Jonathan Simon, Ph.D.

Department of Physics
James Franck Institute
The University of Chicago
929 E. 57th Street
Chicago IL, 60637

Work: 773.702.9661
Cell: 857.928.4132
simonjon@uchicago.edu

Academic Positions

Neubauer Family Assistant Professor — **University of Chicago**
Department of Physics, James Franck Institute and The College — **2012-Present**

Postdoctoral Scholar — **Harvard University**
Group of Prof. Markus Greiner — **2010-2012**

Quantum magnetism in an optical lattice, bilayer imaging, algorithmic cooling and purification of lattice gases, photon-assisted tunneling, atom-resolved studies of the superfluid to Mott insulator transition.

Education

Ph.D. in Physics, Harvard University — **March 2010**
Dissertation: *Cavity QED with Atomic Ensembles* (Advisor: Vladan Vuletić).

Single photon source, quantum bus, quantum memory, vacuum induced transparency and few photon nonlinearities.

B.S. in Physics, California Institute of Technology — **June 2004**

Honors and Awards

- Presidential Early Career Award in Science in Engineering (PECASE): DOE — **2013**
- Defense Advanced Research Projects Agency Young Faculty Award (DARPA YFA) — **2013**
- Department of Energy Young Investigator Award (DOE YIA) — **2013**
- Air Force Office of Scientific Research Young Investigator Program (AFOSR YIP) — **2013**
- Martin and Beate Block Award, Aspen Center for Physics — **2012**
- AAAS Newcomb Cleveland Prize — **2011**
- National Science Foundation Graduate Research Fellowship — **2007-2010**
- National Defense Science & Engineering Graduate Fellowship — **2005-2007**
- Harvard Purcell Fellowship — **2004-2005**
- Caltech Upperclass Merit Award– Carnation Fellowship — **2002-2004**
- Caltech Axline Fellowship (Full Tuition) — **2000-2004**
- Intel Science Talent Search Finalist — **2000**

Service at the University of Chicago

- Member of the University of Chicago Board of Computing Activities and Services (2016-Present)
- Physics Recruitment Committee (2015-17)
- Physical Sciences Division Recruitment Committee (2015-16)
- Admissions Committee (2012-13,2014-17)
- Chair, James Franck Institute Seminar Committee (2013-2017)
- Physics Department Colloquium Committee (2012-2013, 2015-2016)
- New Faculty Search Committee (2013-14,2016-17)
- PhD. Thesis Defense Committee (7) (2012-Present)

Service to the Community

- Lecturer at ETH Cavity Quantum Electrodynamics Summer School, 2017
- AMO Lecturer at Midwest Cold Atom Workshop, 2016

- Session Chair, DAMOP 2013 (Quebec City, Canada), DAMOP 2014 (Madison, Wisconsin), DAMOP 2016 (Providence, Rhode Island)
- Reviewer for Nature (plus sub-journals), Science, Proceedings of the National Academy of Sciences, Physical Review, New Journal of Physics

Teaching Experience

- Instructor, Ph 142 UChicago Undegraduate Honors Electricity and Magnetism **Winter 2018**
- Instructor, Ph 143 UChicago Undegraduate Honors Vibration, Waves, and Heat **Spring 2017**
- Instructor, Ph 361 UChicago Graduate Solid State Physics **Fall 2012-2013, Fall 2016**
- Instructor, Ph 211 UChicago Undergraduate Physics Laboratory **Winter 2014, Spring 2016**
- Instructor, Ph 471 UChicago Graduate Atomic Physics **Fall 2014**

Advisors and Advisees

Supervisors:

- **Vladan Vuletic:** PI's graduate supervisor
- **Markus Greiner:** PI's principal postdoctoral sponsor

Current Doctoral and Post-Doctoral Researchers (***** indicates co-advised with Dave Schuster):

