CURRICULUM VITAE

1. Name, position, academic department:

Dmitri Feldman, Professor, Physics Department

2. Education:

Ph.D. in Physics -- 1998
Landau Institute for Theoretical Physics
Thesis: Phase transitions in disordered magnets

M.S., Honors Diploma -- 1995
Moscow Institute of Physics and Technology
Thesis: Thermodynamics of learning process in neural networks

B.S., Summa cum Laude -- 1993
Moscow Institute of Physics and Technology

3. Professional appointments:

Landau Institute for Theoretical Physics
Junior researcher (1998 – 2004)
Weizmann Institute of Science
Distinguished postdoctoral fellow (1999 - 2001)
Argonne National Laboratory
Postdoctoral Appointee (2001 - 2003)
Brown University
Assistant Professor (2003 - 2009)
Associate Professor (2009 – 2018)
Professor (2018 – Present)

4. Editorial Board Service

International Journal of Modern Physics B and
Modern Physics Letters B (2022 – Present)

5. Publications

a. books

1. L. N Cooper and D. Feldman, eds., *BCS: 50 Years* (World Scientific, 2010).

b. book chapters

1. M. Heiblum and D. E. Feldman, Edge probes of topological order, in B. I. Halperin and J. K. Jain, eds, *Fractional Quantum Hall Effects: New Developments* (World Scientific, 2020). (*Reprinted as* **c[61]**)

c. articles

1. D. E. Feldman and V. S. Dotsenko, Partially annealed neural networks, *J. Phys. A* **27**, 4401-4411 (1994).

2. V. S. Dotsenko and D. E. Feldman, Statistical mechanics of training in neural networks, *J. Phys. A* **27**, L821-L827 (1994).

3. D. E. Feldman, Thermodynamics of training process, *JETP* **80**, 500-507 (1995).

4. D. E. Feldman, Phase transition in a nonequilibrium two-dimensional degenerate system, *JETP Lett.* **61**, 953-957 (1995).

5. V. S. Dotsenko and D. E. Feldman, Replica symmetry breaking and the renormalization group theory of the weakly disordered ferromagnet, *J. Phys. A* **28**, 5183-5206 (1995).

6. D. E. Feldman, A. V. Izyumov, and V. S. Dotsenko, Stability of the renormalization group in the 2D random Ising and Baxter models with respect to replica symmetry breaking, *J. Phys. A* **29**, 4331-4336 (1996).

7. D. E. Feldman, Weak disorder in a two-dimensional dipole magnet, *JETP Lett.* **65**, 114-119 (1997).

8. D. E. Feldman, Weak disorder in the two-dimensional XY dipole ferromagnet, *Phys. Rev. B* **56**, 3167-3172 (1997).

9. D. E. Feldman, Exact zero-temperature critical behaviour of the ferromagnet in the uniaxial random field, *J. Phys. A* **31**, L177-L183 (1998).

10. D. E. Feldman, Critical behavior of a degenerate ferromagnet in a uniaxial random field: exact results in a space of arbitrary dimension, *JETP* **88**, 1170-1178 (1999).

11. D. E. Feldman, Quasi-long-range order in the random-anisotropy Heisenberg model, *JETP Lett.* **70**, 135-140 (1999).

12. D. E. Feldman, Quasi-long-range order in the random anisotropy Heisenberg model: Functional renormalization group in 4-epsilon dimensions, *Phys. Rev. B* **61**, 382-390(2000).

13. D. E. Feldman, Quasi-long-range order in nematics confined in random porous media, *Phys. Rev. Lett.* **84**, 4886-4889 (2000).

14. D. E. Feldman, I. F. Lyuksyutov, V. L. Pokrovsky, and V. M. Vinokur, Vortex plasma and transport in superconducting films with magnetic dots, *Europhys. Lett.* **51**, 110-115 (2000).

15. D. E. Feldman, Nonexistence of quasi-long-range order in strongly disordered vortex glasses: A rigorous proof, *Phys. Rev. B* **62**, 5364-5365 (2000).

16. N. Avraham, B. Khaykovich, Y. Myasoedov, M. Rappaport, H. Shtrikman, D. E. Feldman, T. Tamegai, P. H. Kes, M. Li, M. Konczykowski, K. van der Beek, and E. Zeldov, 'Inverse' melting of a vortex lattice, *Nature* **411**, 451-454 (2001).

17. D. E. Feldman, Quasi-long-range order in glass states of impure liquid crystals, magnets, and superconductors, *Int. J. Mod. Phys. B* **15**, 2945-2976 (2001).

