

List of Publications, Prof. Karyn Le Hur

1 Publication List/Only Refereed articles (until Nov. 2010)

Books and Survey

- *Superconductivity close to the Mott state: From condensed-matter systems to Superfluidity in optical lattices*, K. Le Hur and T. Maurice Rice, review article, Annals of Physics **324**, 1452-1515 (2009), Special Issue July arXiv:0812.1581, 98 pages
- Book on *Understanding Quantum Phase Transitions*, editor L. D. Carr Taylor and Francis, Boca Raton, 2010
- Chapter on *Quantum Phase Transitions in Spin-Boson Systems: Dissipation and Light phenomena*, by Karyn Le Hur, 26 pages, arXiv:09094822 (to appear, 2010).
- Book *Le plus grand des hasards*, edition Belin, gathering many physicists on quantum physics.

Publications 2010

- *Designing Heterostructures with Higher Temperature Superconductivity*, Karyn Le Hur, Chung-Hou Chung and I. Paul, arXiv:1010.5140.
- *Effective Thermodynamics of an Entangled Two-Level System*, Nathan S. Williams, Karyn Le Hur, and Andrew N. Jordan, arXiv:1009.4382 (submitted to PRL).
- *Entanglement from Charge Statistics: Exact Relations for Many-Body Systems*, H. Francis Song, Christian Flindt, Stephan Rachel, Israel Klich, Karyn Le Hur, arXiv:1008.5191 (submitted to PRL).
- *Time-reversal symmetry breaking in circuit-QED based photon lattices*, Jens Koch, Andrew Houck, Karyn Le Hur and S. M. Girvin, Phys. Rev. A **82**, 043811 (2010).
See also Viewpoint: Andrew D. Greentree and Andrew M. Martin Physics **3**, 85 (2010).
- *Dynamics, Synchronization and Quantum Phase Transitions of Two Dissipative Spins*, Peter P. Orth, David Roosen, Walter Hofstetter and Karyn Le Hur, Phys. Rev. B **82**, 144423 (2010) (Editors' Suggestion).
- *Effective Equilibrium Theory of Nonequilibrium quantum Transport I: Fundamentals and Methodology*, P. Dutt, J. Koch, J. E. Han and K. Le Hur, 18 pages, arXiv:1004.5591
- *Topological Insulators and Mott physics from the Hubbard Interaction*, Stephan Rachel and Karyn Le Hur, Phys. Rev. B **82**, 075106 (2010).
- *Tunable Kondo-Luttinger systems far from equilibrium*, C.-H. Chung, K.V.P. Latha, K. Le Hur, M. Vojta and P. Wölfle, Phys. Rev. B **82**, 115325 (2010).
- *General Relation between Entanglement and Fluctuations in One Dimension*, Francis Song, Stephan Rachel and Karyn Le Hur, Phys. Rev. B **82**, 012405 (2010).
- *Universal Resistances of the Quantum RC circuit*, Christophe Mora and Karyn Le Hur, *Nature Physics*, **6** 697 (2010).

Publications 2009

- *Universality in dissipative Landau-Zener transitions*, Peter P. Orth, Adilet Imambekov and Karyn Le Hur, Phys. Rev. A **82**, 032118 (2010).
- *Electric field Tuned Dimensional Crossover in Ar-Irradiated SrTiO₃*, J. H. Ngai, Y. Segal, F. J. Walker, S. Ismail-Beigi, K. Le Hur and C. H. Ahn, Phys. Rev. B **81**, 241307(R) (2010).
- *Theory of non-equilibrium transport in the SU(N) Kondo regime*, Christophe Mora, Pavel Vitushinsky, Xavier Leyronas, Aashish A. Clerk, Karyn Le Hur, arXiv:0906.2791, 17 pages. Phys. Rev. B **80**, 155322 (2009) (Editors' suggestion).
- *Superfluid-Mott Insulator Transition of Light in the Jaynes-Cummings Lattice*, Jens Koch and Karyn Le Hur, Phys. Rev. A **80**, 023811 (2009), 13 pages.
- *Supersolidity of Cold Atomic Bose-Fermi mixtures in optical lattices*, P. P. Orth, D. L. Bergman, and K. Le Hur, Phys. Rev. A **80**, 023624 (2009).
- *Topological Zero modes in fermionic condensate phases on the honeycomb lattice*, Doron Bergman and Karyn Le Hur, Phys. Rev. B **79**, 184520 (2009) [25 pages]
- *Non-equilibrium transport at a dissipative quantum phase transition*, Chung-Hou Chung, Karyn Le Hur, Matthias Vojta, Peter Wölfle, Phys. Rev. Lett. **102**, 216803 (2009).