- **Logan Clark:** Postdoctoral Researcher, UChicago **2017-Present**
- **Ruichao (Alex) Ma:** Kadanoff-Rice Postdoctoral Fellow*****, UChicago **2015-Present**
- **Alexandros Georgakopoulos:** Graduate Student, UChicago **2012-Present**
- **Ningyuan Jia:** Graduate Student, UChicago **2013-Present**
- **Aziza Suleymanzade:** Graduate Student*****, UChicago **2014-Present**
- **Clai Owens:** Graduate Student*****, UChicago **2013-Present**
- **Nathan Schine:** Graduate Student, UChicago **2013-Present**
- **Mark Stone:** Graduate Student*****, UChicago **2015-Present**
- **Brendan Saxberg:** Graduate Student*****, UChicago **2016-Present**
- **Claire Baum:** Graduate Student, UChicago **2017-Present**

Former Doctoral and Post-Doctoral Researchers:

- **Ariel Sommer:** Grainger Postdoctoral Fellow, UChicago **2013-2016**
- **Albert Ryou:** Graduate Student, UChicago **2012-2017**

Current Undergraduates Researchers (UChicago): **Sarayu Narayan** (2016-Present), **Evan Mata** (2016-Present), **Joshua Wakefield** (2016-Present), **Lin Su** (2017-Present), **Jasmine Kalia** (2017-Present), **Carl Padgett** (2017-Present).

Former Undergraduate Researchers (UChicago): **Aaron Krahn** (2012-2014), **Graham Greve** (2012-2014), **Lindsay Bassman** (2012-2014), **Jeremy Seeman** (2012), **Michael Cervia** (2013-2016), **Jin Woo Sung** (2013-2014), **Jeremy Estes** (2014-5), **Sohini Upadhyay** (2014-2015), **Michelle Chalupnik** (2015-2017), **Tahoe Schrader** (2015-2016), **Jeremy Estes** (2015-2016), **Scott Eustice** (2015-2017), **Aman LaChapelle** (2015-2017), **Yuehui (Leon) Lu** (2016-2017), **Jared Beh** (2017).

Collaborators and Co-editors

- Brandon Anderson [Chicago]
- Waseem Bakr [Princeton]
- Hanspeter Büchler [Stuttgart]
- Wenlan Chen [MIT]
- Andrew Daley [Strathclyde]
- Markus Greiner [Harvard]
- Andrey Gromov [Chicago]
- Andrew Houck [Princeton]
- Alex Ruichao Ma [Chicago]
- Johannes Otterbach [Harvard]
- Hannes Pichler [Innsbruck]

- Philipp Preiss [Harvard]
- Johannes Schachenmayer [Pittsburgh]
- David Schuster [Chicago]
- Eric Tai [Harvard]
- Haruka Tanji [Tokyo]
- Vladan Vuletic [MIT]
- Peter Zoller [Innsbruck]

