Kaden Hazzard

Curriculum Vitae

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http://kaden.rice.edu
Rice University

Employment

July 2014–... **Rice University**
Assistant Professor of Physics and Astronomy

2010–2014 **JILA, NIST, University of Colorado, Boulder**
JILA research associate → NRC postdoctoral fellow at JILA → JILA senior research associate (advisor Ana Maria Rey): mainly cold atoms theory.

2004–2010 **Laboratory of Atomic and Solid-State Physics, Cornell University**
Graduate research assistant with Erich Mueller: mainly cold atoms theory.

Education

2010 **Ph.D. physics**, *Cornell University*.
Thesis title *Quantum phase transitions in cold atoms and low temperature solids*
Advisor: Erich Mueller

2009 **M.S physics**, *Cornell University*.

2004 **B.S. physics, math**, *The Ohio State University*.
coursework completed with honors in the liberal arts. Also finished all chemistry minor courses.

Teaching

Spring 2018 **Statistical Mechanics**, Physics 526 (graduate course)

Fall 2017 **Intermediate Mechanics**, Physics 301 (undergraduate course).

Spring 2017 **Fundamentals of Quantum Optics**, Physics 572 (graduate course)

Fall 2016 **Intermediate Mechanics**, Physics 301 (undergraduate course).

Spring 2016 **Engineering quantum matter in AMO systems**, Physics 600 (graduate course).

Fall 2015 **Intermediate Mechanics**, Physics 301 (undergraduate course).

Spring 2015 **Fundamentals of Quantum Optics**, Physics 572 (graduate course).

I have filmed guest lectures on ultracold matter and quantum computing for a “flipped" sophomore Rice electrical engineering course, and filmed a guest lecture on ultracold matter for a Rice graduate physics course that was broadcast to several other institutions. Before joining Rice, I supervised undergraduate research, privately tutored, and substitute lectured, TA’ed, and graded ten courses.

Professional service and consulting

Scientific Consultant QWidgetCo, quantum technology startup (2017–present)

APS March Meeting sorting. Abstract sorting for 2017 meeting.

Workshop organizer: Rice Center for Quantum Materials "Interacting Quantum Systems Out of Equilibrium," May 2016 (co-organizers: D. Natelson, J. Kono, and M. Foster)

Grant proposal referee:

- National Science Foundation (NSF)
- European Commission's Future and Emerging Technologies Programme
- Research Grant Council (RGC) of Hong Kong

Book proposal referee: Oxford University Press

Journal referee: Nature, Nature Physics, Nature Communications, Physical Review Letters, Physical Review A, Physical Review B, New Journal of Physics, Frontiers of Physics, Quantum Information Processing, Annals of Physics, Journal of Physics B, Physics Letters A, Physica A

JILA computing cluster informal steering committee (2010)

DAMOP session chair: "Strongly Interacting Fermions" (2016), "Focus Session: Quench Dynamics and Defect Formation in Ultracold Atoms" (2015), "Scale-Invariance in Two-Dimensional Quantum Gases" (2013), "Cold Chemistry" (2012), "Two-dimensional Fermi Gas" (2012), "Optical lattices III" (2009)

March meeting session chair: "Dynamical and Chaotic Quantum Systems" (2017), "Ultracold Atoms: BECs, Interactions and Optical Lattices", (stand-in for A Kaufman, 2017), "Optical Cavites and Optomechanics" (2014), "Molecular and Dipolar Quantum gases" (2010)

Awards

2010	Springer thesis prize: thesis selected to be published as a book
2006–2007	GAANN fellowship
2004–2006	Special Cornell Graduate fellowship
2004	Hertz Fellowship Finalist
2004	Phi Beta Kappa, elected to
2000–2004	Semiconductor Research Corporation Undergraduate Research Assistant Award

Press on research

Science **345**, 306 (2014)
- "Quantum systems under control", Science perspective
- "Little shop of atoms", JILA research highlight (web and magazine)

Phys. Rev. Lett. **112**, 070404 (2014) ["Editor's Suggestion"]
- "Dealing with Loss", JILA research highlight (web and magazine)

Nature **501**, 521 (2013)
- "Molecules line up in laser grid", Physics World
- "Rotating molecules as quantum magnets", Nature News and Views
- "Spins swapped at a distance", Overclocker's club
- "The great spin swap", JILA research highlight (web and magazine)
- "Beyond quantum simulation: JILA physicists create 'crystal' of spin-swapping ultracold gas molecules", NIST Newsletter
- Also featured on phys.org, ScienceDaily, Nanotechnology News, pro-physik.de, ...

