

Kaden Hazzard

Curriculum Vitae

MS-61 6100 Main Street
Houston, TX 77251
☎ (607) 220 8211
kaden.hazzard@gmail.com
<http://kaden.rice.edu>
Rice University

Employment and other appointments

- July 2021–... **Rice University**
Associate Professor of Physics and Astronomy
- 2014–2021 **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)
- 2004–2010 **Laboratory of Atomic and Solid-State Physics, Cornell University**
Graduate research assistant (advisor Erich Mueller)

Visiting appointments

- July–August **University of California Davis**
2022 Visiting Associate Professor in Department of Physics and Astronomy

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*
honors in the liberal arts; also finished all chemistry minor courses.

Awards and honors

Awards external to Rice or institution at the time

- 2019 NSF CAREER Award
- 2018 Fellow, Institute of Quantum Science and Engineering, Texas A&M
- 2017 New Journal of Physics Outstanding Referee
- 2017 AI Grant Fellow (Fall 2017) for machine learning applied to quantum dynamics
- 2010 Springer thesis prize: thesis selected to be published as a book
- 2004 Hertz Fellowship Finalist

2000–2004 Semiconductor Research Corporation Undergraduate Research Assistant Award

[Awards from Rice](#)

2022 Faculty Teaching and Mentoring Award, Rice Graduate Student Association
(one of two across entire university)

2019 & 2022 Career Champion Award, Rice Center for Career Development (Award for Impacting Graduating Students' Careers)

2018 & 2021 Finalist for Sophia Meyer Farb Prize for Teaching at Rice University (one of about 5 across entire university)

Teaching

Spring 2024 **Mathematical Methods**, Physics 516 (graduate course)

Fall 2023 **Intermediate Mechanics**, Physics 301 (undergraduate course)

Fall 2022 **Intermediate Mechanics**, Physics 301 (undergraduate course)

Spring 2022 **Statistical Mechanics**, Physics 526 (graduate course)

Fall 2021 **Intermediate Mechanics**, Physics 301 (undergraduate course)

Spring 2021 **Statistical Mechanics**, Physics 526 (graduate course)

Fall 2020 **Intermediate Mechanics**, Physics 301 (undergraduate course)

Spring 2020 **Statistical Mechanics**, Physics 526 (graduate course)

Spring 2019 **Statistical Mechanics**, Physics 526 (graduate course)

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)

Created and filmed guest lessons on ultracold matter and quantum computing for a "flipped" sophomore Rice electrical engineering course; presented or filmed several guest lectures at Rice, some broadcast elsewhere. Before joining Rice, had privately tutored, and substitute lectured, TA'ed, and graded 10 courses.

Professional service and consulting

Theoretical AMO Community (TAMOC) co-chair, May 2022–2024

Virtual AMO Seminar (VAMOS) DAMOP committee, July 2021–present

APS DAMOP education committee, 2020–present

APS DAMOP program committee, 2019–2022

Subcommittee chair: DAMOP March Meeting 2020 program

Subcommittee chair: DAMOP March Meeting 2021 program

Workshop Organizer: International Conference on Quantum Vacuum in Matter, Rice University. (co-organizers J. Kono, H. Zhu), 2023

Workshop Organizer: Quantum Information Processing Systems (QuantIPS), Rice University. (co-organizers: A. Kyrillidis, N.-H. Chia, L. Duenas-Osorio, G. Pagano), 2023

APS DAMOP Deborah Jin Doctoral Thesis Award Committee, 2022

Workshop session organizer: "Optimization in Quantum Computing and vice-versa" session at INFORMS workshop (co-organizers: A. Kyrillidis, A. Kalev, L. Duenas-Osorio, G. Pagano), October 2021

Conference organizer: Kavli Institute for Theoretical Physics (KITP) conference on "Non-Equilibrium Universality in Many-Body Physics," (co-organizers: P. Calabrese, L. F. Cugliandolo, M Maghrebi, and J. Schmiedmayer), September 2021

APS Physics Next Workshop on the Future of Scientific Publication and Research Dissemination participant, 2021.