Peer-Reviewed Publications

1. Ningyuan Jia, Nathan Schine, Alexandros Georgakopoulos, Albert Ryou, Ariel Sommer, Jonathan Simon, **A Strongly Interacting Polaritonic Quantum Dot.** *arXiv:* 1705.07475 (2018), *In Press @ Nature Physics.*
2. Peter A. Ivanov, Fabian Letscher, Jonathan Simon, Michael Fleischhauer, **Adiabatic flux insertion and growing of Laughlin states of cavity Rydberg polaritons.**, arXiv: 1803.04156 (2018).
3. Nathan Schine, Michelle Chalupnik, Tankut Can, Andrey Gromov, Jonathan Simon, **Measuring Electromagnetic and Gravitational Responses of Photonic Landau Levels.** arXiv: 1802.04418 (2018).
4. Tomoki Ozawa, Hannah M. Price, Alberto Amo, Nathan Goldman, Mohammad Hafezi, Ling Lu, Mikael Rechtsman, David Schuster, Jonathan Simon, Oded Zilberberg, Iacopo Carusotto, **Topological Photonics.** arXiv: 1802.04173 (2018).
5. Jia Ningyuan, Nathan Schine, Alexandros Georgakopoulos, Albert Ryou, Ariel Sommer, Jonathan Simon, **Photons and polaritons in a broken-time-reversal non-planar resonator.** *Phys. Rev. A* 97, 013802 (2018). [Selected for an APS "Physics Focus" and Nature Photonics "Highlight"]
6. Clai Owens, Aman LaChapelle, Brendan Saxberg, Brandon Anderson, Ruichao Ma, Jonathan Simon, David I, Schuster, **Quarter-Flux Hofstadter Lattice in Qubit-Compatible Microwave Cavity Array.** *Phys. Rev. A* 97, 013818 (2018).
7. Ruichao Ma, Clai Owens, Andrew Houck, David I. Schuster, Jonathan Simon, **An Autonomous Stabilizer for Incompressible Photon Fluids and Solids.** *Phys. Rev. A* 95, 043811 (2017).
8. Ruichao Ma, Clai Owens, Aman LaChapelle, David I. Schuster, Jonathan Simon, **Hamiltonian Tomography of Photonic Lattices.** *Phys. Rev. A* 95, 062120 (2017).
9. Albert Ryou, Jonathan Simon, **Active Cancellation of Acoustical Resonances with an FPGA FIR Filter.** *Rev. Sci. Inst.* 88, 013101 (2017).
10. Brandon M. Anderson, Ruichao Ma, Clai Owens, David I. Schuster, Jonathan Simon, **Engineering Topological Many-Body Materials in Microwave Cavity Arrays.** *Phys. Rev. X* 6, 041043 (2016).
11. Nathan Schine, Albert Ryou, Andrey Gromov, Ariel Sommer, Jonathan Simon, **Synthetic Landau Levels for Photons.** *Nature* 534, 671-5 (2016).
12. Jia Ningyuan, Alexandros Georgakopoulos, Albert Ryou, Nathan Schine, Ariel Sommer, Jonathan Simon, **Observation and characterization of cavity Rydberg polaritons.** *Phys. Rev. A.* 93, 041802(R) (2016).
13. Ariel Sommer, Jonathan Simon, **Engineering Photonic Floquet Hamiltonians through Fabry Pérot Resonators.** *New Journal of Physics* 18, 035008 (2015).
14. Ariel Sommer, Hanspeter Buchler, and Jonathan Simon, **Quantum Crystals and Laughlin Droplets of Cavity Rydberg Polaritons.** *arXiv:* 1506.00341 (2015).
15. Ningyuan Jia, Ariel Sommer, David Schuster, and Jonathan Simon, **Time- and Site-Resolved Dynamics in a Topological Circuit.** *Phys. Rev. X* 5, 021031 (2015). [Highlighted in the "Condensed Matter Journal Club"]

