

Dichiarazione sostitutiva atto notorietà

(art. 47 DPR 445 DEL 28.12.2000)

**ai sensi dell'art. 15, comma 1, lett. c), D.Lgs 33/2013 e
ai sensi dell'art. 20 comma 5, del D. Lgs. 8 aprile 2013 n. 39**

Il/La sottoscritto/a Murray Holland CF. HLLMR468D25Z719D

nato a New Zealand Prov () il 25/04/68

consapevole delle sanzioni penali, nel caso di dichiarazione non veritiere, di formazione o uso di atti falsi, richiamate dall'art. 76 del DPR n. 445 del 28.12.2000

DICHIARA

ai sensi dell'art. 15, c. 1, lett. c) del D.Lgs 33/2013 e ai sensi dell'art. 20, c. 5 del D.Lgs 39/2013

in relazione al conferimento dell'incarico di : SEMINARIO DEL 13/11/2019

a) di non svolgere incarichi e di non essere titolare di cariche in Enti di diritto privato regolati o finanziati dalla Pubblica Amministrazione conferente;

ovvero

di svolgere i seguenti incarichi o di essere titolare delle seguenti cariche in Enti di diritto privato regolati o finanziati dalla Pubblica Amministrazione conferente:

- 1) _____
- 2) _____
- 3) _____

b) di non svolgere attività professionali in Enti di diritto privato regolati o finanziati dalla Pubblica Amministrazione conferente;

ovvero

di svolgere le seguenti attività professionali in Enti di diritto privato regolati o finanziati dalla Pubblica Amministrazione conferente:

- 1) _____
- 2) _____
- 3) _____

c) di non trovarsi in alcuna delle situazioni di inconferibilità di cui al D.Lgs n. 39/2013.

INFORMATIVA RIGUARDO AL TRATTAMENTO DEI DATI PERSONALI (ART. 13 REG.UE 2016/679)

Il/La sottoscritto/a prende atto che il trattamento dei propri dati personali e sensibili avverrà secondo le modalità stabilite dal Regolamento UE 2016/679 (GDPR) relativo alla protezione delle persone fisiche con riguardo al trattamento dei dati personali, al solo fine di assolvere gli adempimenti di natura obbligatoria posti in capo al LENS.

Il/La sottoscritto/a prende altresì atto che il curriculum vitae et studiorum e le dichiarazioni rese per le quali, ai sensi della normativa vigente, è prevista l'ottemperanza ad obblighi di trasparenza, verranno pubblicati sul sito web dell'Amministrazione in apposita sezione di "Amministrazione Trasparente", all'indirizzo <https://www.lens.unifi.it>, dove è presente una pagina dedicata alla tematica della protezione dei dati personali contenente anche l'informativa per il trattamento dei dati personali dei collaboratori esterni.

Il/La sottoscritto/a si impegna a comunicare eventuali cause di incompatibilità che intercorrano nel corso dello svolgimento dell'incarico.

Firenze, 13/11/2019

Mary Melloni
IL /LA DICHIARANTE (firma leggibile per esteso)

Curriculum Vitae: Murray Holland

Degrees:

University of Auckland, New Zealand Physics BSc 1988

University of Auckland, New Zealand Physics Msc 1990

University of Oxford, England Physics D.Phil. 1994

Appointments:

Professor of Physics, University of Colorado, 2010–present

JILA Chair, NIST & University of Colorado, 2013–2014

Associate Chair, JILA, NIST & University of Colorado, 2011–2012

Associate Professor of Physics, University of Colorado, 2003–2010

Assistant Professor of Physics, University of Colorado, 1996–2003

Fellow of JILA, 1999–present

Postdoctoral Research Associate, JILA, University of Colorado, 1994–1996

Junior Research Fellow, St John's College, University of Oxford, 1993–1994

Memberships, Honors and Awards:

Member at Large, Executive Committee of DAMOP, American Physical Society, 2011–2013

College Scholar, University of Colorado, 2012

Fellow of the American Physical Society, 2004

Junior Faculty Development Award, University of Colorado 1997

Lindemann Fellow of the English Speaking Union 1994–1996

Rutherford Scholar of the Royal Society (England), 1990–1993

Publications in Peer Reviewed Journals:

1. Athreya Shankar, Elena Jordan, Kevin A Gilmore, Arghavan Safavi-Naini, John J Bollinger, Murray J Holland, *Modeling near ground-state cooling of two-dimensional ion crystals in a Penning trap using electromagnetically induced transparency*, Phys. Rev. A **99**, 023409 (2019).
2. Elena Jordan, Kevin A Gilmore, Athreya Shankar, Arghavan Safavi-Naini, Justin G Bohnet, Murray J Holland, John J Bollinger, *Near ground-state cooling of two-dimensional trapped-ion crystals with more than 100 ions*, Phys. Rev. Lett. **122**, 053603 (2019).
3. D. A. Tieri, Minghui Xu, D. Meiser, J. Cooper, M. J. Holland, *Theory of the crossover from lasing to steady state superradiance*, available as arXiv preprint arXiv:1702.04830 (2018).
4. Zhe-Xuan Gong, Minghui Xu, Michael Foss-Feig, James K. Thompson, Ana Maria Rey, Murray Holland, Alexey V. Gorshkov, *Steady-state superradiance with Rydberg polaritons*, available as as arXiv preprint arXiv:1611.00797 (2018).

5. M. A. Norcia, J. R. K. Cline, J. P. Bartolotta, M. J. Holland, J. K. Thompson, *Narrow-line laser cooling by adiabatic transfer*, New Journal of Physics (2018).
6. Simon B. Jäger, Minghui Xu, Stefan Schütz, Murray J. Holland, Giovanna Morigi, *Semiclassical theory of synchronization-assisted cooling*, Physical Review A **95** , 063852 (2017).
7. Athreya Shankar, John Cooper, Justin G. Bohnet, John J. Bollinger, Murray Holland, *Steady-state spin synchronization through the collective motion of trapped ions*, Physical Review A **95** , 033423 (2017).
8. P. He, P. M. Tengdin, D. Z. Anderson, A. M. Rey, M. Holland *Theoretical model for Sub-Doppler Cooling with EIT System*, Physical Review A **95** , 053403 (2017).
9. Minghui Xu, Simon B. Jäger, S. Schütz, J. Cooper, Giovanna Morigi, M. J. Holland, *Supercooling of Atoms in an Optical Resonator*, Phys. Rev. Lett. **116**, 153002 (2016).
10. C. J. E. Straatsma, V. E. Colussi, M. J. Davis, D. S. Lobser, M. J. Holland, D. Z. Anderson, H. J. Lewandowski, E. A. Cornell, *Collapse and revival of the monopole mode of a degenerate Bose gas in an isotropic harmonic trap*, Phys. Rev. A **94**, 043640 (2016).
11. V. E. Colussi, Cameron J. E. Straatsma, Dana Z. Anderson and M. J. Holland, *Undamped nonequilibrium dynamics of a nondegenerate Bose gas in a 3D isotropic trap*, New J. Phys. **17**, 103029 (2015).
12. Bjarke T. R. Christensen, Martin R. Henriksen, Stefan A. Schäffer, Philip G. Westergaard, David Tieri, Jun Ye, Murray J. Holland, and Jan W. Thomsen, *Nonlinear spectroscopy of Sr atoms in an optical cavity for laser stabilization*, Phys. Rev. A **92**, 053820 (2015).
13. D. A. Tieri, J. Cooper, Bjarke T. R. Christensen, J. W. Thomsen, and M. J. Holland, *Laser stabilization using saturated absorption in a cavity QED system*, Phys. Rev. A **92**, 013817 (2015).
14. B. Zhu, J. Schachenmayer, M. Xu, F. Herrera, J. G. Restrepo, M. J. Holland, and A. M. Rey, *Synchronization of interacting quantum dipoles*, New Journal of Physics, vol. 17, no. 8, p. 083063, (2015).
15. Minghui Xu and M. J. Holland, *Conditional Ramsey Spectroscopy with Synchronized Atoms*, Phys. Rev. Lett. **114**, 103601 (2015).
16. Philip G. Westergaard, Bjarke T. R. Christensen, David Tieri, Rastin Matin, John Cooper, Murray Holland, Jun Ye, and Jan W. Thomsen, *Observation of Motion-Dependent Nonlinear Dispersion with Narrow-Linewidth Atoms in an Optical Cavity*, Phys. Rev. Lett. **114**, 093002 (2015).
17. Minghui Xu, D. A. Tieri, E. C. Fine, James K. Thompson, M. J. Holland, *Quantum Synchronization of Two Ensembles of Atoms*, Phys. Rev. Lett. **113**, 154101 (2014).
18. B. Zhu, B. Gadway, M. Foss-Feig, J. Schachenmayer, M. L. Wall, K. R. A. Hazzard, B. Yan, S. A. Moses, J. P. Covey, D. S. Jin, J. Ye, M. Holland, and A. M. Rey, *Suppressing the Loss of Ultracold Molecules Via the Continuous Quantum Zeno Effect*, Phys. Rev. Lett. **112**, 070404 (2014).
19. Bihui Zhu, Goulven Quéméner, Ana M. Rey, and Murray J. Holland, *Evaporative cooling of reactive polar molecules confined in a two-dimensional geometry*, Phys. Rev. A **88**, 063405 (2013).