Organizer of 2021 Boulder Summer School on Condensed Matter Physics. Summer school topic: "Ultracold Matter" A month-long, NSF-sponsored summer school for advanced graduate students and postdocs, bringing in roughly 25 lecturers at Univ. of Colorado-Boulder (co-organizers I. Spielman, A. M. Rey, and L. Radzihovsky), July 2021.

Site Visit Panelist: National Science Foundation site visit to an NSF-funded quantum information Center, Nov. 2020

APS Group for Few-body Physics and Multiparticle Dynamics (GFB) nominating committee, 2020–2021

Hacking for Defense scientific contact. 2020-present. Scientific contact for University of Alabama-Huntsville's *Hacking for Defense* program.

Workshop steering committee member: Kavli-Rice workshop on quantum sensing, part of "Sensing the Future: The Future of Sensing" series, Dec. 2019.

Site Visit Panelist: National Science Foundation site visit to an NSF-funded atomic, molecular, and optical physics (AMO) Center, Oct. 2019

National Science Foundation workshop on quantum simulators for an NSF Convergence Accelerator Program, Sep. 2019

Workshop organizer: Harvard ITAMP workshop on "Quantum Phases of Fermions in Optical Lattices: The Low-Temperature Frontiers," Oct. 2018 (co-organizers: H. Sadeghpour, D. Greif, R. Hulet, M. Greiner)

Editorial board member PLOS ONE, Academic Editor on Quantum Physics team (2017–2020)

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

Consulting:

- *Council member:* Gerson Lehrman Group (2018–present)
- *Scientific consultant:* QWidgetCo, quantum technology startup (2017–19)
- *The Implementation Group:* external grant reviewer (starting 2018)

Grant proposal referee and/or panel member:

- National Science Foundation (NSF)
- Department of Energy (DOE)
- Air Force Office of Scientific Research (AFOSR)
- Deutsche Forschungsgemeinschaft (German Research Foundation)
- Austrian Science Fund (FWF)
- W. M. Keck Foundation
- ETH Zurich Research Commission
- European Commission's Future and Emerging Technologies Programme
- Research Grant Council (RGC) of Hong Kong
- Rice University Creative Ventures Fund

Book proposal referee: Oxford University Press, Cambridge University Press, Springer, Taylor and Francis

Journal referee: Nature, Science, Nature Physics, Nature Materials, Nature Communications, Science Advances, Proceedings of National Academy of Sciences (PNAS), Physical Review Letters, Physical Review A, Physical Review B, New Journal of Physics, Scientific Reports, SciPost, Advanced Quantum Technologies, Accounts in Chemical Research, Frontiers of Physics, Quantum Information Processing, Annals of Physics, Journal of Physics B, Physics Letters A, Physica A

External PhD thesis examiner for researchers outside of Rice, for written thesis and oral exams.

Press on research

Intrinsic, robust quantum squeezing team supported by \$2.5M from Keck and Rice

- "Keck, Rice back Zhu's quantum project", Rice MSNE News

Phys. Rev. Lett. **129**, 123201 (2022) [*Editor's Suggestion*]

- "Strobing Light Shapes Atomic Array", *Synopsis* in Physics **15**, 2120 (2022)

Nature Physics **18**, 1356 (2022)

- "A cool quantum simulator", Nature Physics News and Views
- "Quantum magnet is billions of times colder than interstellar space", New Scientist
- "Scientists used lasers to make the coldest matter in the universe", Popular Science
- "Scientists create coldest matter in the universe in a lab", space.com
- "Physicists cool particles to less than a billionth of a degree above absolute zero to probe quantum magnetism", Cosmos Magazine
- "SU(N) matter is about 3 billion times colder than deep space", Rice News
- phys.org, reddit (r/physics, r/space, and r/science), SpaceToday youtube channel, Ciência News youtube channel, Principia Physics, UC Davis News, ...