16. Philipp M. Preiss, Ruichao Ma, M. Eric Tai, Jonathan Simon, Markus Greiner, **Quantum gas microscopy with spin, atom-number, and multilayer readout**. *Phys. Rev. A* 91, 041602(R) (2015).
17. Andrew Daley, Jonathan Simon **Effective three-body interactions via photon-assisted tunneling in an optical lattice.** *Phys. Rev. A* 89, 053619 (2014).
18. Hannes Pichler, Johannes Schachenmayer, Jonathan Simon, Peter Zoller, Andrew J. Daley, **Dressed, noise- or disorder- resistant optical lattices.** *Phys. Rev. A* 86, 051605(R) (2012).
19. Waseem S. Bakr, Philipp M. Preiss, M. Eric Tai, Ruichao Ma, Jonathan Simon, Markus Greiner, **Orbital excitation blockade and algorithmic cooling in quantum gases.** *Nature* 480, 500-503 (2011) [Selected for a Nature "News and Views"]
20. Haruka Tanji-Suzuki, Wenlan Chen, Renate Landig, Jonathan Simon, Vladan Vuletic, **Vacuum Induced Transparency.** *Science* 333, 1266-1269 (2011). [Selected for a Science "Perspective" and a Nature Photonics "News and Views"]
21. Ruichao Ma, M. Eric Tai, Philipp M. Preiss, Waseem S. Bakr, Jonathan Simon, Markus Greiner, **Photon-Assisted Tunneling in a Biased, Strongly Correlated Bose Gas.** *Phys. Rev. Lett.* 107, 095301 (2011).
22. Jonathan Simon, Waseem S. Bakr, Ruichao Ma, M. Eric Tai, Philipp M. Preiss, Markus Greiner, **Quantum Simulation of Antiferromagnetic Spin Chains in an Optical Lattice.** *Nature* 472, 307-312 (2011). [Selected for a Nature "News and Views"]
23. Waseem S. Bakr, Amy Peng, M. Eric Tai, Ruichao Ma, Jonathan Simon, Jonathon Gillen, Simon Fölling, Lode Pollet, Markus Greiner, **Probing the Superfluid-to-Mott-Insulator Transition at the Single-Atom Level.** *Science* 329, 547-550 (2010). [Selected for a Science "Perspective"]
24. Haruka Tanji, Saikat Ghosh, Jonathan Simon, Benjamin Bloom, and Vladan Vuletic, **Heralded Single-Magnon Quantum Memory for Photon Polarization States.** *Phys. Rev. Lett.* 103, 043601 (2009). [Selected for a PRL "Viewpoint"]
25. Jonathan Simon, Haruka Tanji, Saikat Ghosh, Vladan Vuletic, **Single-photon bus connecting spin-wave quantum memories.** *Nat. Phys.* 3, 765 (2007).
26. Vladan Vuletic, James Thompson, Adam T. Black, and Jonathan Simon, **External-feedback laser cooling of molecular gases.** *Phys. Rev. A* 75, 051405(R) (2007).
27. Jonathan Simon, Haruka Tanji, James K. Thompson, and Vladan Vuletic, **Interfacing Collective Atomic Excitations and Single Photons.** *Phys. Rev. Lett.* 98, 183601 (2007).
28. Huanqian Loh, Yu-Ju Lin, Igor Teper, Marko Cetina, Jonathan Simon, James K. Thompson, Vladan Vuletic, **Influence of grating parameters on the linewidths of external-cavity diode lasers.** *Appl. Opt.*, Vol. 45, Issue 36, 9191–9197 (2006).
29. James K. Thompson, Jonathan Simon, Huanqian Loh, Vladan Vuletic, **A High-Brightness Source of Narrowband, Identical-Photon Pairs.** *Science* 313, 74–77 (2006).

Other Publications

- Jonathan Simon, **Magnetic Fields without magnetic fields.** *Nature News and Views* 515 (2014).
- Jonathan Simon, Markus Greiner, **A Duo of Graphene Mimics.** *Nature News and Views* 483 (2012).
- Haruka Tanji-Suzuki, Ian D. Leroux, Monika H. Schleier-Smith, Marko Cetina, Andrew Grier, Jonathan Simon, Vladan Vuletic, **Interaction between Atomic Ensembles and Optical Resonators: Classical Description.** *Adv. At. Mol. Opt. Phys* 60, 201-237 (2011).
- Haruka Tanji, Jonathan Simon, Saikat Ghosh, Benjamin Bloom, Vladan Vuletic, **Heralded atomic-ensemble quantum memory for photon polarization states.** *Phys. Scr. T* 135, 014010 (2009).