Phys. Rev. Lett. **110**, 075301 (2013)
- "Model Behavior", JILA research highlight (web and magazine)

Phys. Rev. A **85**, 041604 (2012)
- "New Flavors of Quantum Magnetism", JILA research highlight (web and magazine)

Phys. Rev. Lett. **92**, 045501 (2004)
- NCSA News article "Salted Away Silicon"

Publications

Preprints (submitted)

46. *Bosonic molecules in a lattice: unconventional phases from multichannel interactions*
Kevin D. Ewart, Michael L. Wall, and **Kaden R. A. Hazzard**
arxiv:1706.00539

45. *Number-conserving interacting fermion models with exact topological superconducting ground states*
Zhiyuan Wang, Youjiang Xu, Han Pu, and **Kaden R. A. Hazzard**
arxiv:1703.01249

44. *Geometric representation of spin correlations and applications to ultracold systems*
Rick Mukherjee, Anthony E. Mirasola, Jacob Hollingsworth, Ian G. White, and **Kaden R. A. Hazzard**
arxiv:1612.06459

43. *Correlations generated from high-temperature states: nonequilibrium dynamics in the Fermi-Hubbard model*
Ian G. White, Randall G. Hulet, and **Kaden R. A. Hazzard**
arxiv:1612.05671

Journal articles

42. *Lattice model parameters for ultracold nonreactive molecules: chaotic scattering and its limitations*
Michael L. Wall, Rick Mukherjee, Shah Saad Alam, Nirav P. Mehta, and **Kaden R. A. Hazzard**
Phys. Rev. A **95**, 043636 (2017)

41. *Microscopic derivation of multi-channel Hubbard models for ultracold nonreactive molecules in an optical lattice*
Michael L. Wall, Nirav P. Mehta, Rick Mukherjee, Shah Saad Alam, and **Kaden R. A. Hazzard**
Phys. Rev. A **95**, 043635 (2017)

40. *A solid more fluid than a fluid*
Kaden R. A. Hazzard
Nature **543**, 47 (2017)
invited News & Views article

39. *Accessing Rydberg-dressed interactions using many-body Ramsey dynamics*
Rick Mukherjee, Thomas C. Killian, and **Kaden R. A. Hazzard**
Phys. Rev. A **94**, 053422 (2016)

38. *Synthetic-gauge-field stabilization of the chiral-spin-liquid phase*
Gang Chen, **Kaden R. A. Hazzard**, Ana Maria Rey, and Michael Hermele
Phys. Rev. A **93**, 061601(R) (2016)

37. *Ultracold Nonreactive Molecules in an optical lattice: Connecting Chemistry to Many-Body Physics*
Andris Doçaj, Michael L. Wall, Rick Mukherjee, and **Kaden R. A. Hazzard**
Phys. Rev. Lett. **116** 135301 (2016)

36. *Rydberg-blockade effects in Autler-Townes spectra of ultracold strontium*
B. J. DeSalvo, J. A. Aman, C. Gaul, T. Pohl, S. Yoshida, J. Burgdörfer, **K. R. A. Hazzard**, F. B. Dunning, and T. C. Killian
Phys. Rev. A **93**, 022709 (2016)

35. *Effective many-body parameters for atoms in non-separable Gaussian optical potential*
Michael L. Wall, **Kaden R. A. Hazzard**, and Ana Maria Rey
Phys. Rev. A **92**, 013610 (2015)

34. *Quantum magnetism with ultracold molecules*
Michael L. Wall, **Kaden R. A. Hazzard**, and Ana Maria Rey
Chapter in "From atomic to mesoscale: The Role of Quantum Coherence in Systems of Various Complexities" ed. S. Malinovskaya and I. Novikova World Scientific (2015)
[Review article]

33. *Quantum correlations and entanglement in far-from-equilibrium spin systems*
Kaden R. A. Hazzard, Mauritz van den Worm, Michael Foss-Feig, Salvatore R. Manmana, Emanuele G. Dalla Torre, Tilman Pfau, Michael Kastner, and Ana Maria Rey
Phys. Rev. A **90**, 063622 (2014)

