

## Alex Kamenev – Curriculum Vitae

### Academic experience:

**2008 – present:** Professor at the Physics Department of the University of Minnesota, Minneapolis.

**2001 – 2008:** Associate professor at the Physics Department of the University of Minnesota, Minneapolis (tenured since 2006).

**1999 – 2001:** Assistant professor at the Physics Department of the Technion, Israel Institute of Technology, Haifa, Israel.

**1996 – 1999:** Post Doctoral researcher at the Physics Department and the Institute for Theoretical Physics, University of California Santa Barbara; under the supervision of Prof. Walter Kohn.

**1991 – 1996:** Graduate student in Solid State Physics (mesoscopic systems), at the Weizmann Institute of Science, Rehovot, Israel; under the supervision of Prof. Yuval Gefen.

**1987 – 1991:** Junior researcher at the Institute of Radioengineering & Electronics, Academy of Science USSR.

**1981 – 1987:** M. Sc. in Theoretical Physics, Moscow State University, completed with special distinction.

### Awards and Scholarships:

**2005-2007:** McKnight Land-Grant Professorship.

**2004:** Alfred P. Sloan Fellowship.

**2000:** Career Development Chair at the Technion.

**1999 – 2002:** young faculty Allon Fellowship.

**1996 – 1997:** Rothschild Post Doctoral Fellowship.

**1996:** Fulbright Post Doctoral award (United States Informational Agency).

**1995:** John F. Kennedy Memorial prize of the Weizmann Institute of Science.

**1994:** Annual Award of the Israel Physical Society for the best Ph. D. student.

**1993 – 1996:** Walter and Anna Bronner Scholarship.

## **Participation in Conferences organization:**

**2009:** "Random Matrices and Integrability: From Theory to Applications". March 2009, Yad Hashmona, Israel.

**2008:** "Quantum magnetism", May 2008, Minneapolis.

**2006:** "Frontiers of Condensed Matter Theory". Symposium dedicated to the memory of A.I. Larkin, Minneapolis, May 4-7, 2006.

**2005:** "Non-Equilibrium and Correlation Effects in Low-Dimensional Structures", April 29-May 1, 2005.

**2003:** "The Correlation Effects in Bose Condensates and Optical Lattices", May 2-4, 2003, in Minneapolis, MN.

**2002:** "Spins and Interactions in Mesoscopic Systems", May 10-12, 2002, in Minneapolis, MN.

## **B. Teaching:**

Graduate students:

**2001 – 2006** Vlad Elgart (graduated September 2006, currently a post-doc at Virginia Tech.).

**2004 – present:** Alex Levchenko

**Summer 2006:** Xi Chen

**2007– present:** Matthew Parker

**Summer 2008:** Thomas Dunn

Post-docs:

**2005–present** Maxim Khodas

**2002 – 2004** Julia Meyer (currently faculty at Columbus, Ohio).

## Publications in refereed journals:

1. A. L. Chudnovskiy, J. Swiebodzinski, A. Kamenev, *Spin-torque shot noise in magnetic tunnel junctions*, arXiv:0803.2101, submitted to Phys. Rev. Lett.
2. Michael Assaf, Alex Kamenev, Baruch Meerson, *On population extinction risk in the aftermath of a catastrophic event*, submitted to J. Of Theoretical Population Biology; arXiv:0803.0438
3. Alex Kamenev, Baruch Meerson, *Extinction of an infectious disease: a large fluctuation in a non-equilibrium system*, submitted to Phys. Rev. E, arXiv:0801.4900
4. M. Khodas, A. Kamenev, L.I. Glazman, *Generating dark solitons by single photons*, submitted to Phys. Rev. Lett, arXiv:0710.2910.
5. Alex Levchenko, and Alex Kamenev, *Coulomb drag at zero temperature*, Phys. Rev. Lett. **100**, 026805 (2008).
6. A. Levchenko, A. Kamenev, *Keldysh Ginsburg-Landau action of fluctuating superconductors*, Phys. Rev. B **76**, 094518 (2007).
7. M. Khodas, M. Pustilnik, A. Kamenev, L.I. Glazman, *Dynamics of excitations in a one-dimensional Bose liquid*, Phys. Rev. Lett. **99**, 110405 (2007).
8. M. Khodas, M. Pustilnik, A. Kamenev, L.I. Glazman, *One-dimensional Fermi-Luttinger Liquid*, Phys. Rev. B **76**, 155402 (2007).
9. E. Mariani, L. I. Glazman, A. Kamenev, F. von Oppen, *Zero-bias anomaly in the tunneling density of states of graphene*, Phys. Rev. B **76**, 165402 (2007).
10. A. Levchenko, A. Kamenev, L. I. Glazman, *Singular length dependence of critical current in SNS bridges*, Phys. Rev. B **74**, 212509 (2006).
11. V. Elgart, A. Kamenev, *Classification of phase transitions in reaction-diffusion systems*, Phys. Rev. E **74**, 041101 (2006).
12. M. Pustilnik, M. Khodas, A. Kamenev, L.I. Glazman, *Dynamic response of one-dimensional interacting fermions*, Phys. Rev. Lett. **96**, 196405 (2006).
13. J. Zhang, A. Kamenev, B. I. Shklovskii, *Ion-exchange phase transitions in doped ion channels*, Phys. Rev. E. **73**, 051205 (2006).
14. J. S. Meyer, A. Kamenev, and L. I. Glazman, and A. Altland *Theory of metallic arrays*, Annals of Physics **321**, 2566-2603 (2006).
15. A. Kamenev, J. Zhang, A. I. Larkin, B. I. Shklovskii, *Transport in one dimensional Coulomb gases: From ion channels to nanopores*, Physica A **359**, 129 (2006).
16. A. Altland, A. Kamenev, and C. Tian, *One-dimensional Anderson localization from the replica field-theory*, Phys. Rev. Lett. **95**, 206601 (2005).
17. J. Zhang, A. Kamenev, B. I. Shklovskii, *Conductance of ion channels and water filled nanopores with charged walls*, Phys. Rev. Lett. **95**, 148101 (2005).
18. Alex Kamenev, *Many-body theory of non-equilibrium systems*, in *Nanophysics: Coherence and Transport*, H. Bouchiat, et al. (editors); pp. 177-246, Elsevier, Amsterdam, 2005.