20. Minghui Xu, D. A. Tieri, and M. J. Holland *Simulating open quantum systems by applying $SU(4)$ to quantum master equations*, Phys. Rev. A **87**, 062101 (2013).
21. S. A. McGee, D. Meiser, C. A. Regal, K. Lehnert, and M. Holland *Mechanical resonators for storage and transfer of electrical and optical quantum states*, Phys. Rev. A **87**, 053818 (2013).
22. Boris Nowak, Jami J. Kinnunen, Murray J. Holland, and Peter Schlagheck, *Delocalization of ultracold atoms in a disordered potential due to light scattering*, Phys. Rev. A **86**, 043610 (2012).
23. Justin G. Bohnet, Zilong Chen, Joshua M. Weiner, Dominic Meiser, Murray J. Holland & James K. Thompson, *A steady-state superradiant laser with less than one intracavity photon*, Nature, April 5, (2012).
24. M. J. Martin, D. Meiser, J. W. Thomsen, Jun Ye, M. J. Holland, *Extreme non-linear response of ultra-narrow optical transitions in cavity QED for laser stabilization*, Phys. Rev. A **84**, 063813 (2011).
25. Chester P. Rubbo, Salvatore R. Manmana, Brandon M. Peden, Murray J. Holland, and Ana Maria Rey, *Resonantly enhanced tunneling and transport of ultracold atoms on tilted optical lattices*, Phys. Rev. A **84**, 033638 (2011).
26. R. A. Pepino, J. Cooper, D. Meiser, D. Z. Anderson, and M. J. Holland, *Open quantum systems approach to atomtronics*, Phys. Rev. A **82**, 013640 (2010).
27. D. Meiser, M. J. Holland, *Intensity fluctuations in steady state superradiance*, Phys. Rev. A **81**, 063827 (2010).
28. D. Meiser, M. J. Holland, *Steady-state superradiance with alkaline earth atoms*, Phys. Rev. A **81**, 033847 (2010).
29. B. M. Peden, D. Meiser, M. L. Chiofalo, and M. J. Holland, *Nondestructive cavity QED probe of Bloch oscillations in a gas of ultracold atoms*, Phys. Rev. A **80** 043803 (2009).
30. R. A. Pepino, J. Cooper, D. Z. Anderson, and M. J. Holland *Atomtronic Circuits of Diodes and Transistors*, Phys. Rev. Lett. **103**, 140405 (2009).
31. D. Meiser, Jun Ye, D. R. Carlson, and M. J. Holland, *Prospects for a millihertz linewidth laser*, Phys. Rev. Lett. **102**, 163601 (2009).
32. D Meiser and M J Holland *Robustness of Heisenberg-limited interferometry with balanced Fock states* New J. Phys. **11**, 033002 (2009).
33. J. J. Kinnunen and M. J. Holland *Bragg spectroscopy of a strongly interacting Bose-Einstein condensate* New J. Phys. **11**, 013030 (2009).
34. D Meiser, Jun Ye and M J Holland *Spin squeezing in optical lattice clocks via lattice-based QND measurements* New J. Phys. **10**, 073014 (2008).
35. Rajiv Bhat, M. Krämer, J. Cooper, and M. J. Holland, *Hall effects in Bose-Einstein condensates in a rotating optical lattice*, Phys. Rev. A **76**, 043601 (2007).
36. Brandon M Peden, Rajiv Bhat, Meret Krämer and Murray J Holland, *Quasi-angular momentum of Bose and Fermi gases in rotating optical lattices*, J. Phys. B: At. Mol. Opt. Phys. **40** 3725–3744 (2007).