32. *Many-body dynamics of dipolar molecules in an optical lattice*
Kaden R. A. Hazzard, Bryce Gadway, Michael Foss-Feig, Bo Yan, Steven A. Moses, Jacob P. Covey, Norman Y. Yao, Mikhail D. Lukin, Jun Ye, Deborah S. Jin, and Ana Maria Rey
Phys. Rev. Lett. **113**, 195302 (2014)

31. *Two-particle quantum interference in tunnel-coupled optical tweezers*
Adam M. Kaufman, Brian J. Lester, Collin M. Reynolds, Michael L. Wall, Michael Foss-Feig, **Kaden R. A. Hazzard**, Ana Maria Rey, and Cindy A. Regal
Science **345**, 306 (2014)

30. *Suppressing the loss of ultracold molecules via the continuous quantum Zeno effect*
Bihui Zhu, Bryce Gadway, Michael Foss-Feig, Johannes Schachenmayer, Michael Wall, **Kaden R. A. Hazzard**, Bo Yan, Steven A. Moses, Jacob P. Covey, Deborah S. Jin, Jun Ye, Murray Holland, and Ana Maria Rey
Phys. Rev. Lett. **112**, 070404 (2014) (selected as "Editor's Choice")

29. *Quenching to unitarity: Quantum dynamics in a 3D Bose gas*
Andrew G. Sykes, John P. Corson, Jose P. D'Incao, Andrew P. Koller, Chris H. Greene, Ana Maria Rey, **Kaden R. A. Hazzard**, and John L. Bohn
Phys. Rev. A **89**, 021601(R) (2014)

28. *Dynamical quantum correlations of Ising models on an arbitrary lattice and their resilience to decoherence*
Michael Foss-Feig, **Kaden R. A. Hazzard**, John J. Bollinger, Ana Maria Rey, and Charles W. Clark
New J. Phys. **15**, 113008 (2013) (chosen as "IOP Select" article)

27. *Observation of dipolar spin-exchange interactions with lattice-confined polar molecules*
Bo Yan, Steven A. Moses, Bryce Gadway, Jacob P. Covey, **Kaden R. A. Hazzard**, Ana Maria Rey, Deborah S. Jin, and Jun Ye
Nature **501**, 521 (2013)

26. *Kitaev honeycomb and other exotic spin models with polar molecules*
Alexey V. Gorshkov, **Kaden R. A. Hazzard**, and Ana Maria Rey
Molecular Physics **111**, 1908 (2013), Invited article for Bretislav Friedrich special issue.

25. *Nonequilibrium dynamics of arbitrary-range Ising models with decoherence: An exact analytic solution*
Michael Foss-Feig, **Kaden R. A. Hazzard**, John J. Bollinger, and Ana Maria Rey
Phys. Rev. A **87**, 042101 (2013)

24. *Topological phases in ultracold polar-molecule quantum magnets*
Salvatore R. Manmana, E. M. Stoudenmire, **Kaden R. A. Hazzard**, Ana Maria Rey, and Alexey V. Gorshkov
Phys. Rev. B **87**, 081106(R) (2013)

23. *Far-from-Equilibrium Quantum Magnetism with Ultracold Polar Molecules*
Kaden R. A. Hazzard, Salvatore R. Manmana, Michael Foss-Feig, and Ana Maria Rey
Phys. Rev. Lett. **110**, 075301 (2013)

22. *Universality class of quantum criticality in the two-dimensional Hubbard model at intermediate temperatures ($t^2/U \ll T \ll t$)*
Kaden R. A. Hazzard, Ana Maria Rey, and Richard T. Scalettar
Phys. Rev. B **87**, 035110 (2013)

21. *Adiabatic loading of one-dimensional SU(N) alkaline-earth-atom fermions in optical lattices*
Lars Bonnes, **Kaden R. A. Hazzard**, Salvatore R. Manmana, Ana Maria Rey, and Stefan Wessel
Phys. Rev. Lett. **109**, 205305 (2012)

20. *High-temperature properties of fermionic alkaline-earth-metal atoms in optical lattices*
Kaden R. A. Hazzard, Victor Gurarie, Michael Hermele, and Ana Maria Rey
Phys. Rev. A **85**, 041604 (2012)

