

Curriculum Vitae – Prof. Miles P. Blencowe

(Canada/U.K. citizen; U.S. permanent resident)

<http://physics.dartmouth.edu/people/miles-p-blencowe>

Positions

- 2011-2016: Albert Bradley III Century Professor of the Sciences, Dartmouth College.
- 2011-2012: Zeiss Stiftung Guest Professor, University of Ulm, Germany.
- 2010-2013: Chair of Department of Physics and Astronomy, Dartmouth College.
- 2009-Present: Professor, Department of Physics and Astronomy, Dartmouth College.
- 2004-2009: Associate Professor, Department of Physics and Astronomy, Dartmouth College.
- 1999-2004: Assistant Professor, Department of Physics and Astronomy, Dartmouth College.

Education

- 1994-1999: Research Associate, Department of Physics (Condensed Matter Theory Group), Imperial College (Advisor: Prof. A. MacKinnon).
- 1993-1994: Research Associate, Department of Physics (Relativity Group), University of British Columbia (Advisor: Prof. W. Unruh).
- 1991-1993: Research Associate, Enrico Fermi Institute (Relativity Group), University of Chicago (Advisor: Prof. R. Wald).
- 1989-1991: Research Associate, Department of Applied Mathematics and Theoretical Physics (Relativity Group), University of Cambridge (Advisor: Prof. P. Townsend).
- 1986-1989: Ph.D., D.I.C. in Theoretical Physics, Imperial College (Advisor: Prof. C. Isham).
- 1981-1986: B.Sc. (First Class Honors), A.R.C.S. in Theoretical Physics, Imperial College, London (transferred in 1984 from Honors Physics and Mathematics Program at University of British Columbia).

Honors

Albert Bradley III Century Professor of the Sciences (Endowed Chair 2011-2016); Zeiss Stiftung Guest Professor, University of Ulm, Germany (2011-12); John Manley Huntington Award for Newly Promoted Faculty (2009); JSPS Fellowship Award, Japanese Society for the Promotion of Science, visiting fellowship to U. Hokkaido, Japan (2004); Myers Faculty Fellowship (2004);

Karen E. Wetterhahn Memorial Award (2004); Dartmouth Junior Faculty Fellowship (2002); Research Innovation Award (2001).

Selected News Articles

- “Conjuring a neutron star from a nanowire,” C. Piekema, *FQXi Article* (July 2015).
- “A Cooper-pair laser,” M. Rini, *Physics Synopsis* (July 2014).
- “Physicists eye quantum-gravity interface,” N. Wolchover, *Quanta Magazine-Simons Foundation* (October 2013).
- “Focus: gravity makes the Universe classical,” D. Lindley, *Physics* **6**, 78 (July 2013).
- “Measuring the intersection of two worlds,” H. Martin, *National Science Foundation (NSF) Discoveries* (June 2010).
- “Scientists propose lab-grade black holes,” L. Sanders, *Science News* (August 2009).
- “An event on the horizon,” J. Thomas, *Physics Synopsis* (August 2009).
- “Nanoelectromechanical system approaches the quantum limit,” R. Fitzgerald, *Physics Today* (November 2006).
- “New detector may test Heisenberg’s uncertainty principle,” H. Fountain, *New York Times* (July 22 2003).
- “Researchers race to put the quantum into mechanics,” A. Cho, *Science* **299**, 36 (2003).
- “The weirdness barrier: what keeps us safe from the craziness of the quantum world?” I. Sample, *New Scientist* **174**, 7 (April 20 2002).