Nature Communications **13**, 972 (2022)

- "Physicists harness electrons to make 'synthetic dimensions'", Rice News
- "Physicists harness electrons to make 'synthetic dimensions'", phys.org
- ScienceDaily, SciTechDaily, The Science Monitor, iFeng, ...

PRX Quantum **1**, 010303 (2020)

- "Quantum leap for speed limit bounds," Rice News
- "Quantum leap for speed limit bounds," phys.org
- EurekAlert!, ScienceDaily, bioengineer.com, ...

NSF CAREER award (2019)

- Rice News
- EurekAlert!
- Coshocton County Beacon

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)

84. *Equation of State and Thermometry of the 2D $SU(N)$ Fermi-Hubbard Model*
G. Pasqualetti, O. Bettermann, N. Darkwah Oppong, E. Ibarra-García-Padilla, S. Dasgupta, R. T. Scalettar, **K. R. A. Hazzard**, I. Bloch, and S. Fölling
arxiv:2305.18967
83. *Classical Analog of Quantum Models in Synthetic Dimensions*
M. Cohen, M. Casebolt, Y. Zhang, **K. R. A. Hazzard**, and R. Scalettar
arxiv:2212.07017
82. *Motional decoherence in ultracold Rydberg atom quantum simulators of spin models*
Zewen Zhang, Ming Yuan, Bhuvanesh Sundar, and **K. R. A. Hazzard**
arxiv:2201.08463
81. *A quantum algorithm to count weighted ground states of classical spin Hamiltonians*
B. Sundar, R. Paredes, D. T. Damanik, L. Dueñas-Osorio, and **K. R. A. Hazzard**
arxiv:1908.01745
80. *Quantum dynamics from a numerical linked cluster expansion*
Ian G. White, Bhuvanesh Sundar, and **Kaden R. A. Hazzard**
arxiv:1710.07696

Journal articles

79. *Locality of gapped ground states in systems with power-law decaying interactions*
Zhiyuan Wang and **Kaden R. A. Hazzard**
PRX Quantum (accepted) (arxiv:2208.13057)
78. *Quick Study: Synthetic Dimensions*
Kaden R. A. Hazzard and Bryce Gadway
Physics Today **76**(4), 62 (2023)
77. *Topological correlations in three dimensional classical Ising models: an exact solution with a continuous phase transition*
Zhiyuan Wang and **Kaden R. A. Hazzard**
Phys. Rev. Research **5**, 013086 (2023)
76. *Multi-round QAOA and advanced mixers on a trapped-ion quantum computer*
Yingyue Zhu, Zewen Zhang, Bhuvanesh Sundar, Alaina M. Green, C. Huerta Alderete, Nhung H. Nguyen, **Kaden R. A. Hazzard**, and Norbert M. Linke
Quantum Sci. Technol. **8**, 015007 (2023)

