect in cubic topological Kondo insulators," *Physical Review B* **92**, 165415 (2015)

24. Wilson, J. H., Allocca, A. A., and Galitski, V. M., "Repulsive Casimir force between Weyl semimetals," *Physical Review B* **91**, 235115 (2015)

25. Allocca, A. A., Wilson, J. H., and Galitski, V., "Quantum interference phenomena in the Casimir effect," *Physical Review A* **91**, 062512 (2015)

26. Hurst, H. M., Efimkin, D. K., Zang, J., and Galitski, V., "Charged skyrmions on the surface of a topological insulator," Rapid Communication in *Physical Review B* **91**, 060401(R) (2015)

27. Radić, J., Natu, S. S., and Galitski, V., "Strong correlation effects in a two-dimensional Bose gas with quartic dispersion," *Physical Review A* **91**, 063634 (2015)

28. Cem Keser, A., Stanev, V., and Galitski, V. M., "Long range p-wave proximity effect into a disordered metal," *Physical Review B* **91**, 094518 (2015)

29. Raines, Z. M., Stanev, V., and Galitski, V. M., "Enhancement of superconductivity via periodic modulation in a three-dimensional model of cuprates," *Physical Review B* **91**, 184506 (2015)

30. Efimkin, D. K. and Galitski, V., "Moving solitons in a one-dimensional fermionic superfluid," *Physical Review A* **91**, 023616 (2015)

31. Wilson, J., Efimkin, D. K. and Galitski, V., "Resonant Faraday and Kerr effects due to in-gap states on the surface of a topological insulator," *Physical Review B* **90**, 205432 (2014)

32. Radić, J., Natu, S. S., and Galitski, V., "Stoner ferromagnetism in a thermal pseudospin-1/2 Bose gas," *Physical Review Letters* **113**, 185302 (2014)

33. Roy, B., Sau, J. D., Dzero, M., and Galitski, V., "Excitonic and Nematic Instabilities on the Surface of Topological Kondo Insulators," *Physical Review B* **90**, 155314 (2014)

34. Efimkin, D. K. and Galitski, V., " Strongly interacting Dirac liquid on the surface of a topological Kondo insulator," Rapid Communication in *Physical Review B* **90**, 081113(R) (2014)

35. Allocca, A. A., Wilson, J. H., and Galitski, V., "Nonanalytic behavior of the Casimir force across a Lifshitz transition in a spin-orbit-coupled material," *Physical Review B* **90**, 075420 (2014)

36. Boyd, G. R., Takei, S., and Galitski, V., "Nonequilibrium probe of paired electron pockets in the underdoped cuprates," *Solid State Communications* **189**, 63 (2014)

37. Wilson, J., Mitchell, J., and Galitski, V., "Probing the structure of entanglement with entanglement moments," *Solid State Communications* **195**, 43 (2014)

38. Stanev, V. and Galitski, V., "Quasiclassical Eilenberger theory of the topological proximity effect in a superconducting nanowire," *Physical Review B* **89**, 174521 (2014)

39. Efimkin, D. K. and Galitski, V., "Self-consistent theory of ferromagnetism on the surface of a topological insulator," *Physical Review B* **89**, 115431 (2014)

40. Di Ciolo, A., Carrasquilla, J., Becca, F., Galitski, V., and Rigol, M., "Spiral antiferromagnets beyond the spin-wave approximation: Frustrated X Y and Heisenberg models on the honeycomb

lattice," *Physical Review B* **89**, 094413 (2014)

41. Radić, J., Natu, S. S., and Galitski, V. "Interaction-Tuned Dynamical Transitions in a Rashba Spin-Orbit-Coupled Fermi Gas," *Physical Review Letters* **112**, 095302 (2014)
42. Galitski, V. M. and Spielman, I., "Spin-orbit coupling in quantum gases," NATURE **494**, 49 (2013)
43. Gangopadhyay, A., Galitski, V. M., and Müller, M., "Magnetoresistance of an Anderson insulator of bosons," *Physical Review Letters* **111**, 026801 (2013)
44. Lindner, N. H., Bergman, D. L., Refael, G., and Galitski, V. M., "Topological Floquet spectrum in three dimensions via a two-photon resonance," *Physical Review B* **87**, 235131 (2013)
45. Takei, S., Fregoso, B. M., Galitski, V. M., and Das Sarma, S., "Topological superconductivity and Majorana fermions in hybrid structures involving cuprate high-T_c superconductors," *Physical Review B* **87**, 014504 (2013)
46. Fregoso, B. M., Wang, Y.H., Gedik, N., and Galitski, V., "Driven electronic states at the surface of a topological insulator," *Physical Review B* **88**, 155129 (2013)
47. Dzero, M. and Galitski, M., "A new exotic state in an old material: a tale of SmB6," Journal of Experimental and Theoretical Physics **117** (3), 499-507 (2013)
48. Radić, J., Di Ciolo, A., Sun, K., and Galitski, V. M., "Exotic Quantum Spin Models in Spin-Orbit-Coupled Mott Insulators," *Physical Review Letters* **109**, 085303 (2012)
49. Boyd, G. R., Barnett, R., and Galitski, V. M., "SU(3) Spin-Orbit Coupling in Ultracold Atoms," *Physical Review Letters* **109**, 235308 (2012)
50. Anderson, B. M., Juzeliunas, G., Galitski, V. M., and Spielman, I. B., "Synthetic 3D Spin-Orbit Coupling," Editors' suggestion in *Physical Review Letters* **108**, 235301 (2012)
51. Takei, S. and Galitski, V. M., " Microscopic theory for a ferromagnetic-nanowire/superconductor heterostructure: Transport, fluctuations and topological superconductivity," *Physical Review* B **86**, 054521 (2012)
52. Boyd, G. R., Galitski, V. M., and Yakovenko, V. M., " Detecting D-Wave Pairing and Collective Modes in Fermionic Condensates with Bragg Scattering," *Physical Review* A **85**, 063619 (2012)
53. Mitchell, J., Gangopadhyay, A., Müller, M., and Galitski, V. M., "Two-component Coulomb glass in insulators with a local attraction," *Physical Review* B **85**, 195141 (2012)
54. Wilson, J. H., Fregoso, B. M., and Galitski, V. M., "Entanglement dynamics in a non-Markovian environment: An exactly solvable model," *Physical Review* B **85**, 174304 (2012)
55. Takei, S., Galitski, V. M., and Osborn, K. D., "Squeezed noise due to two-level systems in superconducting resonator circuits," *Physical Review* B **85**, 104507 (2012)
56. Takei, S., Lin, C.-H., Anderson, B. M., and Galitski, V. M., "Low-density molecular gas of tightly bound Rashba-Dresselhaus fermions," *Physical Review A* **85**, 023626 (2012)
57. Dzero, M., Sun, K., Coleman, P., and Galitski, V. M., "Theory of topological Kondo insulators," *Physical Review B* **85**, 045130 (2012)
58. Varney, C. N., Sun, K., Galitski, V. M., and Rigol, M., "Quantum phases of hard-core bosons in a frustrated honeycomb lattice," Invited review for special issue "Focus on Quantum Spin

Liquids" published in *New Journal of Physics* **14**, 115028 (2012).