Research Support

- Current:* NSF: “Superconducting Circuits and Macroscopic Quantum States of Light and Sound,” (September 2015-August 2018) [\$297,812] PI-Blencowe.
- Past:* Dartmouth Conference Award: “Relativistic Quantum Information-North 2015,” (March 2015-March 2016) [\$40,000] PI Blencowe.
- Foundational Questions Institute (FQXi): (September 2013-August 2015) [\$44,216]: “Mesoscopic Mechanical Resonators as Quantum Noninertial Reference Frames.” Co-I with Caltech; wrote the proposal.
- NSF: (September 2011-August 2015) [\$235,000]: “The Quantum-Classical Correspondence for Nonlinear Resonator Systems.” Single Investigator: PI Blencowe.
- Neukom Institute CompX faculty grant (April 2015-March 2016) [\$5,454] (Dartmouth College): “High Throughput Tracking of Beating Cilia,” PI Blencowe; Co-I Dr. Elizabeth Smith, Dept. of Biology, Dartmouth).
- Dartmouth College Provost Office Seed Funding (May 2014- June 2015) [\$52,000]: “Using Tools from Statistical Mechanics to Solve a Biological Problem at the Nanoscale.” Co-I Blencowe; PI Dr. Elizabeth Smith (Biology Dept. Dartmouth).
- NSF: (June 2008-August 2012) [\$204,000]: “Quantum Electromechanical Systems,” Single Investigator: PI Blencowe.
- Israel-US Binational Science Foundation (BSF): (Sept. 2006-August 2009) [\$230,000]. Joint PI with Dr. Eyal Buks, Technion University.

NSF-NIRT: (July 2004-June 2008 –NCE to June 2009) [\$1,460,000]. Co-I with three other institutions: U. Georgia, Brown, and Caltech: sub-award to Blencowe is \$489,430.

Foundational Questions Institute (FQXi): (September 2006-August 2008) [\$16,000]. Co-I with Cornell, Vienna.

ED-GAANN: "Proposal to the U.S. Department of Education Graduate Assistance in Areas of National Need Program from the Department of Physics and Astronomy Dartmouth College," (Sept. 2004-August 2007) [\$586,000] (approx federal contribution). Co-I; wrote the grant on the department's behalf).

ARO Quantum Computing Program (Sept. 2001-Aug. 2004) [\$268,969].
Research Corporation Innovation Award (May 2001-April 2006) [\$33,680].

Professional Memberships

American Physical Society; Institute of Physics

Professional Experience

- Peer Review Panel Member of European Research Council for Condensed Matter Physics, 2015-present (eight year appointment).
- Organizer for Conference: *Relativistic Quantum Information-North*, Dartmouth College, July 2015.
- Coordinator for workshop: *Charge Transfer Meets Circuit QED*, MPI for Complex Systems, Dresden, Germany, June-July 2015.
- Member of Program Committee for *Phonons 2015, the 15th International Conference on Phonon Scattering in Condensed Matter*, Nottingham, UK.
- Invited member of the International Society for Relativistic Quantum Information (ISRQI), 2013-Present.
- Invited member of the Foundational Questions Institute (FQXi), 2013-Present.
- Joint organizer of *Frontiers in Nanomechanics* Workshop, ICTP, Trieste, Italy September 2013.
- Organizer of Pressure of Light Symposium, Dartmouth College, October 2012.
- Member of Scientific Committee for *Frontiers of Quantum and Mesoscopic Thermodynamics 2008, 2011, 2013, 2015 & 2017* Prague, Czech Republic.
- Joint organizer for NSF-funded *Nanoelectromechanical Systems Summer School for Graduate Students* (NEMSSS), Caltech, July 2007.
- Member of Program Committee for *Phonons 2004, the 11th International Conference on Phonon Scattering in Condensed Matter*, St. Petersburg, Russia.
- Chairman of Program Committee for *Phonons 2001, the 10th International Conference on Phonon Scattering in Condensed Matter*, Dartmouth College.

Referee Work

Have refereed papers for many journals, including: Nature, Science, Nature Physics, Nature Communications, Physical Review X, Physical Review Letters, Physical Review B, Physical Review A, Applied Physics Letters, Nanoletters,

Journal of Applied Physics, Europhysics Letters, New Journal of Physics, Journal of Physics: Condensed Matter, Proceedings of the Royal Society A, Quantum Information and Computing, Journal of MEMS, Physical Review D, Classical and Quantum Gravity, Solid State Communications, Nuclear Physics B, and Physics Letters A & B, Annals of Physics, Entropy

Have refereed grants for several agencies, including the NSF, DOE, DOD, the American Chemical Society, the Research Corporation, the Austrian Science Fund, the EPSRC (UK), and the ERC (EU).