38. B. T. Seaman, L. D. Carr, and M. J. Holland, *Reply to Comment on 'Nonlinear band structure in Bose-Einstein condensates: Nonlinear Schrödinger equation with a Kronig-Penney potential'*, Phys. Rev. A **76**, 017602 (2007).
39. B. T. Seaman, M. Krämer, D. Z. Anderson, and M. J. Holland, *Atomtronics: Ultracold-atom analogs of electronic devices*, Phys. Rev. A **75**, 023615 (2007).
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41. M. L. Chiofalo, S. Giorgini, and M. Holland, *Released Momentum Distribution of a Fermi Gas in the BCS-BEC Crossover*, Phys. Rev. Lett. **97**, 070404 (2006).
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45. L. D. Carr, M. J. Holland, B. A. Malomed, *Macroscopic quantum tunnelling of Bose-Einstein condensates in a finite potential well*, J. Phys. B: At. Mol. Opt. Phys. **38**, 3217 (2005).
46. L. D. Carr, M. J. Holland, *Quantum phase transitions in the Fermi-Bose Hubbard model*, Phys. Rev. A **72**, 031604 (2005).
47. B. T. Seaman, L. D. Carr, M. J. Holland, *Period doubling, two-color lattices, and the growth of swallowtails in Bose-Einstein condensates*, Phys. Rev. A **72**, 033602 (2005).
48. B. T. Seaman, L. D. Carr, M. J. Holland, *Effect of a potential step or impurity on the Bose-Einstein condensate mean field*, Phys. Rev. A **71**, 033609 (2005).
49. B. T. Seaman, L. D. Carr, M. J. Holland, *Nonlinear Band Structure in Bose Einstein Condensates: The Nonlinear Schrödinger Equation with a Kronig-Penney Potential*, Phys. Rev. A **71**, 033622 (2005).
50. S. De Palo, M. L. Chiofalo, M. J. Holland and S. Kokkelmans, *Superfluidity of an atomic Fermi gas near the unitarity limit*, Laser physics **15**, 376 (2005).
51. L. D. Carr, R. Chiamonte, and M. J. Holland, *End-point thermodynamics of an atomic Fermi gas subject to a Feshbach resonance*, Phys. Rev. A **70**, 043609 (2004).
52. S. De Palo S, M.L. Chiofalo, M.J. Holland and S. Kokkelmans, *Resonance effects on the crossover of bosonic to fermionic superfluidity*, Phys. Lett. A, 327 (2004).
53. Jelena Stajic, J. N. Milstein, Qijin Chen, M. L. Chiofalo, M. J. Holland, and K. Levin, *Nature of superfluidity in ultracold Fermi gases near Feshbach resonances*, Phys. Rev. A **69**, 063610 (2004).
54. S. G. Bhongale, J. N. Milstein, M. J. Holland, *Resonant formation of strongly correlated paired states in rotating Bose gases*, Phys. Rev. A **69**, 053603 (2004).

55. Murray J. Holland and Keith Burnett, *Reply to Comment on Interferometric detection of optical phase shifts at the Heisenberg limit*, Phys. Rev. Lett. **92**, 209302 (2004).
56. Murray J. Holland *Condensed-matter physics - Atomic beads on strings of light*, Nature Vol 429, p251 May (2004).
57. J N Milstein, C Menotti and M J Holland, *Feshbach resonances and collapsing Bose-Einstein condensates*, New J. Phys. **5**, 52 (May 2003).
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59. S. G. Bhongale, R. Walser, and M. J. Holland, *Memory effects and conservation laws in the quantum kinetic evolution of a dilute Bose gas*, Phys. Rev. A **66**, 043618 (2002).
60. S. J. J. M. F. Kokkelmans and M. J. Holland, *Ramsey fringes in a Bose-Einstein condensate between atoms and molecules*, Phys. Rev. Lett. **89**, 180401 (2002).
61. M. Holland, *Condensates on crest of a wave*, Physics World, **15** N7, 19 (2002).
62. S. J. J. M. F. Kokkelmans, J. N. Milstein, M. L. Chiofalo, R. Walser, and M. J. Holland, *Resonance Superfluidity: Renormalization of Resonance Scattering Theory*, Phys. Rev. A **65**, 053617 (2002).
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65. J. Wachter, R. Walser, J. Cooper, and M. Holland, *Equivalence of kinetic theories of Bose-Einstein condensation*, Phys. Rev. A **64**, 053612 (2001); *Erratum* Phys. Rev. A **64**, 053612 (2001).
66. M. Holland, S. J. J. M. F. Kokkelmans, M. L. Chiofalo, and R. Walser, *Resonance Superfluidity in a Quantum Degenerate Fermi Gas*, Phys. Rev. Lett. **87**, 120406 (2001).
67. M. Holland, J. Cooper, and R. Walser, *Quantum Kinetic Theory for a Bose-Einstein Condensed Alkali Gas*, International Journal of Modern Physics B, **15** 1641 (2001).
68. S. A. McGee and M. J. Holland, *Rotational dynamics of vortices in confined Bose-Einstein condensates*, Phys. Rev. A **63**, 043608 (2001).
69. M. Holland, J. Park, and R. Walser, *Formation of pairing fields in resonantly coupled atomic and molecular Bose-Einstein condensates*, Phys. Rev. Lett. **86**, 1915 (2001).
70. R. Walser, J. Cooper, and M. Holland, *Reversible and irreversible evolution of a condensed bosonic gas*, Phys. Rev. A **63**, 013607 (2001).
71. S. Bhongale and M. Holland, *Loading a continuous-wave atom laser by optical pumping techniques*, Phys. Rev. A **62**, 043604 (2000).
72. M. J. Holland, B. DeMarco, and D. S. Jin, *Evaporative Cooling of a Degenerate Fermi Gas*, Phys. Rev. A **61**, 053610 (2000).
73. J. Williams, R. Walser, J. Cooper, E. Cornell, and M. Holland, *Excitation of an antisymmetric collective mode in a strongly coupled two-component condensate*, Phys. Rev. A **61**, 033612 (2000).