75. *A two-dimensional programmable tweezer array of fermions*
 Zoe Z. Yan, Benjamin M. Spar, Max L. Prichard, Sungjae Chi, Hao-Tian Wei, Eduardo Ibarra-García-Padilla, **Kaden R. A. Hazzard**, and Waseem S. Bakr
 Phys. Rev. Lett. **129**, 123201 (2022)
74. *Observation of antiferromagnetic correlations in an ultracold $SU(N)$ Hubbard model*
 S. Taie, E. Ibarra-García-Padilla, N. Nishizawa, Y. Takasu, Y. Kuno, H.-T. Wei, R. T. Scalettar, **K. R. A. Hazzard**, and Y. Takahashi
 Nature Physics **18**, 1356 (2022)
73. *A tensor network discriminator architecture for classification of quantum data on quantum computers*
 Michael L. Wall, Paraj Titum, Gregory Quiroz, Michael Foss-Feig, and **Kaden R. A. Hazzard**
 Phys. Rev A **105**, 062439 (2022)
72. *Quantum Membrane Phases in Synthetic Lattices of Cold Molecules or Rydberg Atoms*
 Chunhan Feng, Hannah Manetsch, Valery G. Rousseau, **Kaden R. A. Hazzard**, and Richard Scalettar
 Phys. Rev A **105**, 063320 (2022)
71. *Realizing Su -Schrieffer-Heeger topological edge states in Rydberg-atom synthetic dimensions*
 S. K. Kanungo, J. D. Whalen, Y. Lu, M. Yuan, S. Dasgupta, F. B. Dunning, **K. R. A. Hazzard**, and T. C. Killian
 Nature Communications **13**, 972 (2022)
70. *Complex collisions of ultracold molecules: a toy model*
 J. K. Yao, C. A. Johnson, N. P. Mehta, and **Kaden R. A. Hazzard**
 Phys. Rev. A **104**, 053311 (2021)
69. *Universal thermodynamics of an $SU(N)$ Fermi-Hubbard Model*
 Eduardo Ibarra-García-Padilla, Sohail Dasgupta, Hao-Tian Wei, Shintaro Taie, Yoshiro Takahashi, Richard T. Scalettar, and **K. R. A. Hazzard**
 Phys. Rev. A **104**, 043316 (2021)
Editor's Suggestion
68. *Viewpoint: Photons Get Slippery*
Kaden R. A. Hazzard
 Physics **14**, 139 (2021)
67. *Nonlinear Dynamics in a Synthetic Momentum-State Lattice*
 F. A. An, B. Sundar, J. Hou, X.-W. Luo, E. J. Meier, C. Zhang, **K. R. A. Hazzard**, and B. Gadway
 Phys. Rev. Lett. **127**, 130401 (2021) [*Editor's Suggestion*]
66. *Bounding the finite-size error of quantum many-body dynamics simulations*
 Z. Wang, M. Foss-Feig, and **K. R. A. Hazzard**
 Phys. Rev. Research **3**, L032047 (2021)

65. *Quantum Simulators: Architectures and Opportunities*
E. Altman et al. (**K. R. A. Hazzard** and 36 others)
PRX Quantum **2**, 017003 (2021)
64. *Thermodynamics and magnetism in the 2D-3D crossover of the Hubbard model*
Eduardo Ibarra-García-Padilla, Rick Mukherjee, Randall G. Hulet, **Kaden R. A. Hazzard**, Thereza Paiva, and Richard T. Scalettar
Phys. Rev. A **102**, 033340 (2020)
63. *Spin-imbalanced ultracold Fermi gases in a two-dimensional array of tubes*
Bhuvanesh Sundar, Jacob A. Fry, Melissa C. Revelle, Randall G. Hulet, and **Kaden R. A. Hazzard**
Phys. Rev. A **102**, 033311 (2020)
62. *Tightening the Lieb-Robinson bound in locally interacting systems*
Z. Wang and **K. R. A. Hazzard**
PRX Quantum **1**, 010303 (2020)
61. *Numerical linked cluster expansions for inhomogeneous systems*
Johann Gan and **Kaden R. A. Hazzard**
Phys. Rev. A **102**, 013318 (2020)
60. *Collective modes of ultracold fermionic alkaline-earth gases with $SU(N)$ symmetry*
Sayan Choudhury, Kazi R. Islam, Yanhua Hou, Jim A. Aman, Thomas C. Killian, and **Kaden R. A. Hazzard**
Phys. Rev. A **101**, 053612 (2020)
59. *Correlations generated from high-temperature states: Nonequilibrium dynamics in the Fermi-Hubbard model*
Ian G. White, Randall G. Hulet, and **Kaden R. A. Hazzard**
Phys. Rev. A **100**, 033612 (2019)
58. *High-intensity two-frequency photoassociation spectroscopy of a weakly bound molecular state: theory and experiment*
W. Y. Kon, J. A. Aman, J. C. Hill, T. C. Killian, and **Kaden R. A. Hazzard**
Phys. Rev. A **100**, 013408 (2019)
57. *Cold atoms in optical lattices*
Kaden R. A. Hazzard and Bhuvanesh Sundar
Invited review; Chapter in "2D Quantum Mechanics: Proceedings of the 2018 NIST Workshop" on two-dimensional meta-materials, ed. Wiley P. Kirk, John N. Randall, and James H. G. Owen (2019).
56. *Analysis of continuous and discrete Wigner approximations for spin dynamics*
Bhuvanesh Sundar, Kenneth C. Wang, and **Kaden R. A. Hazzard**
Phys. Rev. A **99**, 043627 (2019)
55. *A traffic jam of light*
Kaden R. A. Hazzard
Nature **566**, 45 (2019)
invited News & Views article

