

Publication List

Papers (in refereed journals)

1. K.W. Murch, K.L. Moore, S. Gupta, and D.M. Stamper-Kurn:
Measurement of intracavity quantum fluctuations of light using an atomic fluctuation bolometer.
Submitted to Phys. Rev. Lett., arXiv: 0706.1005 [quant-ph].
2. S. Gupta, K.L. Moore, K.W. Murch, and D.M. Stamper-Kurn:
Cavity nonlinear optics at low photon numbers from collective atomic motion.
Accepted in Phys. Rev. Lett., arXiv: 0706.1052 [quant-ph].
3. K.L. Moore, S. Gupta, K.W. Murch, and D.M. Stamper-Kurn:
Probing the quantum state of a guided atom laser pulse.
Phys. Rev. Lett. **97**, 180401 (2006).
4. K.W. Murch, K.L. Moore, S. Gupta, and D.M. Stamper-Kurn:
Dispersion management of ultracold atoms using betatron resonances in a storage ring.
Phys. Rev. Lett. **96**, 013202 (2006).
5. S. Gupta, K.W. Murch, K.L. Moore, T.P. Purdy, and D.M. Stamper-Kurn:
Bose-Einstein condensation in a circular waveguide.
Phys. Rev. Lett. **95**, 143201 (2005).
6. K.L. Moore, T.P. Purdy, K.W. Murch, K.R. Brown, K. Dani, S. Gupta and D.M. Stamper-Kurn:
Bose-Einstein condensation in a mm-scale Ioffe-Pritchard trap.
App. Phys. B. **82** (4), 533 (2006).
7. K.L. Moore, T.P. Purdy, K.W. Murch, S. Leslie, S. Gupta and D.M. Stamper-Kurn:
Collimated single-pass atom source from a pulsed alkali metal dispenser for laser-cooling experiments.
Rev. Sci. Instr. **76** (2): 023106 (2005).
8. S. Gupta, Z. Hadzibabic, J.R. Anglin, and W. Ketterle:
Collisions in zero temperature Fermi gases.
Phys. Rev. Lett. **92**, 100401 (2004).
9. M.W. Zwierlein, C.A. Stan, C.H. Schunck, S.M.F. Raupach, S. Gupta, Z. Hadzibabic, and W. Ketterle:
Observation of Bose-Einstein condensation of molecules.
Phys. Rev. Lett. **91**, 250401 (2003).
10. M.W. Zwierlein, Z. Hadzibabic, S. Gupta, and W. Ketterle:
Spectroscopic insensitivity to cold collisions in a two-state mixture of fermions.
Phys. Rev. Lett. **91**, 250404 (2003).

11. Z. Hadzibabic, S. Gupta, C.A. Stan, C.H. Schunck, M.W. Zwierlein, K. Dieckmann, and W. Ketterle:
Fifty-fold improvement in the number of quantum degenerate fermionic atoms.
Phys. Rev. Lett. **91**, 160401 (2003).
12. S. Gupta, Z. Hadzibabic, M.W. Zwierlein, C.A. Stan, K. Dieckmann, C.H. Schunck, E.G.M. van Kempen, B.J. Verhaar, and W. Ketterle:
Radio-Frequency Spectroscopy of Ultracold Fermions.
Science **300**, 1723 (2003).
13. A. Gorlitz, T.L. Gustavson, A.E. Leanhardt, R.F. Low, A.P. Chikkatur, S. Gupta, S. Inouye, D.E. Pritchard, and W. Ketterle:
Sodium Bose-Einstein Condensates in the $F=2$ State in a Large-volume Optical Trap.
Phys. Rev. Lett. **90**, 090401 (2003).
14. K. Dieckmann, C.A. Stan, S. Gupta, Z. Hadzibabic, C.H. Schunck and W. Ketterle:
Decay of an ultracold fermionic Lithium gas near a Feshbach resonance.
Phys. Rev. Lett. **89**, 203201 (2002).
15. S. Gupta, K. Dieckmann, Z. Hadzibabic and D.E. Pritchard:
Contrast Interferometry using Bose-Einstein Condensates to Measure h/m and α .
Phys. Rev. Lett. **89**, 140401 (2002).
16. Z. Hadzibabic, C.A. Stan, K. Dieckmann, S. Gupta, M.W. Zwierlein, A. Gorlitz and W. Ketterle:
Two-species mixture of quantum degenerate Bose and Fermi gases.
Phys. Rev. Lett. **88**, 160401 (2002).
17. T.L. Gustavson, A.P. Chikkatur, A.E. Leanhardt, A. Gorlitz, S. Gupta, D.E. Pritchard and W. Ketterle:
Transport of Bose-Einstein condensates with optical tweezers.
Phys. Rev. Lett. **88**, 020401 (2002).
18. A. Gorlitz, J.M. Vogels, A.E. Leanhardt, C. Raman, T.L. Gustavson, J.R. Abo-Shaeer, A.P. Chikkatur, S. Gupta, S. Inouye, T. Rosenband, D.E. Pritchard, and W. Ketterle:
Realization of Bose-Einstein condensates in lower dimensions.
Phys. Rev. Lett. **87**, 130402 (2001).
19. S. Inouye, S. Gupta, T. Rosenband, A.P. Chikkatur, A. Gorlitz, T.L. Gustavson, A.E. Leanhardt, D.E. Pritchard, and W. Ketterle:
Observation of vortex phase singularities in Bose-Einstein condensates.
Phys. Rev. Lett. **87**, 080402 (2001).
20. D.E. Pritchard, A.D. Cronin, S. Gupta and D.A. Kokorowski:
Atom optics: Old ideas, current technology, and new results.
Ann. Phys. **10** (1-2): 35-54 (2001).