18. N. Avraham, B. Khaykovich, Y. Myasoedov, M. Rappaport, H. Shtrikman, D. E. Feldman, E. Zeldov, T. Tamegai, P.H. Kes, M. Li, M. Konczykowski, and K. van der Beek, First-order disorder-driven transition and inverse melting of the vortex lattice, *Physica C* **369**, 36-44 (2002).

19. D.E. Feldman, Critical exponents of the random-field *O(N)* model, *Phys. Rev. Lett*. **88**, 177202 (2002).

20. Y. Paltiel, Y. Myasoedov, E. Zeldov, G. Jung, M. L. Rappaport, D. E. Feldman, M. J. Higgins, and S. Bhattacharya, V-I characteristics in the vicinity of order-disorder transition in vortex matter, *Phys. Rev. B* **66**, 060503(R) (2002).

21. D. E. Feldman and V. M. Vinokur, Destruction of bulk ordering by surface randomness, *Phys. Rev. Lett*. **89**, 227204 (2002).

22. D. E. Feldman and Y. Gefen, Backscattering off a point impurity: Current enhancement and conductance greater than e^2/h per channel, *Phys. Rev. B* **67**, 115337 (2003).

23. L. Y. Gorelik, R. I. Shekhter, V. Vinokur, D. E. Feldman, V. Kozub, and M. Jonson, Electrical manipulation of nanomagnets, *Phys. Rev. Lett.* **91**, 088301 (2003).

24. D. E. Feldman and R. A. Pelcovits, Liquid crystals in random porous media: Disorder is stronger in low density aerosils, *Phys. Rev. E* **70**, 040702(R) (2004).

25. D. E. Feldman, S. Scheidl, and V. M. Vinokur, Rectification in Luttinger Liquids, *Phys. Rev. Lett*. **94**, 186809 (2005).

26. B. Braunecker, D. E. Feldman, and J. B. Marston, Rectification in one-dimensional electronic systems, *Phys. Rev. B* **72**, 125311 (2005).

27. D. E. Feldman, Nonequlibrium quantum phase transition in itinerant electron systems, *Phys. Rev. Lett*. **95**, 177201 (2005).

28. K. T. Law, D. E. Feldman, and Y. Gefen, Electronic Mach-Zehnder interferometer as a tool to probe fractional statistics, *Phys. Rev. B* **74**, 045319 (2006).

29. D. E. Feldman and A. Kitaev, Detecting non-Abelian Statistics with Electronic Mach-Zehnder Interferometer, *Phys. Rev. Lett.* **97**, 186803 (2006).

30. D. P. Wang, D. E. Feldman, B. R. Perkins, A. J. Yin, G. H. Wang, J. M. Xu, and A. Zaslavsky, Hopping Conduction in Disordered Carbon Nanotubes, *Solid State Comm.* **142**, 287-291 (2007).

31. B. Braunecker, D. E. Feldman, and F. Li, Spin current and rectification in one-dimensional electronic systems, *Phys. Rev. B* **76**, 085119 (2007).

32. D. E. Feldman, Y. Gefen, A. Kitaev, K. T. Law, and A. Stern, Shot Noise in Anyonic Mach-Zehnder Interferometer, *Phys. Rev. B* **76**, 085333 (2007).

33. K. T. Law and D. E. Feldman, Quantum Phase Transition between a Luttinger Liquid and a Gas of Cold Molecules, *Phys. Rev. Lett.* **101**, 096401 (2008).

34. D. E. Feldman and F. Li, Charge-statistics separation and probing non-Abelian states, *Phys. Rev. B* **78**, 161304(R) (2008).

35. L. N Cooper and D. E. Feldman, Bardeen-Cooper-Schrieffer theory, *Scholarpedia* **4** (1) 6439 (2009).

36. C. Wang and D. E. Feldman, Transport in line junctions of ν=5/2 quantum Hall liquids, *Phys. Rev. B* **81**, 035318 (2010).

37. C. Wang and D. E. Feldman, Identification of 331 quantum Hall states with Mach-Zehnder interferometry, *Phys. Rev. B* **82**, 165314 (2010).

38. C. Wang and D. E. Feldman, Rectification in Y-junctions of Luttinger liquid wires, *Phys. Rev. B* **83**, 045302 (2011).

39. C. Wang and D. E. Feldman, Fluctuation-dissipation theorem for chiral systems in nonequilibrium steady states, *Phys. Rev. B* **84**, 235315 (2011).

40. G. Campagnano, O. Zilberberg, I. V. Gornyi, D. E. Feldman, A. C. Potter, and Y, Gefen, Two-particle interference of anyons, *Phys. Rev. Lett.* **109**, 106802 (2012).