19. *SU(N) magnetism in chains of ultracold alkaline earth atoms: Mott transitions and quantum correlations*
Salvatore R. Manmana, **Kaden R. A. Hazzard**, Gang Chen, Adrian E. Feiguin, and Ana Maria Rey
Phys. Rev. A **84**, 043601 (2011)

18. *Spectroscopy of dipolar fermions in layered two-dimensional and three-dimensional lattices*
Kaden R. A. Hazzard, Alexey V. Gorshkov, and Ana Maria Rey
Phys. Rev. A **84**, 033608 (2011)

17. *Techniques to measure quantum criticality in cold atoms*
Kaden R. A. Hazzard and Erich J. Mueller
Phys. Rev. A **84**, 013604 (2011)

16. *Local versus global equilibration near the bosonic Mott-superfluid transition*
Stefan S. Natu, **Kaden R. A. Hazzard** and Erich J. Mueller
Phys. Rev. Lett. **106**, 125301 (2011)

15. *Atomic H in molecular H_2 crystals: constraints on candidate theories of experimental anomalies*
Kaden R. A. Hazzard and Erich J. Mueller
Phys. Rev. B **82** 014303 (2010) (selected as “Editor's Choice")

14. *Radio-frequency spectra of bosons in optical lattices: bimodality due to many body correlations*
Kaden R. A. Hazzard and Erich J. Mueller
Phys. Rev. A **81**, 033404 (2010)

13. *On-site correlations in optical lattices: band mixing to coupled quantum Hall puddles*
Kaden R. A. Hazzard and Erich J. Mueller
Phys. Rev. A **81**, 031602(R) (2010)

12. *Stirring trapped atoms into Fractional Quantum Hall puddles*
Stefan K. Baur, **Kaden R. A. Hazzard** and Erich J. Mueller
(KRAH and SKB co-first authors)
Phys. Rev. A **78** 061608(R) (2008)

11. *Influence of film-mediated interactions on the microwave and radio spectrum of spin-polarized hydrogen on helium films*
Kaden R. A. Hazzard and Erich J. Mueller
Phys. Rev. Lett. **101**, 165301 (2008)

10. *Hyperfine spectra of trapped bosons in optical lattices*
Kaden R. A. Hazzard and Erich J. Mueller
Phys. Rev. A **76**, 063612 (2007)

9. *Fast Diffusion Mechanism of Silicon Tri-interstitial Defects*
Yaojun A. Du, Stephen A. Barr, **Kaden R. A. Hazzard**, Thomas J. Lenosky, Richard G. Hennig and John W. Wilkins
Phys. Rev. B **72**, 241306(R) (2005)

8. *A Novel Dielectric Anomaly in Cuprates and Nickelates: Signature of an Electronic Glassy State*
Tuson Park, Z. Nussinov, **Kaden R. A. Hazzard**, V.A. Sidorov, A.V. Balatsky, J.L. Sarrao, S.-W. Cheong, M.F. Hundley, J.-S. Lee, Q. Jia, and J.D. Thompson
Phys. Rev. Lett. **94**, 017002 (2005)

7. *Complexity of Small Silicon Self-interstitial Clusters*
D. A. Richie, Jeongnim Kim, Stephen A. Barr, **Kaden R. A. Hazzard**, Richard Hennig, and John W. Wilkins
Phys. Rev. Lett. **92**, 045501 (2004)

Conference proceedings and other refereed papers

6. *Detection and Visualization of Anomalous Structures in Molecular Dynamics Data*
Sameep Mehta, Raghu Machiraju, Srini Parthasarathy, **Kaden R.A. Hazzard**, and John Wilkins
IEEE Visualization, Proceedings of the conference on Visualization '04, 465-472 (2004)

5. *Mining Temporally-Varying Phenomena in Scientific Datasets*
R. Machiraju, S. Parthasarathy, J. Wilkins, D. Thompson, B. Gatlin, D. Richie, T. Choy, M. Jiang, S. Mehta, M. Coatney, S. Barr, and **Kaden R.A. Hazzard**
In *Advances in Knowledge Discovery,* 2003, eds. H. Kargupta *et al.*