- *Entanglement, decoherence, and dynamics of a two-state system*, Karyn Le Hur
Proceedings of PQE conference 2009, Snowbird, to appear in Journal of Modern Optics.

Publications 2008

- *Charge fractionalization in Quantum Wires*,
Hadar Steinberg, Gilad Barak, Amir Yacoby, Loren N. Pfeiffer, Ken W. West, Bert Halperin,
Karyn Le Hur, Nature Physics **4**, 116 (2008).
- *Charge Fractionalization in nonchiral Luttinger systems*,
K. Le Hur, B. I. Halperin, A. Yacoby, Annals of Physics **323**, 3037-3058 (2008).
- *Shot noise in $SU(N)$ Quantum Dot Kondo effects*,
P. Vitushinsky, A. A. Clerk, and K. Le Hur, Phys. Rev. Lett. **100**, 036603 (2008).
- *Discontinuous current-phase relations in small 1D Josephson junction arrays*,
Jens Koch and Karyn Le Hur, Phys. Rev. Lett. **101**, 097007 (2008).
- *Dissipative Quantum Ising model in a cold atomic spin-boson mixture*,
Peter P. Orth, Ivan Stanic, Karyn Le Hur, Phys. Rev. A **77**, 051601 (2008).
- *Double-gap superconducting proximity effect in nanotubes*,
Karyn Le Hur, Smitha Vishveshwara, Cristina Bena, Phys. Rev B **77**, 041406(R) (2008).
- *Entanglement Entropy, decoherence, quantum phase transition of a dissipative two-level system*, Karyn Le Hur, Annals of Physics **323**, 2208-2240 (2008) (34 pages).

Publications 2007

- *Entanglement and Criticality in Quantum Impurity Systems*,
K. Le Hur, Ph. Doucet-Beaupré, W. Hofstetter, Phys. Rev. Lett. **99**, 126801 (2007).
- *Universal and Measurable entanglement entropy in the spin-boson model*,
Angela Kopp and Karyn Le Hur, Phys. Rev. Lett. **98**, 220401 (2007) - General session.
- *Transport through a quantum dot with $SU(4)$ entanglement*,
K. Le Hur, P. Simon, D. Loss, Phys. Rev. B **75**, 035332 (2007).
- *Heavy fermion solution for electrons Hund's coupled to a spin liquid*,
Karyn Le Hur, Phys. Rev B **75**, 014435 (2007).

Publications 2006

- *The electron lifetime in Luttinger liquids*,
Karyn Le Hur, Phys. Rev B **74**, 165104 (2006).
- *Coulomb drag between two spin incoherent Luttinger liquids*,
Greg Fiete, Karyn Le Hur, Leon Balents, Phys. Rev. B **73**, 165104 (2006).
- *A Mesoscopic Resonating Valence Bond system on a triple dot*,
K. Le Hur, Patrik Recher, Émilie Dupont, Daniel Loss, Phys. Rev. Lett. **96**, 106803 (2006).
- *Decoherence of Einstein-Podolsky-Rosen pairs in a noisy Andreev entangler*,
Émilie Dupont and Karyn Le Hur, Phys. Rev. B **73**, 045325 (2006).

Publications 2005

- *Transport in a Spin-Incoherent Luttinger liquid*,
Greg Fiete, Karyn Le Hur and Leon Balents, Phys. Rev. B **72**, 125416 (2005).
- *Dephasing of Mesoscopic Interferences from Electron Fractionalization*,
Karyn Le Hur, Phys. Rev. Lett. **95**, 076801 (2005).
- *Hidden Caldeira-Leggett dissipation in a Bose-Fermi Kondo model*,
Mei-Rong Li, Karyn Le Hur and Walter Hofstetter, Phys. Rev. Lett. **95**, 086406 (2005).
- *Unification of electromagnetic noise and Luttinger liquid via a resonant level*,
Karyn Le Hur and Meirong Li, Phys. Rev. B **72**, 073305 (2005).
- *Probing spin and orbital Kondo effects with a mesoscopic interferometer*,
Rosa Lopez, David Sanchez, Minchul Lee, Mahn-Soo Choi, Pascal Simon, Karyn Le Hur,
Phys. Rev. B **71**, 115312 (2005).
- *Quantum Dot in the pseudogap Kondo state*,
J. Hopkinson, K. Le Hur, and É. Dupont, Eur. Phys. J. B **48**, 429-432 (Letter) (2005).