59. Linder, N. H., Refael, G., and Galitski, V. M., "Floquet Topological Insulator in Semiconductor Quantum Wells," *NATURE Physics* **7**, 490 (2011) [featured on the cover of *NATURE physics*]

60. Varney, C. N., Sun, K., Galitski, V. M., and Rigol, M., "Kaleidoscope of Exotic Quantum Phases in a Frustrated XY-Model ," Editors' suggestion in *Physical Review Letters* **107**, 077201 (2011) [see also, an accompanying Viewpoint article by T. Albash and S. Haas "Quantum liquids move to a higher dimension," in Physics **4**, 62 (2011)]

61. Wilson, J. and Galitski, V. M., "Breakdown of the coherent state path integral: two simple examples," *Physical Review Letters* **106**, 110401 (2011)

62. Serbyn, M. N., Skvortsov, M. A., Varlamov,A. A., and Galitski, V. M., Reply to Sergeev et al., *Physical Review Letters* **106**, 139702 (2011)

63. Radić, J., Sedrakyan, T. A., Spielman, I. B., and Galitski, V. M., "Vortices in spin-orbit-coupled Bose-Einstein condensates," *Physical Review* A **84**, 063604 (2011)

64. Varney, C. N., Sun, K., Rigol, M., and Galitski, V. M., "Topological phase transitions for interacting finite systems," Rapid Communication in *Physical Review B* **84**, 241105(R) (2011)

65. Sensarma, R. and Galitski, V. M., "Three Projected Wave-Functions for a High-Temperature Superconductor," Rapid Communication in *Physical Review B* **84**, 060503(R) (2011)

66. Anderson, B. M., Taylor, J. M., and Galitski, V. M., "Interferometry with Synthetic Gauge Fields," Rapid Communication in *Physical Review A* **83**, 031602(R) (2011)

67. Sedrakyan, T. and Galitski, V. M., "Majorana path integral for two-level-system dynamics," *Physical Review B* **83**, 134303 (2011)

68. Galitski, V. M., "Quantum-to-Classical Correspondence and Hubbard-Stratonovich Dynamical Systems, a Lie-Algebraic Approach," *Physical Review A* **84**, 012118 (2011)

69. Cheng, M., Galitski, V. M., and Das Sarma, S., "Nonadiabatic effects in the braiding of non-Abelian anyons in topological superconductors," *Physical Review B* **84**, 104529 (2010)

70. Galitski, V. M., "Fermionization Transform for Certain Higher-Dimensional Quantum Spin Models," Rapid Communication in *Physical Review B* **82**, 060411 (2010)

71. Galitski, V. M., "Non-perturbative Quantum Dynamics of the Order Parameter in the Pairing Model," *Physical Review B* **82**, 054511 (2010)

72. Sedrakyan, T. and Galitski, V. M., "Boundary Wess-Zumino-Novikov-Witten Model from the Pairing Hamiltonian," *Physical Review B* **82**, 214502 (2010)

73. Varney, C. N., Sun, K., Rigol, M., and Galitski, V. M., "Interaction effects and quantum phase transitions in topological insulators," *Physical Review B* **82**, 115125 (2010)

74. Cheng, M., Lutchyn, R., Galitski, V. M., and Das Sarma, S., "Tunneling of anyonic Majorana excitations in topological superconductors," *Physical Review B* **82**, 094504 (2010)

75. Dzero, M., Sun, K., Galitski, V. M., and Coleman, P., "Topological Kondo Insulators," *Physical Review Letters* **104**, 106408 (2010)

76. Robertson, A., Galitski, V. M., and Refael, G., "Dynamic Stimulation of Quantum Coherence in Lattice Bosons," *Physical Review Letters* **106**, 165701 (2011)

77. Gangopadhyay, A., Dzero, M., and Galitski, V. M., "Exact solution for quantum dynamics of

a periodically-driven two-level-system," *Physical Review B* **82**, 024303 (2010)

78. Stanescu, T., Galitski, V. M., and Das Sarma, S., "Topological states in two-dimensional optical lattices," *Physical Review A* **82**, 013608 (2010)

79. Anderson, B., Stanescu, T., and Galitski, V. M., "Bulk manifestation of the spin Hall effect," Rapid Communication in *Physical Review B* **81**, 121304(R) (2010)

80. Cheng, M., Lutchyn, R., Galitski, V. M., and Das Sarma, S., "Splitting of Majorana modes due to intervortex tunneling in a $p + ip$ superconductor," *Physical Review Letters* **103**, 107001 (2009)

81. Robertson, A. and Galitski, V. M., "Non-equilibrium Enhancement of Cooper Pairing in Cold Fermion Systems," *Physical Review A* **80**, 063609 (2009)

82. Galitski, V. M. and Sachdev, S., "Paired electron pockets in the hole-doped cuprates," Editors' Suggestion in *Physical Review B* **79**, 134512 (2009)

83. Cheng, M., Sun, K., Galitski, V. M., and Das Sarma, S., "Stable Topological Phases In a Family of Two-Dimensional Fermion Models," Editors' Suggestion in *Physical Review B* **80**, 024504 (2009)

84. Stanescu, T. D., Galitski, V. M., Vaishnav, J. Y., Clark, C.W., and Das Sarma, S., "Topological Insulators and Metals in Atomic Optical Lattices," *Physical Review A* **79**, 053639 (2009)

85. Serbyn, M. N., Skvortsov, M. A., Varlamov,A. A., and Galitski, V. M., "Giant Nernst effect due to fluctuating Cooper pairs in superconductors," *Physical Review Letters* **102**, 067001 (2009)

86. Lutchyn, R., Galitski, V. M., Refael, G. and Das Sarma, S., "Dissipation-driven quantum phase transition in superconductor-graphene systems," Editors' Suggestion in *Physical Review Letters* **101**, 106402 (2008)

87. Galitski, V. M., "Non-perturbative microscopic theory of superconducting fluctuations near a quantum critical point," *Physical Review Letters* **100**, 127001 (2008)

88. Stanescu, T., Galitski, V. M., and Drew, H. D., "Effective masses in a strongly anisotropic Fermi liquid," *Physical Review Letters* **101**, 066405 (2008)

89. Stanescu, T., Galitski, V. M., and Das Sarma, S., "Orbital fluctuation mechanism for superconductivity in iron-based compounds," *Physical Review B* **78**, 195114 (2008)

90. Stanescu, T., Anderson, B., and Galitski, V. M., "Spin-orbit coupled Bose-Einstein condensates," *Physical Review A* **78**, 023616 (2008)

91. Galitski, V. M., "Mesoscopic gap fluctuations in an unconventional superconductor," Rapid Communication in *Physical Review B* **77**, 100502(R) (2008)

92. Stanescu, T. and Galitski, V. M., "Spin relaxation in a generic two-dimensional spin-orbit coupled system," *Physical Review B* **75**, 125307 (2007) [see also the Search & Discovery section of the April-2009 issue of *Physics Today*, where this work was mentioned]

93. Adam, S., Hwang, E. H., Galitski, V. M., and Das Sarma, S., "A self-consistent theory for graphene transport," *Proceedings of the National Academy of Sciences* of the U.S.A. (PNAS) **104**, 18392 (2007)

94. Stanescu, T. D., Zhang, C., and Galitski, V. M., "Non-equilibrium spin dynamics in a trapped Fermi gas with effective spin-orbit interaction," *Physical Review Letters* **99**, 110403 (2007)

95. Galitski, V. M. and Kim, Y.-B., "A mechanism for spinon pairing in a $U(1)$ spin liquid," *Physical Review Letters* **99**, 266403 (2007)