4. *Molecular dynamics as a bridge: fundamentals, methods, and current research*
   Kaden R.A. Hazzard
   Reviews in Undergraduate Research, **1**, issue 2 (2003)
3. *Feature Mining Algorithms for Scientific Data*
   M. Jiang, T.-S. Choy, S. Mehta, M. Coatney, S. Barr, **Kaden R.A. Hazzard**, D. Richie, S. Parthasarathy, R. Machiraju, David Thompson, J. Wilkins, and Boyd Gaytlin
   In *Proceedings of SIAM Data Mining Conference*, edited by D. Barbara and C. Kamath, 13-24 (2003)
2. *Large-scale molecular dynamics simulations of interstitial defect diffusion in silicon*
   David A. Richie, Jeongnim Kim, Richard Hennig, **Kaden R. A. Hazzard**, Steven Barr, and John W. Wilkins
   Materials Research Symposium Proceedings, **731**, p. W9. 10-5 (2002)

Book

1. *Quantum phase transitions in cold atoms and low temperature solids*
   Kaden R. A. Hazzard
   Selected for publication in "Springer Theses" book series, a modified version of my thesis (2011)

Invited talks

61. Advances on Quantum Simulation with Ultracold Atoms, International Institute of Physics (IIP), Natal, Brazil.
    (title TBD)
    October-November 2018
60. Max Planck Institute for the Physics of Complex systems (MPI-PKS) International Workshop: "Quantum Sensing with Quantum Correlated Systems", Dresden, Germany
    (title TBD)
    September 2017
59. Brazilian Physical Society Meeting, XL ENFMC, Buzios, Brazil
    Synthetic dimensions and chaotic collisions in ultracold molecules
    August 2017.
58. Aspen Center for Physics workshop: "Correlations and Entanglement In and Out of Equilibrium", Aspen, Colorado
    Synthetic dimensions and chaotic collisions in ultracold molecules
    June 2017.
57. Smalley-Curl Institute Lunch Seminar, Rice University, Houston, Texas.
    Ultracold matter as analogs of quantum materials... and beyond
    April 2017
56. Geometry-Analysis seminar, Rice University Department of Mathematics, Houston, Texas
    Ultracold matter: a window into many-particle quantum physics
    April 2017

55. Zhejiang University Physics Seminar, Hangzhou, China
Ultracold nonreactive molecules: from chaotic collisions to exotic physics
October 2016

54. Fudan University Physics Seminar, Shanghai, China
Ultracold nonreactive molecules: from chaotic collisions to exotic physics
October 2016

53. Joint ICQM-RCQM Workshop on Quantum Matters, Beijing, China.
Ultracold nonreactive molecules: from chaotic collisions to exotic physics
October 2016

52. Aspen Center for Physics workshop: "Light-matter Interaction and Quantum Control In Many-body Systems", Aspen, Colorado
Ultracold nonreactive molecules in an optical lattice: nonstandard Hubbard models from chaotic collisions
June 2016

51. Rice Center for Quantum Materials workshop: Interacting Quantum Systems Driven Out of Equilibrium, Houston, Texas.
Entanglement in "hot" (100 nK) nonequilibrium matter
May 2016

50. Trinity University Physics Seminar, San Antonio, Texas.
Novel ultracold platforms for quantum science
November 2015.

49. Aspen Center for Physics workshop: "Ultra-cold Quantum Matter with Atoms and Molecules," Aspen, Colorado.
Nonreactive ultracold molecules in a lattice: harnessing complex collisions for many-body physics
July 2015

48. DAMOP 2015, "Non-equilibrium dynamics in strongly interacting atomic systems" session, Columbus, Ohio
Spin-motion coupled dynamics in ultracold atoms and molecules
June 2015

47. Ohio State University Condensed Matter seminar, Columbus, Ohio.
Quantum magnetism with ultracold molecules far-from-equilibrium
April 2015

46. Ohio University Condensed Matter and Surface Science colloquium, Athens, Ohio.
What I create, I understand: engineering ultracold matter to decipher real materials
April 2015

45. Louisiana State University quantum science and technology seminar, Baton Rouge, Louisiana.
No democracy for entanglement: not all entanglements are created equal
March 2015

44. Louisiana State University physics colloquium, Baton Rouge, Louisiana.
The miracle of molecules: exploring quantum magnetism in ultracold matter
March 2015