74. M. R. Matthews, B. P. Anderson, P. C. Haljan, D. S. Hall, M. J. Holland, J. E. Williams, C. E. Wieman, E. A. Cornell, *Watching a superfluid untwist itself: Recurrence of Rabi oscillations in a Bose-Einstein Condensate*, Phys. Rev. Lett. **83**, 3358 (1999).
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77. B. Demarco, J. Bohn, J. Burke, M. Holland, and D. S. Jin, *Measurement of p-wave Threshold Law using Evaporatively Cooled Fermionic Atoms*, Phys. Rev. Lett. **82**, 4208 (1999).
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79. J. Williams, R. Walser, J. Cooper, E. Cornell, and M. Holland, *Nonlinear Josephson-type oscillations of a driven, two-component Bose-Einstein condensate*, Phys. Rev. A **59**, R31 (1999).
80. M. Holland, *Unraveling Quantum Dissipation in the Frequency Domain*, Phys. Rev. Lett. **81**, 5117 (1998).
81. T. S. Kim, O. Pfister, M. J. Holland, J. W. Noh, and J. L. Hall, *Influence of decorrelation on Heisenberg-limited interferometry with quantum correlated photons*, Phys. Rev. A, **57** 4004 (1998); *Erratum* Phys. Rev. A **58**, 2617 (1998).
82. J. Williams, R. Walser, C. Wieman, J. Cooper, and M. Holland, *Achieving steady-state Bose-Einstein condensation*, Phys. Rev. A **57**, 2030 (1998).
83. E. A. Burt, R. W. Ghrist, C. J. Myatt, M. J. Holland, E. A. Cornell, and C. E. Wieman, *Coherence, Correlations, and Collisions: What One Learns about Bose-Einstein Condensates from their Decay*, Phys. Rev. Lett. **79**, 337 (1997).
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100. M. J. Holland, D. F. Walls, and P. Zoller, *Quantum nondemolition measurements of photon number by atomic beam deflection*. Phys. Rev. Lett. **67**, 1716 (1991).
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Invited articles and conference proceedings

104. Quantum Legoland, *Murray Holland and Julie Phillips*, JILA Light & Matter, Fall 2013.
105. A Quasi-continuous superradiant Raman laser with <1 intracavity photon, *Justin G. Bohnet, Zilong Chen, Joshua M. Weiner, Kevin C. Cox, Dominic Meiser, Murray J. Holland, James K. Thompson* Proceedings of the International Conference on Atomic Physics (ICAP2012) , (2012).
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107. Atom-Optical Analogs of Electronic Components and Devices, *R. A. Pepino, J. Cooper, D. Z. Anderson and M. J. Holland*, *Proceedings of the Dalgarno Celebratory Symposium*, Cambridge, Massachusetts 10 - 12 September 2008, edited by James F Babb,

Kate Kirby & Hossein Sadeghpour: Published by World Scientific Books, November 2009.

108. M. Holland and J. Wachter, (33 pages) *Two-channel models of the BCS/BEC crossover*, Proceedings of the Enrico Fermi Summer School Course CLXIV on Ultracold Fermi Gases, Nuovo Cimento B & C, Rivista del Nuovo Cimento, Giornale di Fisica (2007).
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