PhD Students

Qidong Xu, 2017-present; Hui Wang, 2015-Present; Erind Brahim, 2010-2015; Latchezar Benatov, 2010-2014; Laura Gilbert, 2006-2011 (formerly high school physics teacher at the Rivers School, Weston, Massachusetts, currently technical advisor for intellectual property law firm); Paul Nation, 2006-2010 (formerly JSPS Postdoctoral Fellow RIKEN, Japan, Assistant Professor, Korea University, joining IBM quantum computing division Feb '18); Yong Zhang, 2001-2005 (formerly Postdoctoral Fellow at U.C. Riverside, currently Associate Professor, Southwest University, Chongqing, China).

Teaching Experience

Have taught a number of courses during my past seventeen years at Dartmouth, ranging from the introductory undergraduate level to the advanced graduate level. Courses include: graduate level quantum mechanics; graduate level quantum field theory; particle physics; solid state physics; intermediate undergraduate level quantum mechanics; intermediate level statistical physics; intermediate level mechanics (including nonlinear dynamics); introductory modern physics; introductory mechanics; biophysics.

Have also taught courses at various international graduate winter and summer schools.

Service at Dartmouth College

Committee on Organization & Policy (2016-2017); Committee Advisory to the President (2011-14); Committee on Priorities (2010-13); Committee of Chairs (2010-13); Science Division Council (2010-13).

Invited Talks-Miles P. Blencowe

1. September 17: Foundations and Applications of Nanomechanics Workshop, ICTP Trieste, Italy
2. June 17: Erwin Schrodinger Institute Programme on Quantum Physics and Gravity, Vienna, Austria (invited; declined)
3. June 17: W.E.–Heraeus-Seminar on Gravitational Decoherence, Bad Honnef, Germany (invited; declined).
4. March 17: 14th International Workshop on Nanomechanical Sensors, Hawaii.
5. December 16: Fundamental Problems of Quantum Physics Conference, ICTS, Bangalore, India.
6. September 16: Department of Physics, Northwestern University.
7. September 16: CoQuS Graduate Summer School, University of Vienna, Austria (three lectures).
8. June 16: Relativistic Quantum Information-North Conference, University of Waterloo, Canada.
9. June 16: Department of Physics, University College London (UK).
10. March 16: APS March Meeting, Baltimore.
11. December 15: Chalmers Institute of Technology (Sweden) (Colloquium).
12. December 15: Radboud University Nijmegen (Netherlands)
13. November 15: ITAMP, Harvard.
14. October 15: Dept. of Physics, Amherst College (Colloquium).
15. September 15: Dept. of Physics, Williams College (Colloquium).
16. September 15: Dept. of Physics, SUNY Buffalo (Colloquium).
17. April 15: Dept. of Physics, Keene State University (Colloquium).
18. March 15: Dept. of Physics, Imperial College (UK).
19. March 15: Dept. of Physics, University of York (UK).
20. March 15: Dept. of Mathematics, University of York (UK).
21. February 15: Dept. of Physics, University of Nottingham (UK) (Colloquium).
22. February 15: Queen's College London Girl's School (UK).
23. September 14: Advanced Many-Body and Statistical Methods in Mesoscopic Systems III, Brasov, Romania.
24. June 14: International Workshop on Relativistic Quantum Information, Seoul, Korea.
25. June 14: The 9th Biennial Conference on Classical and Quantum Relativistic Dynamics of Particles and Fields, University of Connecticut, Storrs, Connecticut.
26. October 13: Dept. of Physics Washington University in St. Louis (Colloquium).
27. July 13: Frontiers in Quantum and Mesoscopic Thermodynamics Conference, Prague, Czech Republic.
28. May 13: Dept. of Physics, University of Vermont (Colloquium).
29. January 13: Applied Physics, Caltech.
30. July 12: Institute for Theoretical Physics, Technical University of Berlin.
31. July 12: Physics Department, University of Ulm, Germany (five lectures).
32. July 12: Phonons 2012 Conference, Ann Arbor, Michigan (invited plenary: declined).
33. March 12: Gordon Research Conference: Mechanical Systems in the Quantum Regime, Galveston, Texas.
34. December 11-January 12: Physics Department, University of Ulm, Germany (five lectures plus one colloquium).
35. October 11: Quantum to Classical Crossover in Mechanical Systems Workshop, Lorentz Center, Leiden, Holland (declined).
36. July 11: Frontiers in Quantum and Mesoscopic Thermodynamics Conference, Prague, Czech Republic (declined).
37. June-July 11: Advanced Many-Body and Statistical Methods in Mesoscopic Systems