Publications 2004

- *On the double-dot charge qubit and transport via dissipative cotunneling*, Meirong Li and Karyn Le Hur, Phys. Rev. Lett. **93**, 176802 (2004).
- *Coulomb blockade of a noisy metallic box: A realization of Bose-Fermi Kondo models*, Karyn Le Hur, Phys. Rev. Lett. **92**, 196804 (2004).
- *From nodal liquid to nodal Mottness in a frustrated Hubbard model*, J. Hopkinson and K. Le Hur, Phys. Rev. B **69**, 245105 (2004).
- *Maximized Orbital and Spin Kondo effects in a single-electron Transistor*, K. Le Hur, P. Simon, and L. Borda, Phys. Rev. B **69**, 045326 (2004).

Publications 2003

- *Smearing of charge fluctuations in a grain by spin-flip assisted tunneling*, Karyn Le Hur and Pascal Simon, Phys. Rev. B **67**, 201308R (2003).
- *Fractional plateaus in the Coulomb blockade of coupled quantum dots*, Karyn Le Hur, Phys. Rev. B **67**, 125311 (2003).

Publications 2002

- *Capacitance of a quantum dot from the channel-anisotropic two-channel Kondo model*, Karyn Le Hur and Georg Seelig, Phys. Rev. B **65**, 165338 (2002).
- *Electron fractionalization induced dephasing in Luttinger liquids*, Karyn Le Hur, Phys. Rev. B **65**, 233314 (2002).

Publications 2001

- *Andreev Scattering in ladders with preformed pairs: Similitudes to high- T_c cuprates*, Karyn Le Hur, Phys. Rev. B **64**, R060502 (2001).
- *Zeeman smearing of the Coulomb-Kondo staircase*, Karyn Le Hur, Phys. Rev. B **64**, R161302 (2001).
- *Weakly-coupled Hubbard chains at half-filling and Confinement*, Karyn Le Hur, Phys. Rev. B **63**, 165110 (2001).

Publications 2000

- *Successive opening of the Fermi surface in doped N -leg Hubbard ladders*, U. Ledermann, K. Le Hur and T.M. Rice, Phys. Rev. B **62**, 16383 (2000).
- *Phases of the two-band model of spinless fermions in one dimension*, Urs Ledermann and Karyn le Hur, Phys. Rev. B **61**, 2497 (2000).
- *Metal-Kondo insulating transitions and transport in one dimension*, Karyn Le Hur, Phys. Rev. B **62**, pp. 4408-4425 (2000).
- *Kondo effect in a one dimensional d -wave superconductor*, Karyn Le Hur, Europhys. Lett. **49** (6), pp. 768-774 (2000).
- *The Kondo effect in crossed Luttinger liquids*, Karyn Le Hur, Phys. Rev. B **61**, 1853 (2000).

Publications 1999

- *The electronic structure of the heavy fermion metal LiV_2O_4* , V.I. Anisimov, M.A. Korotin, M. Zöflf, T. Pruschke, K. Le Hur, T.M. Rice, Phys. Rev. Lett. **83**, 364 (1999).

Publications related to the PhD

- *The underscreened Kondo effect in ladder systems*, Karyn Le Hur, Phys. Rev. Lett. **83**, 848 (1999).
- *Critical Ising modes in low-dimensional Kondo insulators*, Karyn Le Hur, Phys. Rev. B **60**, 9116 (1999).
- *The Kondo effect in a Luttinger liquid: nonuniversality of the Wilson ratio*,

Karyn Le Hur, Phys. Rev. B **59**, R11637 (1999).

- *Metal-insulator transition in the one-dimensional Kondo lattice model*,
Karyn Le Hur, Phys. Rev. B **58**, 10261 (1998).

- *Hole doping and disorder effects on the one-dimensional Kondo lattice, for ferromagnetic Kondo couplings*,

Karyn Le Hur, Phys. Rev. B **56**, 14056 (1997).

- *The underscreened Kondo problem: a two $S=1$ impurity model*,
K. Le Hur and B. Coqblin, Phys. Rev. B **56**, 668 (1997).