21. S. Inouye, R.F. Low, S. Gupta, T. Pfau, A. Gorlitz, T.L. Gustavson, D.E. Pritchard, and W. Ketterle:
Amplification of light and atoms in a Bose-Einstein condensate.
Phys. Rev. Lett. **85**, 4225-4228 (2000).
22. A.P. Chikkatur, A. Gorlitz, D.M. Stamper-Kurn, S. Inouye, S. Gupta, and W. Ketterle:
Suppression and enhancement of impurity scattering in a Bose-Einstein condensate.
Phys. Rev. Lett. **85**, 483-486 (2000).
23. S. Inouye, T. Pfau, S. Gupta, A.P. Chikkatur, A. Gorlitz, D.E. Pritchard, and W. Ketterle:
Phase-coherent amplification of atomic matter waves.
Nature **402**, 641-644 (1999).
24. D.M. Stamper-Kurn, A.P. Chikkatur, A. Gorlitz, S. Inouye, S. Gupta, D.E. Pritchard, and W. Ketterle:
Excitation of phonons in a Bose-Einstein condensate by light scattering.
Phys. Rev. Lett. **83**, 2876-2879 (1999).
25. R.A. Rubenstein, D.A. Kokorowski, A.A. Dhirani, T.D. Roberts, S. Gupta, J. Lehner, W.W. Smith, E.T. Smith, H.J. Bernstein, and D.E. Pritchard:
Measurement of the density matrix of a longitudinally modulated atomic beam.
Phys. Rev. Lett. **83**, 2285-2288 (1999).
26. R.A. Rubenstein, A.A. Dhirani, D.A. Kokorowski, T.D. Roberts, E.T. Smith, W.W. Smith, H.J. Bernstein, J. Lehner, S. Gupta, and D.E. Pritchard:
Search for off-diagonal density matrix elements for atoms in a supersonic beam.
Phys. Rev. Lett. **82**, 2018-2021 (1999).
27. E.J. Galvez, C.W. MacGregor, B. Chaudhuri, S. Gupta, E. Massoni, F. DeZela:
Blackbody-radiation-induced resonances between Rydberg-Stark states of Na.
Phys. Rev. A **55**, 3002-3006 (1997).

Articles in Proceedings

28. D.M. Stamper-Kurn, A.P. Chikkatur, A. Gorlitz, S. Gupta, S. Inouye, J. Stenger, D.E. Pritchard, and W. Ketterle:
Probing Bose-Einstein condensates with optical Bragg scattering.
Int J Mod Phys B **15** 1621-1640 (2001).
29. S. Gupta, D.A. Kokorowski, R.A. Rubenstein, W.W. Smith:
Longitudinal interferometry with atomic beams.
Adv AMO Physics, Vol **46**:243-275 (Academic Press, 2001).
30. S. Gupta, A.E. Leanhardt, A.D. Cronin, and D.E. Pritchard:
Coherent manipulation of atoms with standing light waves.
CR Acad. – IV, **2** (3): 479-495 (2001).