96. Nagornykh, P. and Galitski, V. M., "Expansion of a mesoscopic Fermi system from a harmonic trap," *Physical Review A* **75**, 065601 (2007)

97. Galitski, V. M., Adam, S., and Das Sarma, S., "Statistics of random voltage fluctuations and the low-density residual conductivity of graphene," *Physical Review B* **76**, 245405 (2007)

98. Stanescu, T. and Galitski, V. M., "Surface states, Friedel oscillations, and spin accumulation in p-doped semiconductors," *Physical Review B* **74**, 205331 (2006)

99. Galitski, V. M., Burkov, A. A., and Das Sarma, S., "Boundary conditions for spin diffusion in disordered systems," *Physical Review B* **74**, 115331 (2006)

100. Galitski, V. M., "The internal Josephson effect in a Fermi gas near a Feshbach resonance," *Physical Review A* **72**, 013612 (2005)

101. Galitski, V. M., Chubukov, A. V., and Das Sarma, S., "Temperature dependent spin susceptibility in a two-dimensional metal," Rapid Communication in *Physical Review B* **71**, 201302 (2005)

102. Chubukov, A. V., Galitski, V. M., and Yakovenko, V. M., "Quantum critical behavior near a density-wave instability in an isotropic Fermi liquid," *Physical Review Letters* **94**, 046404 (2005)

103. Galitski, V. M., Vavilov, M. G., and Glazman, L. I., " Aharonov-Bohm effect as a probe of interaction between magnetic impurities," *Physical Review Letters* **94**, 096602 (2005)

104. Galitski, V. M., Refael, G., Senthil, T., and Fisher, M. P. A., "Vortices and quasiparticles near the "superconductor-insulator" transition in thin films," *Physical Review Letters* **95**, 077002 (2005)

105. Galitski, V. M., "Metallic phase in a two-dimensional disordered Fermi system with singular interactions," *Physical Review B* **72**, 214201 (2005)

106. Das Sarma, S., Galitski, V. M., and Zhang, Y., "Temperature dependent effective mass renormalization in 2D electron systems," *Physical Review B* **69**, 125334 (2004)

107. Galitski, V. M. and Das Sarma, S., "Universal temperature corrections to Fermi liquid theory in an interacting electron system," *Physical Review B* **70**, 035111 (2004)

108. Kaminski, A., Galitski, V. M., and Das Sarma, S., "Ferromagnetic and random spin ordering in dilute magnetic semiconductors," *Physical Review B* **70**, 115216 (2004)

109. Galitski, V. M., Kaminski, A., and Das Sarma, S., "Griffiths phase in diluted magnetic semiconductors," *Physical Review Letters* **92**, 177203 (2004)

110. Galitski, V. M. and Das Sarma, S., "Kohn-Luttinger pseudo-pairing in a two-dimensional Fermi-liquid," *Physical Review B* **67**, 144520 (2003)

111. Galitski, V. M. and Das Sarma, S., "Renormalization of the upper critical field by superconducting fluctuations," *Physical Review B* **67**, 144501 (2003)

112. Galitski, V. M. and Larkin, A. I., "Spin glass versus superconductivity," *Physical Review B* **66**, 064526 (2002)

113. Galitski, V. M. and Larkin, A. I., "Superconducting fluctuations at low temperature," *Physical*

Review B **63**, 174506 (2001)

114. Galitski, V. M. and Larkin, A. I., "Disorder and Quantum Fluctuations in Superconducting Films in Strong Magnetic Fields," *Physical Review Letters* **87**, 087001 (2001)

2.c.i Articles in applied math (dynamo theory)

115. Galitski, V. M., Kuzanyan, K. M., and Sokoloff, D. D., "Equatorial dynamo wave," *Astronomy Reports* **49**, 337 (2005) [translated from Russian: *Astronomicheskii Zhurnal* **82**, 378 (2005)]

116. Galitski, V. M. and Sokoloff, D. D., "Spectrum of Parker Equations," *Astronomy Reports* **42**, 127 (1998); [translated from Russian: *Astronomicheskii Zhurnal* **71**, 144 (1998)]

117. Galitski, V. M. and Sokoloff, D. D., "Kinematic dynamo wave in the vicinity of the solar poles," in *Geophysical and Astrophysical Fluid Dynamics* **91**, 147 (1999)

118. Galitski, V. M. and Sokoloff, D. D., "Dynamo waves in the theory of solar magnetism," *Acta Astron. Geophys. Comeniae* **19**, 1 (1997)

2.c.ii Refereed conference proceedings

119. Serbyn, M. N., Skvortsov, M. A., Varlamov, A. A., and Galitski, V. M., "Giant Nernst Effect due to Fluctuating Cooper Pairs in Superconductors Landau Memorial Conference on Advances in Theoretical Physics," (June, 2008), published in *Advances in Theoretical Physics* **1134**, 140-145 (2009)

120. Galitski, V. M., Vavilov, M. G., and Glazman, L. I., "Magnetoresistance of a dilute magnetic alloy," 28th International Workshop on Condensed Matter Theories, (September, 2004), published in *Condensed Matter Theories* **20**, 145-153 (2006)

2.d Preprints

121. Keser, A. and Galitski, A., "Analogue Stochastic Gravity in Strongly-Interacting Bose-Einstein Condensates," arXiv:1612.08980 (submitted to *Physical Review X*)

122. Syzranov, S. V., Gorshkov, A. V., and Galitski, V., "Out-of-time-order correlators in finite open systems," arXiv:1704.08442 (submitted to *Physical Review Letters*)

123. Syzranov, S. V., Gorshkov, A. V., and Galitski, V., "Interaction-induced transition in the quantum chaotic dynamics of a disordered metal," arXiv:1709.09296 (submitted to *Physical Review Letters*)

124. Kayyalha, M., Kargarian, M., Kazakov, A., Miotkowski, I., Galitski, V. M., Yakovenko, V. M., Rokhinson, L. P., and Chen, Y. P. "Anomalous low-temperature enhancement of supercurrent in topological-insulator nanoribbon Josephson junctions: evidence for low-energy Andreev bound states," arXiv:1712.02748 (submitted to *Physical Review Letters*)

125. Kim, S. K., Tchernyshyov, O., Galitski, V., Tserkovnyak,. Ya. "Magnon-induced non-Markovian friction of a domain wall in a ferromagnet," arXiv:1712.06578 (submitted to *Physical Review B*)

126. Curits, J., Refael, G., and Galitski, V., "Evanescent Horizon Modes Partnered to Acoustic Hawking Emission," arXiv:1801.01607

127. Allocca, A. A., Efimkin, D. K., and Galitski, V., "Fingerprints of Berry phases in the bulk exciton spectrum of a topological insulator," arXiv:1801.01559 (submitted to *Physical Review B*)

128. Rozenbaum, E. B., Ganeshan, S., and Galitski, V., "Universal Level Statistics of the Out-of-Time-Ordered Operator," arXiv:1801.10591 (submitted to *Physical Review Letters*)