19. C. Tian, A. Kamenev, A. Larkin, *Ehrenfest time in the weak dynamical localization*, Phys. Rev. B. **72**, 045108-33 (2005).
20. S. T. Wang, X. F. Han, A. Cady, Z. Q. Liu, A. Kamenev, L. Glazman, B. K. Sadashiva, R. A. Reddy, and C. C. Huang, *Optical investigations on the biaxial smectic- A phase of a bent-core compound* Phys. Rev. E **70** , 061705-9 (2004).
21. V. Elgart and A. Kamenev, *Rare Events Statistics in Reaction–Diffusion Systems*, Phys. Rev. E. **70** 041106-17 (2004).
22. C. Tian, A. Kamenev, and A. Larkin, *Weak dynamical localization in periodically kicked cold atomic gases*, Phys. Rev. Lett. **93**, 124101-4 (2004).
23. J. S. Meyer, A. Kamenev, and L. I. Glazman, *Electron transport in two-dimensional arrays*, Phys. Rev. B **70**, 45310-20 (2004).
24. A. Altland, L. I. Glazman, and A. Kamenev, *Transport in 1D granular metals*, Phys. Rev. Lett. **92**, 026801-4 (2004).
25. S. M. Nishigaki, D. M. Gangardt, and A. Kamenev, *Correlation functions of the BC Calogero-Sutherland model*, J. Phys. A: Math. Gen. **36**, No 12 3137-3151 (2003) (special issue on Random Matrix Theory).
26. A. Kamenev and A. I. Larkin, *Coulomb Blockade with Dispersive Interfaces*, Phys. Rev. Lett. **89**, 236801 (2002).
27. M. V. Feigelman, A. Kamenev, A. I. Larkin, M. A. Skvortsov, *Weak Charge Quantization on Superconducting Islands*, Phys. Rev. B **66**, 054502 (2002).
28. Alejandro M. F. Rivas, Eduardo R. Mucciolo, and Alex Kamenev, *Numerical study of quasiparticle lifetime in quantum dots*, Phys. Rev. B. **65**, 155309 (2002).
29. Alex Kamenev, *Keldysh and Doi-Peliti Techniques for out-of-Equilibrium Systems*, in "Strongly Correlated Fermions and Bosons in Low-Dimensional Disordered Systems" I. V. Lerner, et. al. editors, pp. 313-340, Kluwer Academic Publishers, Dordrecht, Boston, London, 2002.
30. Shinsuke M. Nishigaki and Alex Kamenev, *Replica treatment of non-Hermitian disordered Hamiltonians*, J. Phys. A. Math. Gen. **35**, 4571-4590 (2002).
31. A. Kamenev and W. Kohn, *Landauer Conductance without Two Chemical Potentials*, Phys. Rev. B. **63**, 155304 (2001).
32. D. M. Gangardt and A. Kamenev, *Replica Treatment of the Calogero–Sutherland Model* Nucl. Phys. B. **610**, 578–594 (2001).
33. A. Altland and A. Kamenev, *Wigner–Dyson Statistics from the Keldysh  $\sigma$ -Model*, Phys. Rev. Lett., **85**, 5615–18 (2000).
34. A. Kamenev, *Weak Coulomb Blockade as an Instanton of Interacting  $\sigma$ -model.*, Phys. Rev. Lett., **85**, 4160–63 (2000).
35. I. L. Aleiner, B. L. Altshuler, and A. Kamenev, *Quantum Pumping in the Magnetic Field: Role of Discrete Symmetries*, Phys. Rev. B, **62** 10373–76 (2000).
36. A. V. Andreev and A. Kamenev, *Counting statistics of an Adiabatic Pump*, Phys. Rev. Lett. **85**, 1294–1297 (2000).

37. A. Kamenev and M. Mézard, *Level Correlations in Disordered Metals: the Replica  $\sigma$ -Model*, Phys. Rev. B **60**, 3944–3954 (1999).
38. A. Kamenev and M. Mézard, *Wigner–Dyson Statistics from the Replica Method*, J. Phys. A **32**, 4373–4388 (1999).
39. A. Kamenev and A. V. Andreev, *Electron–electron Interactions in Disordered Metals: Keldysh Formalism*, Phys. Rev. B **60**, 2218–2238 (1999).
40. A. V. Andreev and A. Kamenev, *Itinerant Ferromagnetism in Disordered Metals: A Mean–Field Theory*, Phys. Rev. Lett. **81**, 3199, (1998).
41. Y. Oreg and A. Kamenev, *Coulomb Drag in Systems with Tunneling Bridges*, Phys. Rev. Lett. **80**, 2421, (1998).
42. A. V. Andreev and A. Kamenev, *Infrared Singularities in  $d \leq 2$  Interacting Disordered Systems*, Phys. Rev. B **58**, 5149–5152, (1998).
43. B. L. Altshuler, Y. Gefen, A. Kamenev, and L. S. Levitov, *Quasiparticle Lifetime in a Finite System: A Non–Perturbative Approach*, Phys. Rev. Lett. **78**, 2803–2806 (1997).
44. A. Kamenev and Y. Gefen, *Charge Fluctuations in a Quantum Dot with a Dissipative Environment*, cond-mat/9708109.
45. A. Kamenev and Y. Gefen, *Statistical Ensembles and Spectral Correlations in Mesoscopic Physics*, Chaos, Solutions & Fractals, **8**, pp. 1229–1247 (1997).
46. A. Kamenev and Y. Gefen, *Differences between Statistical Mechanics and Thermodynamics on the Mesoscopic Scale*, Phys. Rev. B **56**, 1025–1028 (1997);
47. Y. Berk, A. Kamenev, A. Palevski, H. Shtrikman, and M. Slutzky, *Single Particle and electron–electron Scattering Rates in Coupled Quantum Wells*, Surf. Sci., **361–362**, 126–129 (1996).
48. A. Kamenev and Y. Gefen, *Zero–Bias Anomaly in Finite Size Systems*, Phys. Rev. B **54**, 5428–5437 (1996).
49. A. Kamenev and Y. Oreg, *Coulomb Drag in Normal Metals and Superconductors: Diagrammatic Approach*, Phys. Rev. B **52**, 7516–7527, (1995).
50. A. Kamenev and Y. Gefen, *(Almost) Everything you Always Wanted to Know about the Conductance of Mesoscopic Systems*, Int. J. of Modern. Phys. B **9**, 751–802 (1995).
51. Y. Berk, A. Kamenev, A. Palevski, L. N. Pfeiffer, and K. W. West, *Resonant Magnetoresistance of Coupled Quantum Wells*, Phys. Rev. B **51**, 2604–2607 (1995).
52. A. Kamenev and Y. Gefen, *Universal Conductance Distribution in the Quantum Size Regime*, Europhys. Lett. **29**, 413–418 (1995).
53. Y. Gefen and A. Kamenev, *On the Role of the Statistical Ensemble in the Dynamics and Thermodynamics of Finite Disordered Systems* in H. A. Cerdeira *et al.* (editors), *Quantum Dynamics of Submicron Structures*, Kluwer Academic Publ., Netherlands, pp. 81–92 (1995).