41. C. Wang and D. E. Feldman, Chirality, causality and fluctuation-dissipation theorems in non-equilibrium steady states, *Phys. Rev. Lett.* **110**, 030602 (2013).

42. G. Yang and D. E. Feldman, Influence of device geometry on tunneling in the ν=5/2 quantum Hall liquid, *Phys. Rev. B* **88**, 085317 (2013).

43. G. Yang and D. E. Feldman, Exact zero modes and decoherence in systems of interacting Majorana fermions, *Phys. Rev. B* **89**, 035136 (2014).

44. C. Wang and D. E. Feldman, Fluctuation theorems without time-reversal symmetry, *Int. J. Mod. Phys. B* **28**, 1430003 (2014).

45. D. E. Feldman, Electronically erased, *Science* **344**, 1344-1345 (2014).

46. G. Yang and D. E. Feldman, Experimental constraints and a possible quantum Hall state at ν=5/2, *Phys. Rev. B* **90**, 161306(R) (2014).

47. C. Wang and D. E. Feldman, Fluctuation relations for spin currents, *Phys. Rev. B* **92**, 064406 (2015).

48. P. T. Zucker and D. E. Feldman, Edge mode velocities in the quantum Hall effect from a dc measurement, *New J. Phys.* **17,** 115003 (2015).

49. E. I. Kuznetsova, E. B. Fel'dman, and D. E. Feldman, Magnus expansion paradoxes in the study of equilibrium magnetization and entanglement in multi-pulse spin locking, *Physics-Uspekhi* **59**, 577-582 (2016).

50. P. T. Zucker and D. E. Feldman, Stabilization of the Particle-Hole Pfaffian Order by Landau-Level Mixing and Impurities That Break Particle-Hole Symmetry, *Phys. Rev. Lett*. **117**, 096802 (2016).

51. D. E. Feldman and M. Heiblum, Why a noninteracting model works for shot noise in fractional charge experiments, *Phys. Rev. B* **95**, 115308 (2017).

52. M. Banerjee, M. Heiblum, A. Rosenblatt, Y. Oreg, D. E. Feldman, A. Stern, and V. Umansky, Observed Quantization of Anyonic Heat Flow, *Nature* **545**, 75–79 (2017).

53. D. S. Shapiro, D. E. Feldman, A. D. Mirlin, and A. Shnirman, Thermoelectric transport in junctions of Majorana and Dirac channels, *Phys. Rev. B* **95**, 195425 (2017).

54. E. B. Fel'dman, D. E. Feldman and E. I. Kuznetsova, Floquet Hamiltonian and Entanglement in Spin Systems in Periodic Magnetic Fields, *Appl. Magn. Reson.* **48**, 517–531 (2017).

55. I. Sivan, R. Bhattacharyya, H. K. Choi, M. Heiblum, D. E. Feldman, D. Mahalu, and V. Umansky, Interaction-induced interference in the integer quantum Hall effect, *Phys. Rev. B* **97**, 125405 (2018).

57. M. Banerjee, M. Heiblum, V. Umansky, D. E. Feldman, Y. Oreg, and A. Stern, Observation of half-integer thermal Hall conductance, *Nature* **559**, 205–210 (2018).

58. D. E. Feldman, Comment on "Interpretation of thermal conductance of the ν=5/2 edge", *Phys. Rev. B* **98**, 167401 (2018).

59. K. K. W. Ma and D. E. Feldman, Partial equilibration of integer and fractional edge channels in the thermal quantum Hall effect, *Phys. Rev. B* **99**, 085309 (2019).

60. K. K. W. Ma and D. E. Feldman, The sixteenfold way and the quantum Hall effect at half-integer filling factors, *Phys. Rev. B* **100**, 035302 (2019).

61. M. Heiblum and D. E. Feldman, Edge probes of topological order, *Int. J. Mod. Phys.* A **35**, 2030009 (2020) (*Reprinted from* **b[1]**).

62. D. E. Feldman, The smallest particle collider, *Science* **368**, 131 (2020).

63. K. K. W. Ma and D. E. Feldman, Thermal Equilibration on the Edges of Topological Liquids, *Phys. Rev. Lett.* **125**, 016801 (2020).

64. C. Sun, K. K. W. Ma, and D. E. Feldman, Particle-hole Pfaffian order in a translationally and rotationally invariant system, *Phys. Rev. B* **102**, 121303(R) (2020).

65. D. E. Feldman and B. I. Halperin, Fractional charge and fractional statistics in the quantum Hall effects, *Rep. Prog. Phys.* **84**, 076501 (2021).