Research Talks

1. **Invited Speaker**, Condensates of Light; Wilhelm und Else Heraeus-Stiftung, January 2018; *Topological and Strongly Correlated Photons.*
2. **Invited Speaker**, POTUS- Quantum: AI, Fundamentals, & Technologies; Caltech & SpaceX, January 2018; *Exploring Materials Made of Light.*
3. **Invited Speaker**, Croucher Conference on Frontiers of Cold Atom Physics; Hong Kong University, Hong Kong, December 2017; *Building Quantum Matter from Light.*
4. **Invited Speaker**, Stony Brook Physics Colloquium; Stony Brook, NY, October 2017; *Building Correlated and Topological Matter from Light.*
5. **Invited Speaker**, Stony Brook AMO Seminar; Stony Brook, NY, October 2017; *An Introduction to Topological Photonics.*
6. **Invited Speaker**, Many Body Cavity QED; Cambridge, MA, October 2017; *Building Topological Quantum Matter from Photons and Polaritons.*
7. **Invited Speaker**, JQI Seminar, College Park, MD, September 2017; *Building Correlated and Topological Quantum Matter from Light.*
8. **Invited Speaker**, Cavity QED Summer School; Lausanne, Switzerland, September 2017; *Building Quantum Materials from Light: Topological and Strongly Correlated Photons.*
9. **Invited Speaker**, BEC 2017; Sant Feliu, Spain, September 2017; *Building Topological Quantum Matter from Photons and Polaritons.*
10. **Invited Speaker**, NYU Frontiers in Emergent Quantum Phenomena; Manhattan NY, June 2017; *Building Quantum Materials from Light: Polariton Blockade to Landau Levels in Curved Space.*
11. **Invited Speaker**, DAMOP 2017; Sacramento, California, June 2017;*Photonic Landau Levels in Curved Space.*
12. **Invited Speaker**, QFLM at Institute of Scientific Studies of Cargèse: Quantum Fluids of Light and Matter, Corsica, France, May 2017; *Topological Photonic Quantum Materials: Landau Levels to Polariton Blockade.*
13. **Invited Speaker**, University of Chicago Computations in Science, Chicago, Illinois, April 2017; *Building Strongly Correlated Matter from Light.*
14. **Invited Speaker**, UMass Amherst Physics Colloquium, Amherst, MA, April 2017; *Topological Cavity QED: Photonics Landau Levels in Curved Space.*
15. **Invited Speaker**, Emerging Optical Materials Workshop @ MIT Lincoln Labs, Lexington, MA, April 2017; *Topological Cavity QED: Photonics Landau Levels in Curved Space.*
16. **Invited Speaker**, ETH Physics Colloquium, Zurich, Switzerland, March 2017; *Topological Physics in Curved Space: Twisted Cavities to Polariton Blockade.*
17. **Invited Speaker**, Princeton Physics Colloquium, Princeton, New Jersey, March 2017; *Topological Physics in Curved Space: Twisted Cavities to Polariton Blockade.*
18. **Invited Speaker**, UC Berkeley AMO Seminar, Berkeley, California, February 2017; *Building Quantum Matter from Light: from Topological Photonics to Polariton Blockade.*
19. **Invited Speaker**, University of Kaiserslautern Physics Colloquium, Kaiserslautern, Germany, February 2017; *Building Quantum Matter from Light: from Topological Photonics to Polariton Blockade.*
20. **Invited Speaker**, Aspen Center for Physics: Topological Meta-Materials, Aspen, CO, January 2017; *Building Quantum Matter from Light: from Topological Photonics to Polariton Blockade.*
21. **Invited Speaker**, KITP Conference on Universality in Few-Body Systems, Santa Barbara, CA, December 2016; *Building Quantum Materials from Light.*