2.f Invited Talks Presented

1. "Cosmic magnetic fields: review of recent observational and theoretical results," *Institut des Sciences Nucléaire de Grenoble*, France (November, 1997)
2. "Monte-Carlo simulations of cosmic rays at the AMS orbit," Alpha Magnetic Spectrometer collaboration meeting, France, (February, 1998)
3. "Kinematic dynamo-wave in the vicinity of the solar poles," Conference "New cycle of the solar activity," St. Petersburg, Russia, (June, 1998)
4. "Asymptotic theory of dynamo waves in Parker approximation," Conference "Large-scale solar magnetic activity," St. Petersburg, Russia (June, 1999)
5. "Disorder and Quantum Fluctuations in Superconductors," Theory Seminar, Kurhcatov Institute, Moscow, Russia (May, 2002)
6. "Competition Between Disorder and Quantum Fluctuations in Superconducting Films," Condensed Matter Theory Center seminar, College Park, MD (September, 2002)
7. "Essential singularities in disordered magnets," Michael Fisher's Statistical Physics Seminar, College Park, MD (September, 2003)
8. "Physics of Diluted Magnetic Semiconductors," Condensed Matter Seminar, Washington University in Saint Louis, MO (October, 2003)
9. "Quantum Fluctuations in Superconductors," Theory Seminar, Washington University in Saint Louis, MO (October, 2003)
10. "The effects of magnetic impurity interaction on the conductance of disordered metals," Condensed Matter Seminar, Yale University, New Haven, CT (January, 2004)
11. "The effects of magnetic impurity interactions on the conductance of disordered metals," Condensed Matter Seminar, University of California, CA (February, 2004)
12. "Magnetoresistance of a dilute magnetic alloy," Condensed Matter Seminar, Harvard University, MA (February, 2004)
13. "The effects of disorder in diluted magnetic semiconductors," Condensed Matter Seminar, University of Maryland, College Park, MD (April, 2004)
14. Invited talk, "Quantum critical behavior near a density wave instability in an isotropic Fermi liquid," at the Workshop on frustrated magnetism, Brookhaven National Laboratory, NY (September, 2004)
15. Invited talk, "Magnetoresistance of a dilute magnetic alloy," at the Workshop on condensed matter theories (CMT 28), Saint Louis, MO (September, 2004)
16. "Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," Colloquium, McMaster University, Hamilton, ON, Canada (January, 2005)

17. "Magnetoresistance of a dilute magnetic alloy," CMT seminar, University of Iowa, Iowa City, IA (February, 2005)
18. "Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," CMT seminar, Boston University, Boston, MA (February, 2005)
19. "Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," CMT seminar, University of Virginia, Charlottesville, VA (February, 2005)
20. "Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," Colloquium, Washington University in Saint Louis, MO (February, 2005)
21. "Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," CMT seminar, California Institute of Technology, Pasadena, CA (March, 2005)
22. "Vortex metals and singular Fermi liquids," CMT seminar, Johns Hopkins University, Baltimore, MD (October, 2005)
23. "Vortex Dynamics and Fluctuations Near the Magnetic-Field-Tuned Superconductor-Insulator Transition," CMT seminar, Physics Department, University of Maryland, College Park, (October, 2006)
24. "Non-equilibrium phenomena in a Fermi gas near a Feshbach resonance," JQI seminar, College Park, MD (April, 2006)
25. Invited talk, "Spin diffusion in spin-orbit-coupled systems," at the international Workshop, "Frontiers of Condensed Matter Theory," at the The William I. Fine Theoretical Physics Institute (FTPI), Minneapolis, MN (May 4-7, 2006)
26. "Spin diffusion in spin-orbit coupled systems," CM seminar, Rutgers University, Piscataway, NJ (November, 2006)
27. "Non-equilibrium dynamics of a mesoscopic atomic system," NIST, Gaithersburg, MD (February, 2007)
28. "Spin-orbit Coupling Effects in Solid State and Cold Atomic Systems," Kavli Institute for Theoretical Physics, Santa Barbara, CA (June, 2007)
29. Invited presentation, "Superconducting fluctuations near a quantum critical point," at the A. I. Larkin memorial conference in the Landau Institute for theoretical physics, Chernogolovka, Russia (June, 2007)
30. "Mesoscopic disorder fluctuations in a d-wave superconductor," Aspen Center for Physics, Aspen, CO (August 2007)
31. "Spin-orbit Coupling Effects in Solid State and Cold Atomic Systems," California Institute of Technology, Pasadena, CA (October, 2007)
32. Invited talk, "Spin-orbit Coupling Effects in Solid State and Cold Atomic Systems," at the XXXI International Workshop on Condensed Matter Theories, Bangkok, Thailand (December, 2007)
33. "Spin-orbit Coupling Effects in Solid State and Cold Atomic Systems," University of Toronto, Toronto, Canada (February, 2008)
34. "Quantum Fluctuations in Superconductors," Colloquium, George Mason University, Fairfax, VA (March, 2008)

35. "Quantum fluctuations in two-dimensional superconductors," Texas A & M University, College Station, TX (April, 2008)
36. "Quantum fluctuations in two-dimensional superconductors," Boston University, Boston, MA (May, 2008)
37. "Quantum fluctuations in two-dimensional superconductors," Harvard University, Cambridge, MA (May, 2008)
38. 'Spin-orbit coupling in cold atoms," CMTC Symposium, University of Maryland, College Park, MD (October, 2008)
39. "Paired electron pockets in the hole-doped cuprates," Rutgers University, Piscataway, NJ (February, 2009)
40. "Quantum fluctuations in superconductors," Physics Department Colloquium, Georgetown University, Washington, DC (March, 2009)
41. Invited presentation, "Paired electron pockets in the hole-doped cuprates," at the conference "Critical Issues Related to Higher-Temperature Superconductivity," Kavli Institute of Theoretical Physics, University of California, Santa Barbara (June, 2009)
42. "General Theory of Spin Diffusion," CM seminar, Department of Spintronics and Nanoelectronics, Institute of Physics of the Academy of Sciences of the Czech Republic, Prague, Czech Republic (August, 2009)
43. "Paired Electron Pockets in the Hole-Doped Cuprates," Department of Physics, University of Fribourg, Fribourg, Switzerland (September, 2009)
44. "Exotic states of quantum matter," Award presentation at the University of Maryland Board of Visitors Meeting, College Park, MD (October, 2009)
45. "Paired Electron Pockets in the Hole-Doped Cuprates," CMTC Symposium, University of Maryland, College Park, MD (October, 2009)
46. Presentation at the Fifth International School and Conference on Spintronics and Quantum Information Technology, SPINTECH V, Kraków, Poland; Title of the talk: "A general theory of spin relaxation in semiconductors" (July, 2009)
47. "Paired Electron Pockets in the Hole-Doped Cuprates," National High Magnetic Field Laboratory at Florida State University, Tallahassee, FL (November, 2009)
48. Invited Colloquium "Quantum Fluctuations in Superconductors," Virginia Tech Department of Physics, Blacksburg, VA (December, 2009)
49. "Theory of Dielectric Loss due to Interacting Two-Level Systems in an AlO Insulating Barrier," IARPA meeting, Duck Keys, Florida (January, 2010)
50. Invited presentation at the international conference "Spin manipulation in cold atoms and condensed matter," Utrecht, the Netherlands (January, 2010); Title of the talk: "Spin-orbit-coupled Bose-Einstein Condensates"
51. "Exact solution for quantum dynamics of a periodically-driven two-level-system: Application to dielectric loss experiments," Coherence in Superconducting Qubits, conference organized by the Intelligence Advanced Research Projects Activity, San Diego, CA (April, 2010)
52. Review talk at the international conference "Dubna-Nano2008," Bogoliubov Laboratory of Theoretical Physics, Dubna, Moscow Region, Russia. Title of the talk "General theory of spin

diffusion in spin-orbit-coupled semiconductors," (July, 2010)