54. *Strings of ultracold molecules in a synthetic dimension*
Bhuvanesh Sundar, Matthew Thibodeau, Zhiyuan Wang, Bryce Gadway, and **Kaden R. A. Hazzard**
Phys. Rev. A **99**, 013624 (2019).
53. *A Model for Scattering with Proliferating Resonances: Many Coupled Square Wells*
Nirav P. Mehta, **Kaden R. A. Hazzard**, and Christopher Ticknor
Phys. Rev. A **98**, 062703 (2018).
52. *Photoassociative Spectroscopy of a Halo Molecule in ^{86}Sr*
J. A. Aman, J. C. Hill, R. Ding, **Kaden R. A. Hazzard**, T. C. Killian, and W. Y. Kon,
Phys. Rev. A **98**, 053441 (2018).
selected as "Editor's suggestion"
51. *Cooling Fermions in an Optical Lattice by Adiabatic Demagnetization*
Anthony E. Mirasola, Michael L. Wall, and **Kaden R. A. Hazzard**
Phys. Rev. A **98**, 033607 (2018).
50. *Bosonic molecules in a lattice: Unusual fluid phase from multichannel interactions*
Erin D. Ewart, Michael L. Wall, and **Kaden R. A. Hazzard**
Phys. Rev. A **98**, 013611 (2018)
49. *Viewpoint: Watching a quantum magnet grow in ultracold atoms*
Kaden R. A. Hazzard
Physics **11**, 63 (2018)
48. *Complex-network description of thermal quantum states in the Ising spin chain*
Bhuvanesh Sundar, Marc Andrew Valdez, Lincoln D. Carr, and **Kaden R. A. Hazzard**
Phys. Rev. A **97**, 052320 (2018)
47. *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**
Phys. Rev. A **97**, 043606 (2018)
46. *Analytic ground state wave functions of mean-field $p_x + ip_y$ superconductors with vortices and boundaries*
Zhiyuan Wang and **Kaden R. A. Hazzard**
Phys. Rev. B **97**, 104501 (2018)
45. *Synthetic dimensions in ultracold polar molecules*
Bhuvanesh Sundar, Bryce Gadway, and **Kaden R. A. Hazzard**
Scientific Reports **8**, 3422 (2018)
44. *Correlations and enlarged superconducting phase of t - J_{\perp} chains of ultracold molecules on optical lattices*
Salvatore R. Manmana, Marcel Möller, Riccardo Gezzi, and **Kaden R. A. Hazzard**
Phys. Rev. A **96**, 043618 (2017)

43. *Number-conserving interacting fermion models with exact topological superconducting ground states*
Zhiyuan Wang, Youjiang Xu, Han Pu, and **Kaden R. A. Hazzard**
Phys. Rev. B **96**, 115110 (2017)
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).
selected as "Editor's suggestion"
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