22. **Invited Speaker**, Frontiers in Optics/Laser Science Conference (FiO/LS), Rochester, NY, October 2016; *Topological Cavity QED: Landau Levels in Curved Space to Microwave Chern Insulators.*
23. **Invited Speaker**, KITP Conference on Topological Quantum Matter, Santa Barbara, CA, October 2016; *Landau Levels in Curved Space.*
24. **Invited Speaker**, MURI Workshop on Synthetic Quantum Materials, and Quantum Dynamics of Atomic Gases, UChicago Eckhardt Center, September 2016; *Topological Cavity QED: Landau Levels in Curved Space.*
25. **Invited Speaker**, KITPC Workshop: Synthetic Topological Materials, Chinese Academy of Sciences, Beijing, China, August 2016; *Topological Cavity QED: Landau Levels in Curved Space.*
26. **Invited Speaker**, Harvard ITAMP: Connecting Few-body and Many-body Pictures of Fractional Quantum Hall Physics, Cambridge, MA, July 2016; *Topological Cavity QED: Landau Levels in Curved Space to Microwave Chern Insulators.*
27. **Invited Speaker**, Lorentz Center: Topological Physics at $\hbar = 0$: Photonic, Acoustic, and Mechanical Analogues of Electronic Topological Insulators, Leiden, Netherlands, May 2016; *Landau Levels in Curved Space, (Topological Circuits & Microwave Chern Insulators).*
28. **Invited Speaker**, Simons Center for Geometry and Topology Conference: Geometry of Quantum States in Condensed Matter, Stony Brook, NY, April 2016; *Landau Levels in Curved Space: Topological Photonics in Twisted Resonators.*
29. **Invited Speaker**, University of Illinois, Urbana-Champagne, April 2016; *Topological Photonics with Twisted Resonators and Braided Circuits.*
30. **Invited Speaker**, MPQ Colloquium, Garching, Germany, February 2016; *Topological Photonics with Twisted Resonators and Braided Circuits.*
31. **Invited Speaker**, CoQuS Colloquium, Vienna, Austria, November 2015; *Topological Photonics with Twisted Resonators and Braided Circuits.*
32. **Invited Speaker**, UC/PKU Workshop on quantum condensed matter physics, Beijing, China, CA, October 2015; *Topological Photonics with Twisted Resonators and Braided Circuits.*
33. **Invited Speaker**, James Franck Institute Seminar, Chicago, IL, October 2015; *Topological Photonics with Twisted Resonators and Braided Circuits.*
34. **Invited Speaker**, KITP Conference on Non-equilibrium dynamics of strongly interacting photons, Santa Barbara, CA, October 2015; *Topological Photonics with Twisted Resonators and Braided Circuits.*
35. **Invited Speaker**, 12th US-Japan Seminar on many body quantum systems, Madison, Wisconsin, September 2015; *Topological Photonics with Twisted Resonators and Braided Circuits.*
36. **Invited Speaker**, Quantum Systems and Technology, Monte Verita, Switzerland, June 2015; *Topological Photonics with Twisted Resonators and Braided Circuits.*
37. **Invited Speaker**, Aspen Center for Physics: Nonequilibrium Quantum Matter, Aspen, Colorado, March 2015; *Progress Towards Topological Cavity Quantum Electrodynamics.*
38. **Invited Speaker**, Strongly correlated fluids of light and matter, Trento Italy, January 2015; *Topological Photonics: Braided Microwave Circuits and Twisted Resonators.*
39. **Invited Speaker**, OSA Incubator on Topological Order of Photons, Washington DC, April 2014; *Weaving (Quantum) Materials from Light.*
40. **Invited Speaker**, Quantum Optics Obergurgl 2014, Obergurgl Austria, February 2014; *Weaving Quantum Materials from Light: Towards Few-Body Physics in Multimode Rydberg Cavity QED.*
41. **Invited Speaker**, Physics of Quantum Information, Snowbird Utah, January 2014; *Weaving Quantum Materials from Light: Cold Atoms, Topological Circuits, Photons and Beyond.*

42. **Condensed Matter Seminar**, Northwestern University, December 2013; *Engineering Photonic Topological & Quantum Materials.*
43. **AMO Seminar**, University of St. Andrews, October 2013; *Weaving Quantum Materials from Light: Cold Atoms, Topological Circuits, Photons and Beyond.*
44. **AMO Seminar**, University of Strathclyde, October 2013; *Weaving Quantum Materials from Light: Cold Atoms, Topological Circuits, Photons and Beyond.*
45. **REU Seminar**, University of Chicago, July 2013; *Engineering Quantum- and Topological-Materials Cold Atoms, Quantum Circuits and Beyond.*
46. **AMO Seminar**, University of Wisconsin. Madison, Wisconsin, February 2013; *Engineering Synthetic Quantum Materials from Cold Atoms: Mott Insulators to Emergent Polariton Crystals.*
47. **AMO Seminar**, University of Waterloo. Waterloo Ontario, Canada, January 2013; *Engineering Quantum Materials from Cold Atoms: Mott Insulators to Emergent Crystals.*
48. **Physics Colloquium**, University of Chicago. Chicago, Illinois, December 2012; *Engineering Synthetic Quantum Materials from Cold Atoms: Mott Insulators to Emergent Polariton Crystals.*
49. **AMO Seminar**, Northwestern University. Evanston, Illinois, November 2012; *Engineering Synthetic Quantum Materials from Cold Atoms: Mott Insulators to Emergent Polariton Crystals.*
50. **Invited Speaker**, Midwest Cold Atom Workshop. Champaign, Illinois, November 2012; *Engineering Synthetic Quantum Materials from Cold Atoms: Mott Insulators to Emergent Polariton Crystals.*
51. **Invited Speaker**, New Laser Scientist Conference. Rochester, New York, October 2012; *Engineering Synthetic Quantum Materials from Cold Atoms: Mott Insulators to Emergent Polariton Crystals.*
52. **Invited Speaker**, Quantum Walks, Quantum Simulators and Quantum Networks, Bonn, Germany, July 2012; *Building Synthetic Materials From Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
53. **Invited Speaker**, Quantum Systems and Technology Workshop. Monte Verita, Ascona Switzerland, June 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
54. **Physics Seminar**, Boston University, Cambridge, Massachusetts, May 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
55. **Atomic Physics Seminar**, Stanford University, Stanford California, March 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
56. **Atomic Physics Seminar**, University of Illinois at Urbana-Champagne, February 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
57. **Colloquium**, UMass Amherst, February 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
58. **AMO Seminar**, University of Michigan, February 2012; *Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
59. **Colloquium**, Institute for Quantum Computing, Waterloo Ontario, Canada, February 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
60. **AMO Seminar**, University of California Los Angeles, Los Angeles California, February 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*
61. **Colloquium**, Duke University, Durham, North Carolina, February 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*