- Conference, Constanta, Romania (declined).
38. May-July 11: Atomic Physics Using Superconducting Circuits Program, KITPC, Beijing, China (declined).
 39. April 11: Dept. of Physics, Tufts University, Medford, Massachusetts (colloquium).
 40. March 11: Workshop on Nuclear and Mesoscopic Physics, Michigan State University, East Lansing, Michigan (declined).
 41. January 11: 5th Winter School on Quantum Information Science, Kenting, Taiwan (Three lectures).
 42. September 10: Workshop on Nano-Opto-Electromechanical Systems, ICTP, Trieste, Italy.
 43. August 10: Quantum Fluids and Solids Conference, Grenoble, France.
 44. April 10: Quantum Cavities Workshop, Montreal, Canada.
 45. April 10: Dept. of Physics, University of Syracuse, Syracuse, New York (Colloquium).
 46. March 10: Gordon Research Conference: Mechanical Systems in the Quantum Limit, Galveston, Texas.
 47. January 10: Progress in Quantum Electronics-2010, Snowbird, Utah.
 48. December 09: Condensed Matter and Materials Physics Conference, University of Warwick, England.
 49. December 09: Casimir Research School, Technical University of Delft, Holland.
 50. November 09: Institute for Theoretical Physics, University of Utrecht, Holland.
 51. November 09: Dept. of Physics, Tel Aviv University, Israel.
 52. November 09: Dept. of Electrical Engineering, Technion, Haifa, Israel.
 53. April 09: IEEE Quantum Entanglement Workshop, MIT Lincoln Lab., Lexington MA.
 54. April 09: Dept. of Physics, Rensselaer Polytechnic Institute, Troy, New York (Colloquium).
 55. Feb-March 09: 3rd International Symposium on Trends in Nanoscience, Irsee, Germany.
 56. November 08: School of Engineering and Applied Science, Yale.
 57. October 08: Dept. of Electrical Engineering, University of Wisconsin, Madison.
 58. September 08: Dept. of Electrical Engineering, Technion, Haifa, Israel.
 59. September 08: Workshop on Nanomechanical Systems Approaching the Quantum Regime, Arnold-Sommerfeld Centre for Theoretical Physics, Ludwig Maximilians University, Munich, Germany.
 60. August 08: Emergent Gravity Conference, Center for Theoretical Physics, MIT.
 61. August 08: Frontiers of Low Temperature Physics, Royal Holloway University of London, Egham, U.K.
 62. August 08: Institute for Quantum Information, University of Vienna, Vienna, Austria.
 63. July-August 08: Frontiers of Quantum and Mesoscopic Thermodynamics, Prague, Czech Republic.
 64. February 08: Gordon Research Conference on "Mechanical Systems in the Quantum Regime", Ventura California.
 65. December 07: Dept. of Physics, Michigan State, East Lansing (Colloquium).
 66. November 07: Dept. of Physics, University of Sherbrooke, Canada.
 67. August 07: WE-Heraeus Summer School, Bad Honnef, Germany. (Declined)
 68. June 07: Institute for Quantum Information, University of Vienna, Vienna, Austria.
 69. April 07: Los Alamos National Lab., Los Alamos. (Seminar and Colloquium).
 70. March 07: Dept. of Physics, U. Mass, Boston.
 71. December 06: Quantum Electromechanical Systems II, Morro Bay.
 72. August 06: Quantum Enabled Science and Technology 2006, Santa Fe.
 73. August 06: University of Jyvaskyla, Finland.
 74. July 06: Aspen Center for Physics.
 75. June 06: Dept. of Physics, University of McGill, Canada.