53. Invited participant at the international program in Nordita Institute, Stockholm, Sweden "Quantum gases fluids and solids," Title of the talk: "Spin-orbit-coupled Bose-Einstein Condensates" (July, 2010)
54. Presentation at the Department of Energy Headquarters in Germantown, MD, "Design and Measurement of Optimal Spin Dynamics in Semiconductor Systems" (August, 2010)
55. Presentation at the kick-off meeting for the UMD-MIT-Harvard MURI collaboration. Title of the talk: "Compact Cold-Atom Interferometer with Synthetic Gauge Fields" (September 27, 2010)
56. UMD Physics Colloquium, "Exotic Quantum Phenomena and Topological Phases in Spin-Orbit-Coupled Systems" (September 28, 2010)
57. Invited seminar at the Institute for Quantum Matter, Johns Hopkins University, Baltimore, MD. Title: "Lie-algebraic Approach To Non-equilibrium Quantum Mechanics" (October 25, 2010)
58. Presentation at the DARPA Proposer's Day Workshop in support of the MesoDynamic Architectures (Meso) program, Arlington, VA. Title: "Inducing Topological Insulating States by External Irradiation" (October 26, 2010)
59. Invited speaker at the conference on "Fluctuations and Phase Transitions in Superconductors," Argonne National Laboratory, IL Title: "Quantum Fluctuations in Superconductors" (November 19, 2010)
60. Invited speaker at the conference, "Frontiers of Condensed Matter Physics," organized by the Royal Swedish Academy of Sciences in Stockholm, Sweden (January, 2011). Title: "Lie-algebraic Approach to Quantum Dynamics and Quantum-to-Classical Correspondence"
61. Speaker at the IARPA conference "Coherence in Superconducting Qubits," San Diego, CA (January, 2011). Title: "Quantum noise in LC-resonators"
62. Invited Physics Department Colloquium at the University of Melbourne, Australia; Title of the Colloquium: "Exotic quantum phenomena and topological phases in spin-orbit-coupled systems" (March, 2011)
63. Invited Condensed Matter Seminar at the University of Melbourne, Australia; Title: "A general theory of spin-relaxation in two-dimensional semiconductors" (March, 2011)
64. Invited speaker at the international Workshop, "Physics of Cold Trapped Atoms" (LPHYS'11) Sarajevo, Bosnia and Herzegovina, (July, 2011). Title: "Spin-orbit-coupled Bose-Einstein condensates" (March, 2011)
65. Invited talk at the program on topological insulators held in the Kavli Institute for Theoretical Physics, Santa Barbara, CA (September - December, 2011). Title: "Dual Approach to Non-equilibrium Quantum Mechanics and Topological Dynamical Systems"
66. Co-organizer and speaker at the Workshop and Winter school, "New Spin 2," held in Texas A & M University in January, 2012. Title of the talks: "Introduction to the theory of spin-orbit-coupled systems in solids and cold-atoms," (school) and "Theory of Spin-Orbit-Coupled Cold-Atom Systems" (Workshop)
67. Invited talk at the statistical physics seminar at the Institute for Physical Science and Technol-

ogy, College Park, MD (January, 2012). Title: "Dual Approach to Time-Dependent Quantum Mechanics and Topological Dynamical Systems"

68. Invited talk at the Workshop "Frontiers of quantum condensed matter physics: light, matter and unusual devices out of equilibrium," New York, NY (March, 2012). Title: "Dual Approach to Time-Dependent Quantum Mechanics and Topological Dynamical Systems"
69. Invited talk at the Symposium "Frontiers of Quantum Matter" at the Center for Quantum Science, George Mason University, Fairfax, VA (June, 2012); Title: "Floquet topological insulators"
70. Invited talk at the International Conference, "Dubna -Nano 2012," at the Joint Institute for Nuclear Research, Bogoliubov Laboratory for Theoretical Physics, Dubna, Russia (July, 2012) Title: "Floquet topological insulating states in semiconductor quantum wells and nanowires"
71. Invited talk at the 21th International Laser Physics Workshop, University of Calgary, Calgary, Canada (July, 2012). Title: "Floquet topological insulators"
72. Invited talk at the KITP conference, "Dynamics and Thermodynamics in Isolated Quantum Systems," Kavli Institute for Theoretical Physics, Santa Barbara, CA (August, 2012). Title: "Stimulation of Quantum Phases by Time-dependent Perturbations"
73. Invited condensed matter seminar at Penn State University, (September, 2012). Title: "Quantum fluctuation phenomena in low-dimensional superconductors"
74. Invited Departmental Colloquium at the University of Minnesota, Minneapolis, MN (September, 2012). Title: "Exotic Quantum Phenomena and Topological Phases in Spin-Orbit-Coupled Systems"
75. Invited condensed matter seminar, William I. Fine Theoretical Physics Institute, University of Minnesota, Minneapolis (September, 2012). Title: "Stimulation of Quantum Phases by Time-dependent Perturbations"
76. Invited CUA seminar at the Harvard-MIT Center for Ultracold Atoms (CUA), Cambridge, MA (October, 2012). Title: "Stimulation of Quantum Phases by Time-dependent Perturbations"
77. Invited physics Colloquium at PennState University, University Park,PA (December, 2012), Title: "Exotic Quantum Phenomena and Topological Phases in Spin-Orbit-Coupled Systems"
78. Invited physics Colloquium at Monash University, Melbourne, VIC, Australia (January, 2013), Title: "Exotic Quantum Phenomena and Topological Phases in Spin-Orbit-Coupled Systems"
79. Invited talk at the EMN West Meeting, Houston, TX (January, 2013), Title: "Theory of Topological Kondo Insulators"
80. Invited seminar at the University of Massachusetts, Amherst, MA (April, 2013), Title: "Spin-orbit coupling in cold atoms"
81. Invited seminar at the University of California, Irvine, CA (May, 2013), Title: "Topological Kondo Insulators"
82. "Quantum Floquet Dynamics of the Order Parameter in Fluctuating Superconductors," Aspen Center for Physics, Aspen, CO (June, 2013)
83. "Exotic quantum spin models in spin-orbit-coupled Mott insulators," Invited talk at the 23nd International Laser Physics Workshop, Prague, Czech Republic (July, 2013)
84. "Topological Kondo Insulators," Invited Seminar at the Physics Department, Yale University,

New Haven, CT (September, 2013)

85. "Topological Kondo Insulators," Invited Seminar at the Physics Department, Princeton University, Princeton, NJ (November, 2013)

86. "Topological Kondo Insulators," Invited R. G. Herb Condensed Matter Seminar at the University of Wisconsin, Madison (December, 2013)

87. "Many-body physics of spin-orbit-coupled quantum gases," Invited talk at the March Meeting 2014 in Denver, Colorado (March, 2014)

88. "Topological Kondo Insulators," Invited Seminar at the Physics Department, Brown University, Providence, RI (May, 2014)

89. "Strong correlation effects in a topological Kondo insulator," Invited talk at the Gordon Research Conference, "Correlated Electron Systems," Mount Holyoke College, South Hadley, MA (June, 2014)