54. Y. Berk, A. Kamenev, A. Palevski, L. N. Pfeiffer, and K. W. West, *Resonant Transport in Coupled Quantum Wells: a Probe for Scattering Mechanisms*, Phys. Rev. **B 50**, 15420–15423 (1994).
55. A. Kamenev, B. Reulet, H. Bouchiat, and Y. Gefen, *Conductance of Aharonov–Bohm Rings: From the Discrete to the Continuous Spectrum Limit*, Europhys. Lett., **28**, 391–396 (1994).
56. A. Kamenev and D. Braun, *Single Level Current and Curvature Distributions in Mesoscopic Systems*, J. Phys. (Paris) pt I, **4**, 1049–1062 (1994).
57. A. Kamenev and Y. Gefen,  $\Phi_0$  – *Periodic Aharonov–Bohm Oscillations and Ensemble Averaging*, Phys. Rev. **B**, **49**, 14474–14477 (1994).
58. D. Braun, G. Montambaux, and A. Kamenev, *Motion of Energy Levels in Diffusive Electronic Systems*, in D. C. Glatzli *et al.* (editors), *Coulomb and Interference Effects in Small Electronic Structures*, Editions Frontiers, France-press, pp. 131–141 (1994).
59. A. Kamenev and Y. Gefen, *Static vs. Adiabatic Response of Mesoscopic Systems: The Role of the Statistical Ensemble*, Phys. Rev. Lett., **70**, 1976–1979 (1993).
60. A. S. Ignat’ev, A. Kamenev, V. B. Kopylov, G. Z. Nemtsev, and D. V. Posviansky, *Static current-voltage characteristics of resonant tunnel diodes based on GaAs/AlAs heterostructures*, Semiconductors, **27**, 423–426 (1993); [Translated from Fizika i Tekhnika Poluprovodnikov, **27**, 775–781 (1993)].
61. V. V. Kislov and A. Kamenev, *High–Frequency Properties of Resonant Tunneling Devices*, Appl. Phys. Lett., **59**, 1500–1502 (1991).
62. A. Kamenev and V. V. Kislov, *Stimulated Breakdown of Resonant Tunneling in Heterostructures*, Sov. J. Commun. Techn.&Electronics, **36**, 110–116 (1991); [translated from Radiotekhnica i Elektronika, N 9, 1971–1977 (1990)].
63. A. Kamenev and V. V. Kislov, *Quantum Reception of (Sub)millimeter Radiation using the Resonant Tunneling Effect*, Sov. Tech. Phys. Lett., **15**, 961–963 (1989); [translated from Pis’ma Zh. Tekh. Fiz. **15**, 24–28 (1989)].