76. March 06: Dept. of Electrical Engineering, Technion, Haifa, Israel.
77. February 06: Tokyo University, Tokyo, Japan.
78. February 06: Dept. of Applied Physics, U. Hokkaido, Sapporo, Japan.
79. January 06: Frontiers of Quantum Nanoscience, Noosa, Australia.
80. January 06: Nanoelectronics 2006, University of Lancaster, Lancaster, U.K.
81. October 05: ITAMP, Harvard University.
82. April 05: Dartmouth College, Dept. of Physics (Colloquium).
83. January 05: Dartmouth College, Thayer School of Engineering. (Jones Seminar).
84. November 04: Dept. of Applied Physics, U. Hokkaido, Sapporo, Japan. (Three seminars).
85. October 04: Dept. of Physics, U. Connecticut. (Colloquium).
86. August 04: Quantum Enabled Science and Technology 2004 Santa Fe.
87. July 04: Frontiers of Quantum and Mesoscopic Thermodynamics, Prague, Czech Republic.
88. June 04: Nobel Institute of Physics Workshop on Nanoelectromechanical Systems, Gothenberg, Sweden.
89. May 04: Dept. of Physics, University of Georgia, Athens.
90. March 04: APS Meeting, Montreal.
91. March 04: Physics Dept., Harvard University.
92. February 04: Physics Dept., Washington University in St. Louis.
93. November 03: Applied Phys. Dept., Yale.
94. November 03: Physics Dept., University of Vermont (Colloquium).
95. August 03: Quantum Computing Program Review, Nashville.
96. August 03: Quantum Enabled Science and Technology 2003, Santa Fe.
97. June 03: SPIE: Noise and Information in Nanoelectronics, Sensors, and Standards, Santa Fe NM.
98. October 02: Condensed Matter Group, Imperial College, London U.K.
99. August 02: Quantum Computing Program Review, Nashville.
100. August 02: Quantum Enabled Science and Technology 2002, Santa Fe.
101. May 02: The First International Conference and School on Nanoscale/Molecular Mechanics, Maui Hawaii.
102. November 01: Dept. of Physics, University of Georgia, Athens (Colloquium).
103. August 01: Quantum Computing Program Review, Baltimore.
104. April 01: Condensed Matter Group, CalTech.
105. February 01: Theory Division, Los Alamos.
106. October 00: Dept. of Physics, U Mass Amherst
107. August 00: Condensed Matter Group, CalTech.
108. June 00: NEC Research Institute, Princeton (Colloquium).
109. August 99: 22nd International Conference on Low Temperature Physics, Helsinki, Finland.
110. May 99: Condensed Matter Group, CalTech.
111. March 99: Clarendon Lab., Oxford University.
112. February 99: XVIII Rencontres de Moriond: Quantum Physics at Mesoscopic Scale, Les Arcs, France.
113. July 98: Ninth International Conference on Phonon Scattering in Condensed Matter, Lancaster.
114. April 98: Dept. of Physics, Royal Holloway and Bedford New College, Egham U.K.
115. September 97: Probing Nanoelectronic Structures Using Phonons Meeting, Bangor Wales.
116. January 97: Dept. of Materials, Oxford University.
117. September 96: NATO Advanced Research Workshop on Nanowires, Madrid Spain.
118. September 96: Probing Nanoelectronic Structures Using Phonons Meeting,

Ambleside U.K.