90. "Synthetic spin-orbit coupling in cold atom systems," invited seminar at the Institute of Theoretical Physics and Astronomy, Vilnius University, Vilnius, Lithuania (July, 2014)

91. "Strong correlation effects and fluctuations in topological Kondo insulators," Invited talk at the Department of Energy Theory PI Meeting, Gaithersburg, MD (August, 2014)

92. "Moving solitons in fermionic superfluids," presentation at the Workshop "Gauge Fields in Condensed Matter, Ultracold Atoms and Beyond," Aspen Center for Physics, Aspen, CO (August, 2014)

93. "Moving solitons in fermionic superfluids," keynote talk at the Australasian Workshop on Emergent Quantum Matter 2014, Dunwich, Queensland, Australia (November, 2014)

94. "Moving solitons in fermionic superfluids," invited talk at the ARO/AFOSR Workshop "Fundamental Issues in Non-Equilibrium Dynamics," Rice University, Houston, TX (January, 2015)

95. "Soliton motion, dissipation, self-acceleration and death in a fermionic superfluid," invited talk at the Workshop "Nonlinear Physics at the Nanoscale: A Cross-Fertilization on Stochastic Methods," Rotorua, New Zealand (February, 2015)

96. "Soliton motion, dissipation, self-acceleration and death in a fermionic superfluid," invited talk at the Workshop, "Nonequilibrium Quantum Matter," Aspen Center for Physics, Aspen, CO (March, 2015)

97. Invited review talk: "Topological phases of matter" at the Workshop "Quantum Correlated Matter and Chaos," Max Planck Institute, Dresden, Germany (June, 2015)

98. Invited review talk: "Topological phases of matter" at the Gordon Research Conference "Topological & Correlated Matter," The Hong Kong University of Science and Technology, Hong Kong (July, 2015)

99. "Topological Kondo Insulators," Invited Colloquium at the Physics Department, University of Sydney, Sydney, VIC, Australia (July, 2015)

100. "Topological Kondo Insulators," Invited Colloquium at the Physics Department, University of Quneensland, Brisbane, QLD, Australia (August, 2015)

101. " Statistical Transmutation in Floquet Driven Optical Lattices," invited presentation at the Workshop "Beyond Quasiparticles," Aspen Center for Physics, Aspen, CO (August, 2015)

102. "Stimulation of Quantum Phases by Time-dependent Perturbations," Hamburg Photon Science Colloquium, DESY, Hamburg, Germany (January, 2016)

103. CQM Distinguished Lecture Soliton motion, dissipation, and death in quantum superfluids, Centre for Quantum Matter (CQM), Stony Brook University, Stony Brook, NY (February, 2016)

104. Invited condensed matter seminar, "Strongly-Correlated Topological Kondo Insulators, Physics Department, University of Colorado, Boulder (March, 2016)

105. Invited seminar, "Soliton motion, dissipation, and death in quantum superfluids," JILA, University of Colorado, Boulder (March, 2016)

106. Invited conference talk, "Stimulation and engineering of quantum phases by time-dependent perturbations," SPIE conference on Ultrafast Band Photonics, Baltimore, MD (March, 2016)

107. Invited workshop talk, "Non-Markovian Quantum Friction of Bright Solitons in Superfluids" Aspen Centre for Physics, Workshop Lightmatter Interaction and Quantum Control In Many-body Systems, Aspen, CO (June, 2016)

108. Invited Condensed Matter Seminar, "Topological Kondo Insulators," Brookhaven National Laboratory, NY (June, 2016)

109. Invited conference talk, "Soliton motion, dissipation, and death in quantum superfluids," Nordita program on Multi-Component and Strongly-Correlated Superconductors, Nordita, Stockholm, Sweden (July, 2016)

110. Invited conference talk, "Soliton motion, dissipation, and death in quantum superfluids," Kavli Institute for Theoretical Physics of China (KITPC), Beijing, China (July, 2016)

111. Invited conference talk, "Spin-Orbit-Coupled Quantum Gases," Qin Emperor Island Workshop, "Beyond Standard Quantum Gases," Qin Emperor Island, China (August, 2016)

112. Invited presenter/discussion leader on topic "Dynamics of strongly interacting fermions" at workshop "Quantum Gases 2016," Institute for Advanced Study, Tsinghua University, Beijing, China (August, 2016)

113. Invited summer school presentation, "Soliton motion, dissipation, and death in quantum superfluids," The Eleventh International School on Theoretical Physics "Symmetry and Structural Properties of Condensed Matter," Rzeszów, Poland (September, 2016)

114. Invited condensed matter seminar, "Soliton motion, dissipation, and death in quantum superfluids," New York University, New York, NY (September, 2016)

115. Invited condensed matter seminar, "Soliton motion, dissipation, and death in quantum superfluids," Harvard University, Cambridge, MA (October, 2016)

116. Invited conference talk, "Soliton motion, dissipation, and death in quantum superfluids," at conference "Spin coherence, condensation, and superfluidity," Berkeley Research Station, Moorea, French Polynesia (February, 2017)

117. Invited presentation, "Soliton motion, dissipation, and death in quantum superfluids," at Workshop "Dynamics and hydrodynamics of certain quantum matter," New York, NY (March, 2017)

118. Invited seminar, "Quantum friction effects in superfluids," condensed matter seminar, University of California, Berkeley (April, 2017)

119. Lead organizer of Workshop, "Non-equilibrium Quantum Matter," University of Mainz, Germany (invited talk "Lyapunov Exponent and Four-Point Correlator's Growth Rate in a Chaotic System" presented by a junior collaborator) (May, 2017)

120. Invited talk,"Lyapunov Exponent and Four-Point Correlator's Growth Rate in a Chaotic Syste" at the Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP), Sacramento, CA (June, 2017)

121. Presentation"New Synthetic Physics in Ultracold Quantum Gases" at the US Army Research Office Conference, Cocoa Beach, FL (June, 2017)

122. Invited talk "Exotic magnon-mediated superconductivity in topological insulator/ferromagnet heterostructures," at the Inaugural Symposium for NYU Quantum Center "Frontiers in Emergent Quantum Phenomena," New York, NY (June, 2017)

123. "Quantum Lyapunov exponent and out-of-time-ordered correlator in the standard model of quantum chaos," Aspen Center for Physics, Aspen, CO

124. Invited talk, "Quantum Lyapunov Exponent in Disordered Metals" at Workshop, "Dissipative Quantum Chaos: from Semi-Groups to QED Experiments," Seoul, Korea (October 2017)

125. Invited Colloquium, "Quantum Lyapunov Exponents," Kent State University, Kent, OH (October, 2017)

126. Invited Seminar, "Quantum friction effects in superfluids," Michigan State university, East Lansing, MI (October, 2017)

127. Invited talk, "Quantum Lyapunov Exponent in Disordered Metals" at Workshop, "Dissipative Quantum Chaos: from Semi-Groups to QED Experiments," Seoul, Korea (October 2017)

128. Invited talk "Quantum Lyapunov Exponents in Disordered Metals," Simons Center's Workshop, "Progress in quantum collective phenomena - from MBL to black holes," Simons Center for Geometry and Physics, Stony Brook, NY (November, 2017)

129. Keynote lectures, "Topological Matter, at the Canberra International Physics Summer School, Australian National University in Canberra, Australia (January, 2018)

130. Co-organizer of and speaker at the Simons Conference, "Ultra-Quantum Matter," Simons Foundation, New York, NY (February, 2018)

