

List of Publications of Anatoli Polkovnikov:

2015

1. **T. N. Ikeda, N. Sakumichi, A. Polkovnikov, M. Ueda**, The Second Law of Thermodynamics under Unitary Evolution and External Operations, *Annals of Physics* **354**, 338 (2015)
2. **S. M Davidson, A. Polkovnikov**, SU(3) semi-classical representation of quantum dynamics of interacting spins, *Phys. Rev. Lett.* **114**, 043603 (2015)
3. **M. Kolodrubetz, E. Katz, A. Polkovnikov**, Dynamic trapping near a quantum critical point, *Phys. Rev. B* **91**, 054306 (2015)
4. **C.-W. Liu, A. Polkovnikov, A. W. Sandvik**, Quantum versus classical annealing - insights from scaling theory and results for spin glasses on 3-regular graphs, *Phys. Rev. Lett.* **114**, 147203 (2015)

2014

5. **M. Bukov, A. Polkovnikov**, Stroboscopic vs. Non-stroboscopic Dynamics in the Floquet Realization of the Harper-Hofstadter Hamiltonian, *Phys. Rev. A* **90**, 043613 (2014)
6. **M. Bukov, L. D'Alessio, A. Polkovnikov**, Universal High-Frequency Behavior of Periodically Driven Systems: from Dynamical Stabilization to Floquet Engineering, *arXiv:1407.4803* (2014); *Adv. in Phys.* in press
7. **P. Roushan, C. Neill, Yu Chen, M. Kolodrubetz, C. Quintana, N. Leung, M. Fang, R. Barends, B. Campbell, Z. Chen, B. Chiaro, A. Dunsworth, E. Jeffrey, J. Kelly, A. Megrant, J. Mutus, P. O'Malley, D. Sank, A. Vainsencher, J. Wenner, T. White, A. Polkovnikov, A. N. Cleland, J. M. Martinis**, Observation of topological transitions in interacting quantum circuits, *Nature* **515**, 241 (2014)
8. **M. D. Schroer, M. H. Kolodrubetz, W. F. Kindel, M. Sandberg, J. Gao, M. R. Vissers, D. P. Pappas, A. Polkovnikov, K. W. Lehnert**, Measuring a topological transition in an artificial spin 1/2 system, *Phys. Rev. Lett.* **113**, 050402 (2014)
9. **L. D'Alessio, Y. Kafri, A. Polkovnikov**, Negative mass corrections in a dissipative stochastic environment, *arXiv:1405.2077* (2014).
10. **C.-W. Liu, A. Polkovnikov, A. W. Sandvik**, Dynamic scaling at classical phase transitions approached through non-equilibrium quenching, *Phys. Rev. B.* **89**, 054307 (2014)
11. **L. D'Alessio, A. Polkovnikov**, Emergent Newtonian dynamics and the geometric origin of mass, *Annals of Physics*, **345**, 141 (2014)

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12. **G. Bunin, Y. Kafri, V. Lecomte, D. Podolsky, A. Polkovnikov**, Transport-induced correlations in weakly interacting systems, *J. Stat. Mech.*, P08015 (2013)
13. **M. Kolodrubetz, V. Gritsev, A. Polkovnikov**, Classifying and measuring the geometry of the quantum ground state manifold, *Phys. Rev. B* **88**, 064304 (2013)
14. **C.-W. Liu, A. Polkovnikov, A. W. Sandvik**, Quasi-adiabatic quantum Monte Carlo algorithm for quantum evolution in imaginary time, *Phys. Rev. B* **87**, 174302 (2013)
15. **E. G. Dalla Torre, E. Demler, A. Polkovnikov**, Universal Rephasing Dynamics after a Quantum Quench via Sudden Coupling of Two Initially Independent Condensates, *Phys. Rev. Lett.* **110**, 090404 (2013)

16. **L. D'Alessio and A. Polkovnikov**, Many-body energy localization transition in periodically driven systems, *Annals of Physics* **333**, 19 (2013)
17. **P. Mehta and A. Polkovnikov**, Efficiency bounds for nonequilibrium heat engines, *Annals of Phys.* **332**, 110-126 (2013)
18. **M. Heyl, A. Polkovnikov, S. Kehrein**, Dynamical Quantum Phase Transitions in the Transverse Field Ising Model, *Phys. Rev. Lett.* **110**, 135704 (2013)

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19. **L. Santos, A. Polkovnikov, M. Rigol**, Weak and strong typicality in quantum systems, *Phys. Rev. E* **86**, 010102(R) (2012)
20. **C. Neuenhahn, A. Polkovnikov, F. Marquardt**, Localized phase structures growing out of quantum fluctuations in a quench of tunnel-coupled atomic condensates, *Phys. Rev. Lett.* **109**, 085304 (2012)
21. **V. Gritsev, A. Polkovnikov**, Dynamical quantum Hall effect in the parameter space, *Proc. Nat. Acad. USA* **109**, 6457 (2012)
22. **M. Tomka, A. Polkovnikov, V. Gritsev**, Geometric phase contribution to quantum non-equilibrium many-body dynamics, *Phys. Rev. Lett.* **108**, 080404 (2012)