62. **Colloquium**, Caltech, Pasadena CA, January 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*

63. **AMO Seminar**, Yale University, New Haven, Connecticut, January 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*

64. **LAASP Seminar**, Cornell University, Ithaca, New York, January 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*

65. **AMO Seminar**, Princeton University, Princeton, New Jersey, January 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*

66. **Institute Seminar**, James Franck Institute, University of Chicago, Chicago Illinois, January 2012; *Building Synthetic Materials from Ultracold Atoms: Quantum Magnetism in an Optical Lattice.*

67. **Invited Speaker**, Aspen Center for Physics: New Directions in Ultracold Atomic Systems, January 2012, Aspen, Colorado; *Atom-Resolved Many-Body Quantum Physics.*

68. **Invited Speaker**, CifAR Quantum Materials Program Meet, Montreal Quebec Canada, October 2011; *Engineering Synthetic Materials with Cold Atoms: Quantum Magnetism in an Optical Lattice.*

69. **AMO Seminar**, Institute for Quantum Optics and Quantum Information, Innsbruck, Austria, September 2011; *Quantum Magnetism in an Optical Lattice.*

70. **Invited Speaker**, Strongly Correlated Electron Systems 2011, Cambridge, UK, September 2011; *Mott Insulators to Quantum Magnets: Atom-By-Atom Imaging and Manipulation of Designer Condensed Matter.*

71. **Keynote Speaker**, Photonics Ireland, Dublin Ireland, September 2011; *Quantum Magnetism with Ultracold Atoms: A Microscopic View of Artificial Quantum Matter*

72. **Invited Speaker**, Quantum phenomena in graphene, other low-dimensional materials, and optical lattices, Erice, Italy, August 2011;*Quantum Magnetism in an Optical Lattice.*

73. **Invited Speaker**, Minerva-Weizmann workshop on Entanglement in Atomic systems, Rohovot, Israel, November 2010; *Probing the Superfluid to Mott Insulator Transition at the Single Site Level.*

74. **Colloquium**, University of Connecticut Atomic Physics Seminar, Storrs, Connecticut, November 2010; *Quantum Gas Microscope: Exploring the Superfluid to Mott Insulator Transition at the Single Atom Level.*

75. **Invited Speaker**, CNLS Conference on Complexity and Disorder at Ultra-low Temperatures, Santa Fe, New Mexico, June 2010;*Single-Site Probing of the Superfluid-Mott Insulator Transition with a Quantum Gas Microscope.*

76. **Invited Talk**, Princeton-TAMU Symposium on Quantum Coherence and Laser Spectroscopy, Princeton, New Jersey, Mark 2007; *Single Photons and Quantum Memories: Climbing the Dicke Ladder One Rung at a Time.*