131. Invited Presentation to Department of Defense program managers (invited by the U.S. Army Research Office) "Topological Quantum Matter in Atomic Optical Lattices," Washington, DC (February, 2018)

132. Invited Talk "Quantum-to-Classical Correspondence and Transitions in Dynamics of Out-of-Time-Ordered Correlator" at Workshop "Non-thermal Quantum Systems," Boston University, Boston, MA (March, 2018)

2.g Invited Talks to be Given

133. Invited Talk "Quantum-to-Classical Correspondence and Transitions in Dynamics of Out-of-Time-Ordered Correlator" at Workshop "Chaos and Dynamics in Correlated Quantum Matter," Dresden, Germany (March, 2018)

134. Invited presentation at the SPIE Conference Ultrafast Bandgap Photonics III, Orlando, FL (April, 2018)

135. Invited talk at the Workshop "Quantum Paths," University of Vienna, Vienna, Austria (May, 2018)

136. Invited talk at Symposium, "Frontiers in Quantum Materials' Control," Venice, Italy (May, 2018)

2.h Contracts and Grants

2.h.i Current research grants

1. PI on the Department of Energy (DOE) grant "Theory of fluctuations in Superconductors"
   Period covered: 2015-2018
   Number of Senior Investigators: 1
   Total award amount: **$309,000**

2. PI on the National Science Foundation (NSF) award DMR-0847224, "Dynamics of Many-Body Quantum Systems"
   Period covered: 09/01/16 - 08/31/19
   Number of Senior Investigators: 1
   Total award amount: **$300,000**

3. PI on the Army Research Office (ARO) grant "New Synthetic Physics with Ultracold Atoms"
   Period covered: 09/01/2013 - 03/30/2019
   Number of Senior Investigators: 1
   Total award amount: **$585,000**

4. Recipient of the award from the Simons Foundation: "Simons Investigators in Mathematics, Physics, and Theoretical Computer Science"
   Period covered: 09/01/2013 - 08/31/2023 (subject to a 5-year review)
   Number of Senior Investigators: 1
   Total award amount: **$1,320,000**

5. Co-PI on a Multi-University Research Initiative (MURI) collaborative grant between the University of Maryland, MIT, and Harvard University, "Atomtronics: Material and device physics of quantum gases"
   Period covered: 2010-2017
   Number of Senior Investigators: 12
   Total award amount: **$6,050,557**

6. Participating Senior Investigator of the NSF-supported Physics Frontier Center at the Joint Quantum Institute, "Processing Quantum Coherence"
   Period covered: 09/01/13 - 08/31/18
   Number of participating senior investigators (JQI Fellows): 23
   Total amount: **$13,107,972**

7. Partner Investigator of The Australian Research Council (ARC) Centre of Excellence "Future Low Energy Electronics Technologies" (led by Michael Fuhrer), centered at Monash University, Melbourne, Australia
   Period covered: 01/2017 – 12/2026
   Total amount: about $33 million dollars

2.h.ii Previous research grants

1. PI on the National Science Foundation (NSF) CAREER award DMR-0847224, "Quantum Fluctuations in Superconductors"
   Period covered: 09/01/09 - 08/31/14
   Number of Senior Investigators: 1
   Total award amount: **$400,000**
2. PI on the Department of Energy (DOE) grant "Theory of fluctuations in Superconductors"
   Period covered: 2012-2015
   Number of Senior Investigators: 1
   Total award amount: **$309,000**
3. Co-PI on the Army Research Office (ARO) grant(single-investigator award) "Non-equilibrium Floquet States in Topological Kondo Insulators"
   Period covered: 07/01/2013 - 03/31/2014
   Number of Senior Investigators: 2
   Total award amount: **$50,000**
4. PI on the Army Research Office (ARO) contract (single-investigator award) "Spin-orbit-coupled Bose-Einstein condensates"
   Period covered: 06/01/09 - 05/31/13
   Number of Senior Investigators: 1
   Total award amount: **$400,000**
5. Co-PI on the Intelligence Advanced Research Projects Activity (IARPA) grant "Conventional and ALD Dielectric Film Studies for Improved Phase Qubits,"
   Period covered: 2009-2011
   Number of Senior Investigators: 4
   Total Award amount: about **$2,828,591**
6. Co-PI on the DARPA grant "Topological Quantum Entanglement"
   Period covered: 12/01/08 - 11/30/13
   Number of Senior Investigators: 5
   Total award amount: **$2,123,654**
7. PI on the Department of Energy (DOE) grant "Theory of fluctuations in Superconductors"
   Period covered: 2009-2012 (renewed)
   Number of Senior Investigators: 1
   Total award amount: **$309,000**
8. Funding from NIST to develop a massive open online course, "Exploring Quantum Physics," on the coursera.org platform https://www.coursera.org/course/eqp
   Period covered: 2012 - 2013
   Participants: Victor Galitski and Charles Clark
   Total funding amount: **$70,000**
9. PI on the Defense Advanced Research Projects Agency (DARPA) seedling contract "Stabilizing Coherent Quantum States via Many-Body Quantum Control of Electronic Environments"
   Period covered: 2009-2011
   Number of Senior Investigators: 2
   Total award amount: **$326,000**

10. DARPA subcontract through the University of California, Irvine "TQUID Magnetometer and Artificial Neural Circuitry Based on a Topological Kondo Insulator"
Period covered: 09/2013 - 08/2016
Number of Senior Investigators (on the subcontract): 1
Total award amount: **$240,000**

2.k Editorships, Editorial Boards, and Reviewing Activities for Journals and Other Learned Publications

- Editor, *Annals of Physics*, Elsevier, New York, NY
- Refereed more than 100 articles for the following journals: *Science*, Nature and Nature series, PNAS, *Physical Review Letters*, *Physical Review* series, *Europhysics Letters*, *Journal of Magnetism and Magnetic Materials*.

3 Teaching and Advising

3.a Courses taught

3.a.i General

Fall 2007 :	PHYS374, "Intermediate Theoretical Methods"	46 students
Spring 2008 :	PHYS625 "Non-relativistic Quantum Mechanics"	14 students
Fall 2008 :	PHYS374 "Intermediate Theoretical Methods"	38 students
Spring 2009 :	PHYS625, "Non-relativistic Quantum Mechanics"	21 students
Spring 2010 :	PHYS625, "Non-relativistic Quantum Mechanics"	20 students
Spring 2011 :	PHYS623, "Introduction to Quantum Mechanics – II"	43 students
Spring 2012 :	PHYS623, "Introduction to Quantum Mechanics – II"	39 students
Spring 2013, Fall 2013, Spring 2014, Spring 2015 :	Represented UMD on coursera, with a massive open online course (MOOC), "Exploring Quantum Physics:" taken by ≈ 100,000 students worldwide https://www.coursera.org/course/eqp http://www.newsdesk.umd.edu/uniini/release.cfm?ArticleID=2781	
Fall 2015 :	PHYS402, "Quantum Mechanics – II"	46 students
Spring 2016 :	PHYS625 "Non-relativistic Quantum Mechanics"	15 students
Spring 2017 :	PHYS625 "Non-relativistic Quantum Mechanics"	24 students
Spring 2018 :	PHYS625 "Non-relativistic Quantum Mechanics"	25 students

3.a.ii Specialized

Fall 2005 : "Advanced Solid State Physics" (taught at Univ. of Virginia) 10 students

Spring 2007 : PHYS832, "Theory of Solids" 7 students

Fall 2008 : PHYS738/739, "Quantum Many-Body Problems" (Team Taught)
Spring 2009 : PHYS738/739, "Quantum Many-Body Problems" (Team Taught)
Fall 2009 : PHYS738/739, "Quantum Many-Body Problems" (Team Taught)
Spring 2010 : PHYS738/739, "Quantum Many-Body Problems" (Team Taught)
Fall 2010 : PHYS738/739, "Quantum Many-Body Problems" (Team Taught)
Spring 2011 : PHYS738/739, "Quantum Many-Body Problems" (Team Taught)
Fall 2011 : PHYS738/739, "Quantum Many-Body Problems" (Team Taught)
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Spring 2014 : PHYS738/739, "Quantum Many-Body Problems" (Team Taught)

3.c Advising: Other Than Research Direction

3.c.i Undergraduate

Served as a faculty mentor to four undergraduate students (physics majors) every year as a part of the Departmental advising system.