110. Workshop on Ultracold Molecules, University of Warsaw, Warsaw, Poland
Title TBD
September 2023
109. Institute for Quantum Science and Engineering (IQSE) Summer Conference, Casper, Wyoming
Title TBD
July 2023
108. Physics Seminar, University of Goettingen, Germany
Title TBD
June 2023
107. Physics Seminar, King's College, London, UK
Title TBD
June 2023
106. Quantum Science with Ultracold Molecules workshop, Hertfordshire, UK
Title TBD
June 2023
105. Workshop on optical tweezers, University of Oklahoma, Norman, OK
Programming quantum matter: real space geometry and synthetic dimensions
June 2023

104. Rice-Europe Workshop on Future Directions in Spintronics and Quantum Materials, Paris, France
Programmable Quantum Matter,
May 2023
103. IQUIST (Illinois Quantum Institute of Science and Technology) seminar, University of Illinois, Urbana-Champaign, IL
Programmable Quantum Matter,
April 2023
102. Physics Colloquium, University of Houston, Houston, TX
Programmable Quantum Matter
March 2023
101. Physics Colloquium, Texas A&M University, College Station, TX
Programmable Quantum Matter
March 2023
100. AMO/QIS Seminar, Columbia University, New York City, NY
Programmable quantum matter with real and synthetic dimensions
March 2023
99. Theory Seminar, Fudan University, Fudan, China (virtual)
Programmable quantum matter with real and synthetic dimensions
March 2023
98. Public Talk on the 2022 Nobel Prize, The Ion, Houston, TX
Quantum nonlocality and the 2022 Nobel Prize: from Einstein's disbelief to quantum technology
January 2023
97. Quantum Simulation of the Doped Hubbard model, Harvard ITAMP workshop, Cambridge, Massachusetts
What can the $SU(N)$ Hubbard model teach us about correlated matter?
November 2022
96. Physics Department Colloquium, CUNY, New York City, NY
Programmable quantum matter with real and synthetic dimensions
October 2022
95. Seminar, Flatiron Institute, New York City, NY
Quantum matter: from consequences of locality to parastatistical particles
October 2022
94. Physics Colloquium, George Mason University, Fairfax, Virginia (virtual)
Programmable quantum matter with real and synthetic dimensions
October 2022
93. Keynote talk at Gulf Coast Undergraduate Research Symposium (GCURS), Rice University, Houston, Texas.
Synthetic ultracold quantum matter
October 2022

92. Theory Seminar, Washington University, St. Louis
Quantum matter: from consequences of locality to parastatistical particles
September 2022
91. Programmable Quantum Matter workshop, Aspen Center for Physics, Aspen, Colorado
Synthetic Dipolar Matter
June 2022
90. APS March Meeting 2022 "Non-Equilibrium Physics with Cold Atoms and Molecules, Rydberg Gases, and Trapped Ions" session, Chicago, Illinois.
Exact results for nonequilibrium ultracold matter
March 2022
89. University of British Columbia-Rice Workshop on Topological Quantum Matter (virtual)
Topological synthetic dimensions with programmable ultracold matter
December 2021
88. UT Austin Quantum Collective-IBM Quantum Hackathon (virtual)
Variational quantum algorithms: from traditional to novel hardware
October 2021
87. Center for Quantum Research and Technology Seminar, University of Oklahoma, Norman, Oklahoma (virtual)
Synthetic dimensions in ultracold matter
August 2021
86. Condensed Matter in the City, London, UK (virtual)
Synthetic dimensions in ultracold matter
July 2021
85. Boulder Summer School on Ultracold Matter seminar, Boulder, Colorado (virtual)
Synthetic dimensions: ultracold molecules, Rydberg atoms, and momentum-space lattices
July 2021
84. International physics and astronomy webinar, Pabna University of Science and Technology, Pabna Bangladesh (virtual)
Ultracold quantum matter: science to technology
June 2021
83. DAMOP 2021 "Cold Gases: Frontiers of SU(N) Physics" session (virtual)
Correlations and Universality in Ultracold Alkaline Earth Atoms
June 2021
82. Rice Science Cafe & Salon, Houston, TX
Science for the Quantum Revolution
April 2021