Invited Talks

31. *Ultracold Atoms and Quantum Optics.*
Physics Department Colloquium, Washington State University, Pullman, October 23, 2007
(invitation accepted).
32. *Cavity QED with ultracold atoms.*
New Laser Scientists' Conference (NLSC), Rochester, New York, October 13, 2006.
33. *Cavity QED with ultracold atoms.*
Optical Society of America Annual Meeting, Rochester, New York, October 08, 2006.
34. *Ultracold Atoms and Bose-Einstein Condensates in Storage Rings and Optical Cavities.*
School of Natural Sciences Seminar, University of California at Merced, March 23, 2006.
35. *Ultracold Atoms and Bose-Einstein Condensates in Storage Rings and Optical Cavities.*
Physics Department Colloquium, University of Washington, Seattle, March 09, 2006.
36. *Ultracold Atoms and Bose-Einstein Condensates in Storage Rings and Optical Cavities.*
Physics Department Seminar, Yale University, February 23, 2006.
37. *Ultracold Atoms and Bose-Einstein Condensates in Storage Rings and Optical Cavities.*
Physics Department Seminar, College of William and Mary, February 20, 2006.
38. *Ultracold Atoms and Bose-Einstein Condensates in Storage Rings and Optical Cavities.*
Physics Department Seminar, Georgia Institute of Technology, February 13, 2006.
39. *Bose-Einstein Condensates in Storage Rings and Optical Cavities.*
Physics Department Seminar, Cornell University, January 19, 2006.
40. *A Storage Ring for Bose-Einstein Condensates.*
Physics Department Colloquium, University of Arizona, November 09, 2005.
41. *The Quest for Fermionic Superfluidity in Dilute Atomic Gases.*
Condensed Matter Seminar, U.C. Berkeley, April 05, 2004.
42. *Sympathetic Cooling in Atom Traps: Road to Degenerate Fermions and Molecular Bose-Einstein condensates.*
Physics of Quantum Electronics (PQE) conference, Snowbird, Utah, January 05, 2004.
43. *Experiments with a strongly interacting fermionic lithium gas.*
Institute for Nuclear Theory, Univ. of Washington, Seattle, November 19, 2003.
44. *Strongly interacting degenerate Fermi gases.*
Annual Meeting of the Division of Atomic, Molecular and Optical Physics (DAMOP) of the American Physical Society, Boulder, Colorado, May 24, 2003.

45. *Experiments with Degenerate Bose and Fermi Gases.*
Atomic, Molecular and Optical Physics Seminar, U.C. Berkeley, October, 2002.
46. *Contrast Interferometry with Bose-Einstein Condensates to Measure h/m and α .*
Workshop on Recoil Induced Effects and BEC, Gargnano del Garda, Italy, June 23-26, 2002.
47. *Atom Optics with a Bose-Einstein Condensate.*
Seminar, Tata Institute of Fundamental Research, Mumbai, India, February 25, 2002.
48. *Bose-Einstein Condensates: Coherent and Superfluid.*
Seminar, U Mass Dartmouth, March 2000.

Contributed Talks at Conferences with Published Abstracts

49. *Cavity Nonlinear Optics at Low Photon Numbers from Collective Atomic Motion.*
S. Gupta, K.L. Moore, K.W. Murch, and D.M. Stamper-Kurn.
Optical Society of America Annual Meeting, San Jose, Sept 16-20, 2007 (forthcoming).
50. *Bose-Einstein condensates in a circular waveguide.*
S. Gupta, K.W. Murch, K.L. Moore, T.P. Purdy, and D.M. Stamper-Kurn.
Annual Meeting of the Division of Atomic, Molecular and Optical Physics (DAMOP) of the American Physical Society, Lincoln, Nebraska, May 20, 2005.
51. *A Ring Trap for Ultracold Atoms.*
S. Gupta, K.W. Murch, K.L. Moore, T.P. Purdy, and D.M. Stamper-Kurn.
American Physical Society March Meeting, Los Angeles, California, March 21-25, 2005.
52. *Contrast Interferometry using Bose-Einstein Condensates to Measure h/m and α .*
S. Gupta, K. Dieckmann, Z. Hadzibabic, and D.E. Pritchard.
Optical Society of America Annual Meeting, TuB2, Orlando, Florida Sept 29-Oct 3, 2002.
53. *Investigation of Feshbach resonance in a degenerate fermionic gas.*
S. Gupta, Z. Hadzibabic, K. Dieckmann, C.A. Stan, C.H. Schunck, and W. Ketterle.
Optical Society of America Annual Meeting, MC1, Orlando, Florida Sept 29-Oct 3, 2002.
54. *Bose-Einstein Condensates in a large-volume optical trap.*
A. Gorlitz, T.L. Gustavson, A.E. Leanhardt, R.F. Low, A.P. Chikkatur, S. Inouye, S.Gupta, T.P. Rosenband, D.E. Pritchard, and W. Ketterle.
Quantum Electronics and Laser Science conference, QThH1, Baltimore, Maryland, May 2001.
55. *Observation of phase-coherent amplification of atomic matter waves.*
S. Inouye, T. Pfau, S. Gupta, A.P. Chikkatur, A. Gorlitz, D.E. Pritchard, and W. Ketterle
Bull. Am. Phys. Soc. **45**, 1251 (2001).