3.d Advising: Research Direction

3.d.iii Summer Internship

2013 & 2014 : **Michael Winer**, sophomore at Montgomery Blair Magnet School
summer internships (the youngest contestant in the U.S. physics Olympiad team)
Winner of the Intel Research Competition
with Galitski's research project ($150,000 cash prize)
Relevant article in the Washington Post: https://goo.gl/UczcBW

3.d.iv Former and Current Doctoral Students

- Andrew Robertson, 2011 PhD (moved to a permanent research position at Naval Research Lab skipping postdoc stage)
- Brandon Anderson, 2012 PhD (moved to a postdoc position at the University of Chicago)
- Anirban Gangopadhyay, 2013 PhD (moved to a permanent staff position at MathWorks; Boston, MA)
- Joe Mitchell, 2014 PhD (moved to a Silicon Valley start-up)
- Justin Wilson, 2015 PhD (moved to a postdoc position at Caltech)
- Juraj Radic, 2016 PhD (moved to a quantitative trading firm, RGM Advisors)
- Aydin Cem Keser, 2016 PhD (moved to a postdoc position at the Univ. of New South Wells, Australia)

- Hilary Hurst, 2017 PhD (NRC Research Fellow, NIST)
- Zach Raines (current student)
- Andrew Allocca (current student)
- Jonathan Curtis (current student, NSF graduate Fellow)
- Efim Rozenbaum (JQI graduate Fellow)

3.d.v Former and Current Postdocs

- Tudor Stanescu (now tenured Professor at the University of W. Virginia)
- Kai Sun (now tenured Professor at Michigan State University)
- Maxim Dzero (now tenured Professor at Kent State University)
- So Takei (now Professor at The City University of New York)
- Roman Lutchyn (now principal research staff in Microsoft)
- Chris Varney (now Professor at the University of West Florida)
- Handong Chen (moved to a quantitative analyst job in a hedge-fund)
- Benjamin Fregoso (now Professor at Kent State University)
- Tigran Sedrakyan (now Professor at UMass Amherst)
- Greg Boyd (now permanent research staff at Northrop Grumman)
- Stefan Natu (now permanent research staff at Exxon Mobil)
- Sisram Ganeshan (now Professor at City College of New York CUNY)
- Mehdi Kargarian (moved to a permanent professorial position at Sharif University, Tehran, Iran)
- Sergey Syzryanov (now Professor at the Univ of Southern California)
- Dmitry Efimkin (moved to a postdoc position at the University of Texas, Austin)
- Yunxiang Liao (current postdoc)
- Valentin Stanev (current postdoc)

4 Service

4.a Professional

4.a.ii Reviewing activities

- Frequent Reviewer for the National Science Foundation (2008-present)
- Frequent Reviewer for the U.S. Department of Energy (2007-present)
  Served on three panels (Note: this was a paid activity).
- Frequent Reviewer for the Australian Research Council (20114-present)
- Reviewer for the Croatian Unity through Knowledge Fund (2010)
- Reviewer for the U.S. Army Research Office (2009 – present)
- Reviewer for the Israeli Science Foundation (2008-2009)
- Member of DOE review panel to review condensed mater theory effort at Brookhaven National Laboratory; April, 2011

4.a.iii Other unpaid services to local, State, and federal agencies

- Provided scientific advice, relevant materials, and data to help put together a large-scale funding initiative at DARPA on topological insulators (2009-2010)

4.a.iv Other non-University committees, commissions, panels, etc.

- Member of the Scientific Program Committee of the Aspen Center for Physics (January, 2017 – present)
- Organizer, Simons Conference, "Ultra-Quantum Matter," to be held at the Simons Foundation, New York, NY (February, 2018)
- The lead organizer of the International Conference, "Non-equilibrium Quantum Matter," Mainz, Germany in May, 2017
- One of the organizers of the International Conference, "Designer Quantum Systems Out of Equilibrium," Kavli Institute for Theoretical Physics, Santa Barbara, CA in November, 2016.
- Elected Member of Physics Today's Advisory Committee (PTAC) (January 2014 – January 2017)
- One of the organizers of the International Conference, "Topological Quantum Matter," held in Dallas, Texas in February, 2013.
- A lead organizer of the international Workshop "Gauge Fields in Condensed Matter, Ultracold Atoms and Beyond," Aspen Center for Physics, Aspen, CO (August, 2014)
- Member of the International Advisory Committee of the conference "Dubna-Nano2012" on nanophysics held in Dubna, Moscow Region, Russia in July of 2012.
- Co-organizer of the Workshop, "Spin physics and topological effects in cold atoms, condensed matter, and beyond,"Texas A & M University, College Station, TX in January 2012
- One of the lead organizers of the international workshop on Topological Insulators, "Exotic Insulating States of Matter," held at the Johns Hopkins University, in January, 2010; $20,000 of funding was provided by the Institute for Complex Adaptive Matter (ICAM)
- Briefly served as a member of the International Advisory Committee for the International Workshop on Condensed Matter Theories (2007-2008).
- Elected member of the Board of Directors of the University of Minnesota Alumni Association (2007 – 2010)

4.a.v Paid consultancies

- Paid reviewer for the U.S. Department of Energy (2010, 2011, 2013)
- Consultant for JACOBSON/HOLMAN PLLC (2011-2012)

4.b University

4.b.i Departmental

- Elected Member of the Joint Quantum Institute Executive Committee (2009 – 2012)
- Served on the Departmental graduate admissions committee (2008 – 2011)
- JQI Postdoctoral Fellowship committee (2007 – 2008; Chaired the committee in 2008, 2016-present)
- CNAM Postdoctoral Fellowship committee (2008 – 2009)
- CNAM graduate selection committee (2008 – 2009)
- Contributed and reviewed problems for the graduate qualifying examination (in conjunction with the Qualifying Examination Committee) (2007 – present)
- Served on many Ph. D. dissertation committees and qualifying examinations
- Made popular research presentations and advised incoming graduate students (2008 – 2016)
- Lead organizer of the weekly CNAM condensed matter physics Colloquium (2007 – present)
- Co-organizer of the weekly JQI quantum information seminar (2008 – 2010)

4.b.ii College

Made a popular research presentation to the Board of Visitors of the College of Computer Mathematical and Physical Sciences at the University of Maryland (October, 2009)

4.c Communal, State, National

- Served as a judge for the NASA Academy at the Goddard Space Flight Center (2007)