81. Durham University Quantum Light and Matter Group (virtual) Seminar, Durham, United Kingdom
Synthetic dimensions: ultracold molecules, Rydberg atoms, and momentum-space lattices
October 2020
80. Rice University Physics and Astronomy Colloquium, Houston, TX
Ultracold Matter: How cold can it get? How fast can it move?
September 2020
79. Virtual seminar on quantum fluids in isolation, Boston College, Boston, Massachusetts
Ultracold $SU(N)$ quantum magnetism and structure of correlations in many-body systems
June 2020
78. University of Goettingen Institute of Theoretical Physics virtual seminar, Goettingen, Germany
Ultracold $SU(N)$ quantum magnetism and structure of correlations in many-body systems
June 2020
77. Texas Quantum Institute planning workshop on Quantum Algorithms, Austin, Texas
Connecting Quantum Algorithms to Analog Quantum Simulation
March 2020
76. Minerva-Gentner Symposium on "Quantum Simulations With Atoms, Molecules and Photons", Tze'elim, Israel
Harnessing internal states for quantum simulation
February 2020
75. Texas Quantum Institute workshop on Quantum Advantage with Quantum Simulation, Houston, Texas
Tutorial on Quantum simulation
February 2020
74. Michigan State University CM seminar, East Lansing, Michigan
The power within: Quantum magnetism in alkaline earth atoms & synthetic dimensions in molecules
February 2020
73. Imperial College London AMO seminar, London, United Kingdom
Synthetic dimensions in ultracold molecules (and elsewhere)
November 2019
72. "Exploring new regimes of dipolar physics with ultracold molecules," Durham University workshop, Durham, United Kingdom
Synthetic dimensions in ultracold molecules (and elsewhere)
November 2019

71. Keynote talk at Gulf Coast Undergraduate Research Symposium (GCURS), Houston, Texas
Quantum Simulation and Computation
November 2019
70. Texas Quantum Institute Kickoff Workshop, College Station, Texas
Quantum algorithms and computation in the TQI
October 2019
69. Georgia Tech condensed matter & AMO seminar, Atlanta, Georgia
Ultracold molecules: from topology to quantum strings
August 2019
68. "Emergent phenomena in ultracold atoms: merging topology, interaction, and dynamics" workshop, Kavli Institute for Theoretical Sciences (KITS), Beijing, China.
Synthetic dimensions and sticky collisions in ultracold molecules
June 2019
67. "Few-body Physics in Cold Atomic Gases conference", Zhuhai, China.
Sticky collisions and synthetic dimensions in ultracold molecules
June 2019
66. "New frontiers in cold molecules" workshop, Harvard ITAMP, Cambridge, Massachusetts.
Synthetic dimensions and sticky collisions in ultracold molecules
May 2019
65. University of Houston Physics Colloquium, Houston, Texas
Ultracold molecules as a new form of matter: from topology to quantum strings
Feb 2019
64. Advances on Quantum Simulation with Ultracold Atoms, International Institute of Physics (IIP), Natal, Brazil.
Synthetic dimensions in ultracold molecules: strings and topology
October-November 2018
63. Zyvelabs Workshop on Designed 2D Quantum Metamaterials, Gaithersburg, Maryland.
Ultracold matter for quantum simulations: achievements, challenges, and opportunities
April 2018
62. American Chemical Society Spring Meeting, "Cold Molecules for Chemistry" symposium, New Orleans, Louisiana.
Synthetic dimensions in ultracold molecules: from strings to chemical synthesis
March 2018
61. APS March Meeting 2018, "Synthetic Physics: Synthetic Dimensions, Gauge Fields, and Spin-Orbit Coupling" session, Los Angeles, California
Synthetic dimensions in ultracold molecules: strings, membranes, topology
March 2018
60. Physics of Quantum Electronics workshop, Snowbird, Utah
Synthetic dimensions in ultracold molecules
January 2018

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 (CMTTC) 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. FINES-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, Colorado
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 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.