119. July 95: Fourth International Conference on Phonon Physics, Sapporo, Japan.
120. March 95: Physics Dept., Lancaster University.
121. May 93: Physics Dept., University of Maryland.
122. November 92: Helped organize and participated in 2nd Midwest Relativity Conference, University of Chicago.
123. March-April 92: Chalmers Institute of Technology, Göteborg Sweden.
124. May 92: 1st Midwest Relativity Conference, University of Illinois at Urbana Champaign.
125. May 91: Physics Dept., University of Sussex, Brighton U.K.
126. March 91: Mathematics Institute, Oxford University.
127. October-November 90: Physics Depts. Of Syracuse University and University of Pittsburgh.

Publications-Miles P. Blencowe

Book Chapters

1. Blencowe, M.P. (2017) “What is Physics?” in *What Are the Arts and Sciences?* Ed. D. Rockmore (University Press of New England, Lebanon, New Hampshire).
2. Blencowe, M.P., Armour, A.D., and Rimberg, A.J. (2012) “Quantum-classical correspondence for a dc-biased cavity resonator–Cooper-pair transistor system,” in *Fluctuating Nonlinear Oscillators*, Ed. M. Dykman (Oxford University Press, Oxford).
3. Blencowe, M.P. (2003) “Quantized thermal conductance of acoustic phonons in nanowires,” in *Electron-Phonon Interactions in Low-Dimensional Structures*, Ed. L.J. Challis (Oxford University Press, Oxford).
4. Blencowe, M.P. (2001) “Phonons in low-dimensional semiconductor structures,” in *Low-Dimensional Semiconductor Structures*, Eds. D. Vvedensky and K. Barnham (Cambridge University Press, Cambridge).

Papers

1. Friedman, O.D. and Blencowe, M.P. (2017) “The Wigner flow for open quantum systems,” arXiv:1703.04844.
2. Wang, H., Blencowe, M.P., Armour, A.D., and Rimberg, A.J. (2017) “Quantum dynamics of a Josephson junction driven cavity mode system in the presence of voltage bias noise,” *Phys. Rev. B* **96**, 104503.
3. Blencowe, M.P. (2016) “Quantum physics: Photons paired with phonons,” *Nature (News & Views)* **530**, 284.
4. Nation, P.D., Suh, J., and Blencowe, M.P. (2016) “Ultrastrong optomechanics incorporating the dynamical Casimir effect,” *Phys. Rev. A* **93**, 022510.
5. Fuchs, S., Ankerhold, J., Blencowe, M., and Kubala, B. (2016) “Non-equilibrium dynamics of the Dicke model for mesoscopic aggregates: signatures of superradiance,” *J. Phys. B: At. Mol. Opt. Phys.* **49**, 035501.
6. Katz, B.N., Blencowe, M.P., and Schwab, K.C. (2015) “Mesoscopic mechanical resonators as quantum non-inertial reference frames,” *Phys. Rev. A* **92**, 042104.
7. Nation, P.D., Johansson, J.R., Blencowe, M.P., and Rimberg, A.J. (2015) “Iterative solutions to the steady-state density matrix for optomechanical systems,” *Phys. Rev. E* **91**, 013307.
8. Chen, F., Li, J., Armour, A.D., Brahim, E., Stettenheim, J., Sirois, A.J., Simmonds, R.W., Blencowe, M.P., and Rimberg, A.J. (2014) “Realization of a single-Cooper-pair Josephson laser,” *Phys. Rev. B* **90**, 020506(R).