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23. **L. Mathey, K. J. Günter, J. Dalibard, A. Polkovnikov**, Dynamic Kosterlitz-Thouless transition in 2D Bose mixtures of ultra-cold atoms, *arXiv:1112.1204*
24. **I. Danshita, A. Polkovnikov**, Superfluid to Mott insulator transition in the one-dimensional Bose-Hubbard model for arbitrary integer filling factors, *Phys. Rev. A* **84**, 063637 (2011)
25. **I. Danshita, A. Polkovnikov**, Quantum phase slips in one-dimensional superfluids in a periodic potential, *Phys. Rev. A* **85**, 023638 (2012)
26. **C. De Grandi, A. Polkovnikov, A. Sandvik**, Universal nonequilibrium quantum dynamics in imaginary time, *Phys. Rev. B* **84**, 224303 (2011)
27. **L. Santos, A. Polkovnikov, M. Rigol**, Entropy of isolated quantum systems after a quench, *Phys. Rev. Lett.* **107**, 040601 (2011)
28. **V. Mukherjee, A. Polkovnikov, A. Dutta**, Oscillating fidelity susceptibility near a quantum multicritical point, *Phys. Rev. B* **83**, 075118 (2011)
29. **A. Polkovnikov, K. Sengupta, A. Silva, and M. Vengalattore**, Nonequilibrium dynamics of closed interacting quantum systems; *Rev. Mod. Phys.* **83**, 863 (2011)
30. **G. Bunin, L. D'Alessio, Y. Kafri, A. Polkovnikov**, Universal energy fluctuations in thermally isolated driven systems, *Nature Physics* **7**, 913 (2011)
31. **R. Barnett, A. Polkovnikov, M. Vengalattore**, Prethermalization in quenched spinor condensates, *Phys. Rev. A* **84**, 023606 (2011)
32. **A. Polkovnikov**, Microscopic diagonal entropy and its connection to basic thermodynamic relations, *Annals of Physics* **326**, 486 (2011)

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33. **I. Danshita, R. Hipolito, V. Oganessian, A. Polkovnikov**, Quantum damping of Fermi-Pasta-Ulam revivals in ultracold Bose gases, *arXiv:1012.4159*

34. **L. Mathey, A. Polkovnikov**, Light cone dynamics and reverse Kibble-Zurek mechanism in two-dimensional superfluids following a quantum quench, *Phys. Rev. A* **81**, 033605 (2010)
35. **V. Gritsev and A. Polkovnikov**, Universal Dynamics Near Quantum Critical Points, contribution to "Understanding in Quantum Phase Transitions", edited by Lincoln Carr, (Taylor & Francis, Boca Raton, 2010); *arXiv:0910.3692*
36. **R. Hipolito and A. Polkovnikov**, Breakdown of macroscopic quantum self-trapping in coupled mesoscopic one dimensional Bose gases, *Phys. Rev. A* **81**, 013621 (2010)
37. **C. De Grandi and A. Polkovnikov**, Adiabatic perturbation theory: from Landau-Zener problem to quenching through a quantum critical point, contribution to "Quantum Quenching, Annealing and Computation", Eds. A. Das, A. Chandra and B. K. Chakrabarti, *Lect. Notes in Phys.*, **802**, p. 75, Springer, Heidelberg 2010); *arXiv:0910.2236*
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40. **E. Altman, Y. Kafri, A. Polkovnikov, G. Refael**, Superfluid-insulator transition of disordered bosons in one-dimension, *Phys. Rev. B* **81**, 174528 (2010)
41. **A. Polkovnikov**, Phase space representation of quantum dynamics, *Annals of Phys.* **325**, 1790 (2010)
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44. **A. Altland, V. Gurarie, T. Kriecherbauer, and A. Polkovnikov**, Non-adiabaticity and large fluctuations in a many particle Landau Zener problem, *Phys. Rev. A* **79**, 042703 (2009)

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45. **V. Gritsev, E. Demler, A. Polkovnikov**, Interferometric probe of paired states, *Phys. Rev. A* **78**, 063624 (2008)
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47. **C. De Grandi, R. Barankov, A. Polkovnikov**, Adiabatic nonlinear probes of one-dimensional Bose gases, *Phys. Rev. Lett.* **101**, 230402 (2008)
48. **R. Barankov, A. Polkovnikov**, Optimal non-linear passage through a quantum critical point, *Phys. Rev. Lett.* **101**, 076801 (2008)
49. **S. Trotzky, P. Cheinet, S. Fölling, M. Feld, U. Schnorrberger, A. M. Rey, A. Polkovnikov, E. A. Demler, M. D. Lukin, I. Bloch**, Time-resolved Observation and Control of Superexchange Interactions with Ultracold Atoms in Optical Lattices, *Science* **319**, 295 (2008)
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52. **L. Mathey, A. Polkovnikov, A.H. Castro Neto**, Phase-locking transition of coupled low-dimensional superfluids, *Europhys. Lett.* **81**, 10008 (2008)

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