66. Z. Wei, V. F. Mitrovic, and D. E. Feldman, Thermal interferometry of anyons in spin Liquids, *Phys. Rev. Lett*. **127**, 167204 (2021).

67. D. E. Feldman and B. I. Halperin, Robustness of quantum Hall interferometry, *Phys. Rev. B* **105**, 165310 (2022).

68. S. Carr, C. Snider, D. E. Feldman, C. Ramanathan J. B. Marston, and V. F. Mitrović, Signatures of electronic correlations and spin-susceptibility anisotropy in nuclear magnetic resonance, *Phys. Rev. B* **106**, L041119 (2022).

69. Z. Wei, N. Batra, V. F. Mitrović, and D. E. Feldman, Thermal interferometry of anyons, *Phys. Rev. B* **107**, 104406 (2023).

70. A. Rao, S. Carr, C. Snider, D. E. Feldman, C. Ramanathan, and V. F. Mitrović, Machine learning assisted determination of electronic correlations from magnetic resonance, *Phys. Rev. Research* **5**, 043098 (2023).

71. N. Batra, Z. Wei, S. Vishveshwara, and D. E. Feldman, Anyonic Mach-Zehnder interferometer on a single edge of a two-dimensional electron gas, *Phys. Rev. B* **108**, L241302 (2023).

72. N. Batra and D. E. Feldman, Different fractional charges from auto- and cross-correlation noise in quantum Hall states without upstream modes, *Phys. Rev. Lett.* **132**, 226601 (2024).

73. T. Werkmeister, J. R. Ehrets, Y. Ronen, M. E. Wesson, D. Najafabadi, Z. Wei, K. Watanabe, T. Taniguchi, D. E. Feldman, B. I. Halperin, A. Yacoby, and P. Kim, Strongly coupled edge states in a graphene quantum Hall interferometer, *Nature Comm.* **15**, 6533 (2024).

74. Z. Wei, D. E. Feldman, and B. I. Halperin, Quantum Hall interferometry at finite bias with multiple edge channels, *Phys. Rev. B* **110**, 075306 (2024).

75. N. Batra and D. E. Feldman, Bound on the topological gap from Newton's laws, *Phys. Rev. B* **110**, 235133 (2024).

76. N. J. Zhang, R. Q. Nguyen, N. Batra, X. Liu, K. Watanabe, T. Taniguchi, D. E. Feldman, and J. I. A. Li, Excitons in the quantum Hall effect, *Nature* **637**, 237 (2025).

77. R. Q. Nguyen, N. J. Zhang, N. Batra, X. Liu, K. Watanabe, T. Taniguchi, D. E. Feldman, And J. I. A. Li, Identification and control of neutral anyons, arXiv:2410.24208.

6. Awards

2nd prize at the competition of scientific works of the Landau Institute, 1997.
Koshland scholar award (Weizmann Institute of Science), 1999.
Salomon Research Award, 2005.
CAREER Award, 2006.
APS Outstanding Referee, 2020.
APS Fellow, 2024.

7. Teaching during the last 5 years

PHYS 2040, Classical Theoretical Physics II, Spring 2019
PHYS 2050, Quantum Mechanics I, Fall 2019
PHYS 2040, Classical Theoretical Physics II, Spring 2020
PHYS 790, Physics of Matter, Fall 2020
PHYS 1420, Quantum Mechanics B, Spring 2021
PHYS 790, Physics of Matter, Fall 2021
PHYS 1420, Quantum Mechanics B, Spring 2022
PHYS 1530, Thermodynamics and Statistical Mechanics, Fall 2022
PHYS 1530, Thermodynamics and Statistical Mechanics, Fall 2023
PHYS 2140, Statistical Mechanics, Spring 2024
PHYS 1530, Thermodynamics and Statistical Mechanics, Fall 2024

Directed the Senior thesis of

Andrew Potter Sc.B.'08
Emma Bogdonoff A.B/Sc.B.'11
Tom Iadecola Sc.B.'12
Marc Langer Sc.B.'13
Abishek Kulshreshtha, Sc. B.'15
Alexander Meehan, Sc. B.15
Jungho Choi Sc.B. '20

Directed the Ph. D. thesis of

Kam Tuen Law, Ph.D.'09
Feifei Li, Ph.D.'10
Chenjie Wang, Ph.D'12
Guang Yang, Ph.D.'14
Philip Zucker, Ph.D.'17
Ken Kwok Wai Ma, Ph.D. '20
Zezhu Wei, Ph.D. '24