9. Rimberg, A.J., Blencowe, M.P., Armour, A.D., and Nation, P.D. (2014) "A cavity-Cooper pair transistor scheme for investigating quantum optomechanics in the ultra-strong coupling regime," *New J. Phys.* **16**, 055008.
10. Armour, A.D., Blencowe, M.P., Brahim, E., and Rimberg, A.J. (2013) "Universal quantum fluctuations of a cavity mode driven by a Josephson Junction," *Phys. Rev. Lett.* **111**, 247001.
11. Blencowe, M.P. (2013) "Effective field theory of gravitational induced decoherence," *Phys. Rev. Lett.* **111**, 021302.
12. Remus, L.G., and Blencowe, M. (2012) "Damping and decoherence of Fock states in a nanomechanical resonator due to two level systems," *Phys. Rev. B* **86**, 205419.
13. Benatov, L.L., and Blencowe, M.P. (2012) "A nanomechanical resonator coupled linearly via its momentum to a quantum point contact," *Phys. Rev. B* **86**, 075313.
14. Nation, P.D., Blencowe, M.P., and Nori F. (2012) "Non-equilibrium Landauer transport model for Hawking radiation from a black hole," *New J. Phys.* **14**, 033013.
15. Nation, P.D., Johansson, J.R., Blencowe, M.P., and Nori, F. (2012) "Stimulating uncertainty: amplifying the quantum vacuum with superconducting circuits," *Rev. Mod. Phys.* **84**, 1.
16. Blencowe, M.P. (2011) "A light sounding drum," *Nature (N&V)* **471**, 168.
17. Blencowe, M.P. (2010) "Quantum RAM," *Nature (N&V)* **468**, 44.
18. Nation, P.D., and Blencowe, M.P. (2010) "The trilinear hamiltonian: a zero-dimensional model of Hawking radiation from a quantized source," *New. J. Phys.* **12**, 095913.
19. Suchoi, O., Abdo, B., Segev, E., Shtempluck, O., Blencowe, M.P., and Buks, E. (2010) "Intermode dephasing in a superconducting stripline resonator," *Phys. Rev. B* **81**, 174525.
20. Stettenheim, J., Thalakulam, M., Pan, F., Bal, M., Ji, Z.Q., Xue, W.W., Pfeiffer, L., West, K.W., Blencowe, M.P., and Rimberg, A.J. (2010) "A macroscopic mechanical resonator driven by mesoscopic electrical back-action," *Nature* **466**, 86.
21. Remus, L.G., Blencowe, M.P., and Tanaka, Y. (2009) "Damping and decoherence of a nanomechanical resonator due to a few two-level systems," *Phys. Rev. B* **80**, 174103.
22. Nation, P.D., Blencowe, M.P., Rimberg, A.J., and Buks, E. (2009) "Analogue Hawking radiation in a dc-SQUID array coplanar waveguide," *Phys. Rev. Lett.* **103**, 087004.
23. Xue, W.W., Ji, Z., Pan, F., Stettenheim, J., Blencowe, M.P., and Rimberg, A.J. (2009) "Measurement of quantum noise in a single-electron transistor near the quantum limit," *Nature Physics* **5**, 660.
24. Abdo, B., Suchoi, O., Segev, E., Shtempluck, O., Blencowe, M., and Buks, E. (2009) "Intermodulation and parametric amplification in a superconducting stripline resonator integrated with a dc-SQUID," *Europhys. Lett.* **85**, 68001.
25. Blencowe, M.P. (2008) "Quantum-limited displacement detection: SQUIDS at the limit," *Nature Physics (N&V)* **4**, 753.
26. Blencowe, M. (2008) "How to silence a one-ton bell," *Physics* **1**, 3.
27. Armour, A.D, and Blencowe, M.P. (2008) "Probing the quantum coherence of a nanomechanical resonator using a superconducting qubit: I. Echo Scheme," *New. J. Phys.* **10**, 095004.
28. Blencowe, M.P. and Armour, A.D. (2008) "Probing the quantum coherence of a nanomechanical resonator using a superconducting qubit: II. implementation," *New. J. Phys.* **10**, 095005.
29. Nation, P. D., Blencowe, M.P., and Buks, E. (2008) "Quantum analysis of a nonlinear microwave cavity-embedded dc SQUID Displacement Detector," *Phys.*