43. National Institute for Theoretical Physics in Stellenbosch workshop on "Quantum Many-Body Systems Far From Equilibrium," Stellenbosch, South Africa.
Correlations and entanglement in open quantum systems
March 2015

42. Joint ICQM Peking - RCQM meeting, Houston, Texas
Atomic, Molecular, and Optical Physics at Rice University
March 2015

41. U.S.-France Workshop on Nano, Extreme Measurements, and Theory (NEXT), an RCQM International Initiative, Houston, Texas
Atomic, Molecular, and Optical Physics at Rice University
February 2015

40. Rice Center for Quantum Materials inaugural symposium, Houston, Texas
Ultracold molecules: quantum magnetism far-from-equilibrium
December 2014

39. Heidelberg Center for Quantum Dynamics colloquium, Heidelberg, Germany.
The miracle of molecules: exploring quantum magnetism in ultracold matter
November 2014.

38. Stuttgart University physics seminar, Stuttgart, Germany.
The miracle of molecules: far-from-equilibrium quantum magnetism in ultracold matter
November 2014.

37. Technical University of Munich condensed matter and many-body physics seminar, Munich, Germany.
The miracle of molecules: quantum magnetism in ultracold matter
November 2014.

36. Sam Houston State University physics colloquium, Huntsville, Texas.
The miracle of molecules: exploring quantum magnetism in ultracold matter
October 2014

35. University of Illinois Urbana-Champaign AMO/quantum information seminar, Champaign-Urbana, Illinois.
Quantum magnetism in ultracold molecules
October 2014

34. University of Texas at Austin complex quantum systems seminar, Austin, Texas.
The miracle of molecules: exploring quantum magnetism in ultracold matter
October 2014

33. ECT* workshop on "Hydrodynamics for Strongly Coupled Fluids," Trento, Italy
Quench of a Bose gas to unitarity: dynamics and novel universal singularities
May 2014

32. University of Goettingen condensed matter theory seminar, Goettingen, Germany
Observing quantum magnetism with ultracold polar molecules
May 2014

31. DARPA optical lattice emulator program workshop, Arlington, Virginia
Many-body quantum magnetism of dipolar molecules in an optical lattice
February 2014

30. University of Colorado Condensed Matter Theory seminar, Boulder, Colorado
Quantum magnetism with ultracold molecules
February 2014

29. Rice University physics colloquium, Houston, Texas.
Quantum simulation with strongly-correlated ultracold polar molecules
January 2014

28. University of Chicago James Franck Institute seminar, Chicago, Illinois
Quantum magnetism in ultracold molecules: comparing theory and experiment
November 2013

27. University of Maryland Condensed Matter Theory Center (CMTC) seminar, College Park, Maryland
Quantum magnetism in ongoing ultracold molecule and ion experiments
March 2013

26. Georgetown University physics seminar, Washington D. C.
Quantum magnetism in ongoing ultracold molecule and ion experiments
March 2013

25. FINESS-2013 (Finite-temperature Non-Equilibrium Superfluid Systems), Queenstown, New Zealand
Far-from equilibrium dynamics of frustrated spin models: polar molecules, ions, and beyond
February 2013

24. University of Queensland Quantum Science Seminar, Brisbane, Australia
Novel systems in and out of equilibrium bring ultracold quantum magnetism closer to reality
February 2013

23. Kavli Institute for Theoretical Physics (KITP), UCSB, Santa Barbara, California
Non-equilibrium many-body physics in current molecule experiments
February 2013

22. DARPA optical lattice emulator program workshop, Miami, Florida
Non-equilibrium Ising quenches with decoherence: an exact solution
November 2012

21. Harvard ITAMP AMO seminar, Boston, Massachusetts
Towards exotic physics using novel ultracold matter: polar molecules and alkaline earth atoms
March 2012

20. DARPA optical lattice emulator program workshop, Ft. Lauderdale, Florida
Quantum criticality and non-equilibrium dynamics in ultracold lattice systems
December 2011

19. Rice University AMO seminar, Houston, Texas
Towards topological phases via new ultracold matter: molecules and alkaline earths
September 2011

18. University of California, Davis condensed matter seminar, Davis, California
Spin liquids and non-quasiparticle matter in ultracold atoms,
February 2011