- Rev. B* **78**, 104516.
30. Buks, E., Segev, E., Zaitsev, S., Abdo, B., and Blencowe, M.P. (2008) "Quantum non demolition measurement of discrete fock states of a nanomechanical resonator," *Europhys. Lett.* **81**, 10001.
 31. Blencowe, M. (2007), "How to strum a nanobar," *Science (Perspective)* **317**, 762.
 32. Buks, E., Zaitsev, S., Segev, E., Abdo, B., and Blencowe, M.P. (2007) "Displacement detection with a vibrating rf superconducting interference device: beating the standard linear limit," *Phys. Rev. E* **76**, 026217.
 33. Blencowe, M.P., and Buks, E. (2007) "Quantum analysis of a linear dc SQUID mechanical displacement detector," *Phys. Rev. B* **76**, 014511.
 34. Chu, M., Rudd, R.E., and Blencowe, M.P. (2007), "The role of reconstructed surfaces in the intrinsic dissipative dynamics of silicon nanoresonators," *arXiv:0705.0015*.
 35. Jacobs, K., Lougovski, P., and Blencowe, M. (2007) "Continuous measurement of the energy eigenstates of a nanomechanical resonator without a non-demolition probe," *Phys. Rev. Lett.* **98**, 147201.
 36. Buks, E., and Blencowe, M.P. (2006) "Decoherence and recoherence in a vibrating rf SQUID," *Phys. Rev. B* **74**, 174504.
 37. Naik, A., Buu, O., LaHaye, M. D., Armour, A. D., Clerk, A. A., Blencowe, M. P., and Schwab, K. C. (2006) "Cooling a nanomechanical resonator with quantum back-action," *Nature* **443**, 193.
 38. Schwab, K.C., Blencowe, M.P., Roukes, M.L., Cleland, A.N., Girvin, S.M., Milburn, G.J., and Ekinci, K.L. (2005) "Comment on 'evidence for quantized displacement in macroscopic nanomechanical oscillators,'" *Phys. Rev. Lett.* **95**, 248901.
 39. Blencowe, M.P., Imbers, J., and Armour, A.D. (2005) "Dynamics of a nanomechanical resonator coupled to a superconducting single electron transistor," *New. J. Phys.* **7**, 236.
 40. Blencowe, M.P. (2005) "Nanoelectromechanical systems," *Contemp. Phys.* **46**, 249.
 41. Patton, K.R., Geller, M.R., and Blencowe, M.P. (2005) "Thermodynamic equivalence of certain Bose and Fermi gases," *Physica A* **357**, 427.
 42. Blencowe, M.P. (2004) "Nanomechanical quantum limits," *Science (Perspective)*, **304**, 56.
 43. Blencowe, M.P. (2004) "Quantum electromechanical systems," *Physics Reports* **395**, 159.
 44. Armour, A.D., Blencowe, M.P., and Zhang, Y. (2004) "Classical dynamics of a nano-mechanical resonator coupled to a single-electron transistor," *Phys. Rev. B* **69**, 125313.
 45. Blencowe, M.P. (2003) "Uncertain future," *Nature (N&V)* **424**, 262.
 46. Blencowe, M.P. (2003) "Fast and ultrasensitive nanomechanical displacement detection based on the single electron transistor," *Proc. SPIE* **5115**, 64.
 47. Zhang, Y., and Blencowe, M.P. (2002) "Sensitivity of a piezoelectric micromechanical displacement detector based on the radio-frequency single-electron transistor," *J. Appl. Phys.* **92**, 7550.
 48. Armour, A.D., Blencowe, M.P., and Schwab, K.S. (2002) "Entanglement and decoherence of a micromechanical resonator via coupling to a Cooper-pair box", *Phys. Rev. Lett* **88**, 148301.
 49. Zhang, Y., and Blencowe, M.P. (2002) "Intrinsic noise of a micromechanical displacement detector based on the radio-frequency single-electron transistor," *J. Appl. Phys.* **91**, 4249.
 50. Blencowe, M.P., and Zhang, Y. (2002) "Micromechanical electrometry of single-electron transistor island charge," *Physica B (Phonons 2001 Proceedings)* **316-**

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