17. Berkeley AMO seminar, Berkeley, California
Spin liquids and non-quasiparticle matter in ultracold atoms
February 2011

16. Ludwig-Maximilians University/Max-Planck Institute for Quantum Optics seminar, Munich, Germany
Exploring the Mott/metal crossover in ultracold alkali and alkaline earth atoms in optical lattices
December 2010

15. Freiburg University FRIAS seminar, Freiburg, Germany
Exploring the Mott/metal crossover in ultracold alkali and alkaline earth atoms in optical lattices
November 2010

14. Stuttgart University seminar, Stuttgart, Germany
Exploring the Mott/metal crossover in ultracold alkali and alkaline earth atoms in optical lattices
November 2010

13. Institute for Theoretical Physics, University of Cologne seminar, Cologne, Germany
Exploring the Mott/metal crossover in ultracold alkali and alkaline earth atoms in optical lattices
November 2010.

12. IQOQI Cold Atoms Seminar, Innsbruck, Austria
Exploring the Mott/metal crossover in ultracold alkali and alkaline earth atoms in optical lattices
November 2010

11. DAMOP 2010 “Novel Probes of Ultra-Cold Atom Gases" session, Houston, Texas.
RF spectra of lattice bosons: a probe of correlations, fluctuations, and quantum criticality
May 2010

10. Ecole Normale Supérieure de Lyon colloquium, Lyon, France.
Measuring universal quantum critical behavior in ultracold gases
April 2010

9. Niels Bohr Institute Cold Atoms group meeting, Copenhagen, Denmark
   Measuring universal quantum critical behavior in ultracold gases
   April 2010
8. Harvard ITAMP AMO seminar, Boston, Massachusetts
   Measuring universal quantum critical behavior in ultracold gases
   March 2010
7. JILA/University of Colorado AMO/condensed matter seminar, Boulder, Colarado
   Measuring universal quantum critical behavior in ultracold gases
   March 2010
6. Princeton, Marlan Scully group meeting
   Detecting many-body physics of quantum phase transitions in cold atoms
   February 2010
5. DARPA optical lattice emulator program; Phase II kickoff, Miami, Florida
   Probing quantum criticality in cold atoms
   December 2009
4. Ohio State University, Wilkins group meeting.
   Exploring many-body physics with cold atoms: achievements and challenges
   July 2009
3. Centre for Quantum Computer Technology seminar, University of New South Wales, Sydney, New South Wales, Australia
   Electrical Simulation of Quantum Algorithms
   November 2003
2. Materials Computation Center seminar, University of Illinois Urbana-Champaign, IL
   New small silicon interstitial clusters
   July 2003
1. Semiconductor Research Corporation funding review, Seattle, WA
   Dopant structures and their electronic properties. (Substituting for P.I.)
   May 2003

Contributed presentations

Contributed over 40 talks and posters to meetings, conferences, and workshops. (Full list available on webpage.)

Workshops and schools participated in

excluding ones at which I presented

Oct-Nov 2012 KITP workshop on *Quantum Dynamics in Far from Equilibrium Thermally Isolated Systems*

Jun 2011 Aspen workshop on *Few- and Many-Body Physics in Cold Quantum Gases Near Resonances*

Jul 2010 *Boulder Summer School on Computational and Conceptual Approaches to Quantum Many-Body Systems*, Boulder, Colorado. (unofficial)

May 2009 *DARPA OLE workshop*, Houston, Texas.

Aug 2009 *Princeton Summer School on Condensed Matter Physics*, Princeton, New Jersey.

May 2009 *DARPA OLE workshop*, Dulles, Virginia.

Jan 2004 International Centre for Theoretical Physics *Joint DEMOCRITOS - ICTP School on Continuum Monte Carlo Methods*, Trieste, Italy.

Jun 2003 *Summer School on Theoretical and Computational Biophysics: Computational Approaches for Simulation of Biological Systems.* University of Illinois Urbana-Champaign, Beckman Institute.

Mar 2003 *From Electrons to Materials Properties: Basic Theory and Computational Methods* tutorial at 2003 March Meeting, Austin, TX.

Apr 2002 OSC workshop on *Scientific Visualization with AVS /Express*. Columbus, OH

May 2000 OSC workshop on *Multilevel Parallel Programming* (Combining OpenMP and MPI). Columbus, OH