

Dr. Robert J. Sewell

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PERSONAL DETAILS

CITIZENSHIP Australia.

RESIDENCY Spain.

LANGUAGES English (native), Spanish (fluent), French (fair), Brazilian Portuguese (basic).

EXPERTISE

Experimental quantum optics & quantum metrology; spin squeezing & entanglement measures; atomic magnetometry; nonlinear optics; laser cooling & trapping; Bose-Einstein condensates; & microfabricated atom chip technology.

EDUCATION

2005-2009 **Ph.D.** in Physics. [Imperial College London](#), U.K.
Matter Wave Interference on an Atom Chip. Supervisor: Prof. E.A. Hinds.
1996-2004 **B.Sc. (1st Class Honors)** in Physics, [University of Melbourne](#), Australia.
1996-2002 **B.A. (1st Class Honors)** in Philosophy & Social Theory, [University of Melbourne](#), Australia.
2001 **Exchange programme**, [McGill University](#), Montreal, Canada.
1999 **Exchange programme**, [University of Amsterdam](#), the Netherlands.

RESEARCH EXPERIENCE

2015- **Staff Academic Scientist**, [ICFO](#), Castelldefels (Barcelona), Spain.
11/09-11/14 **Postdoctoral Researcher**, [ICFO](#), Castelldefels (Barcelona), Spain.
06/09-09/09 **Postdoctoral Researcher** [Imperial College London](#), U.K.

TEACHING EXPERIENCE

2015- **Coordinator of Academic Programs**, [ICFO](#), Castelldefels (Barcelona), Spain.
2014 **Lectured**, at [Winter School](#), Olomouc, Czech Republic.
2010-2011 **Lectured** for Quantum Optics course, [M.Sc. in Photonics BCN](#), Spain.
2009-2013 **M.Sc. & undergraduate supervision**, [ICFO](#), Barcelona, Spain.
2005-2009 **Physics Lab Demonstrator**, [Imperial College London](#), London, UK.
2004 **Physics Lab Demonstrator**, [University of Melbourne](#), Australia.
2001-2002 **Tutor**, Physics, Mathematics & Statistics, [McGill University](#), Montreal, Canada.
1997-1998 **Tutor**, Physics & Mathematics [Trinity College](#), University of Melbourne, Australia.

AWARDS & FELLOWSHIPS

2014 University of Sydney International Research Collaboration Award.
2010 Marie Curie Research Training Network ER Fellowship.
2009 EPSRC PhD Plus Postdoctoral Fellowship.
2006 UK Overseas Research Students Awards Scheme Scholarship.
1991 Academic Scholarship, Melbourne Grammar School, Melbourne, Australia.

GRANTS & FUNDING

- 2014-** **Discovery Early Career Researcher Award:**, Australian Research Council. AUD\$ 373.536
- 2014-** **DECRA Establishment Grant:** The University of Melbourne. AUD\$ 50.000
- 2014-** **International Research Collaboration Award:** The University of Sydney. AUD\$ 14.400

Named investigator on the following grants (principle investigator M.W. Mitchell):

- 2012-** **MAGO:** Magnetometria ultra-precisa basada en optica cuantica. Investigación Fundamental no Orientada. MICINN - Plan Nacional, Spain. €286.770
- 2012-** **AQUMET:** Atomic Quantum Metrology. European Research Council (ERC). European Commission. €1.380.000
- 2010** **OCHO:** Óptica cuántica para herramientas fotónicas (FIS2009-07676-E/FIS). €30.000
- 2009-2010** **ILUMA:** Interfaz luz-materia con conjuntos de átomos frios. €233.530
- 2006-2010** **EMALI:** Engineering, Manipulation and Characterization of Quantum States of Matter and Light. €70.000

PROFESSIONAL ACTIVITIES

- Referee for Physical Review X (2012-), Physical Review Letters (2010-), Physical Review A (2012-), Physical Review A (2013-), Optics Express (2012-), New Journal of Physics (2011-), Journal of Physics B (2012-), European Journal of Physics D (2012-) & Journal of Visualized Experiments (2012-).
- Independent expert reviewer for European Research Council (2014-).
- Organizer, “[EMALI 2010 Conference](#)”, Barcelona.
- Development & implementation of laser safety protocols at [ICFO](#).
- Member of [EPS](#), [APS](#) & [OSA](#).

PUBLICATIONS

PUBLICATION SUMMARY

- 17 refereed publications, including: 1 Nature, 1 Nature Photonics, 5 Physical Review Letters, 1 Physical Review X, 1 Physical Review A, 3 New Journal of Physics, 1 Applied Physics Letters & 1 Journal of Physics B.
- 8 publications as **lead author**, 2 as **last author**.
- **Citations since 2009:** [284](#); **h-index:** [8](#); **i10-index:** [8](#).[§]

[§]Citation data as of March 3, 2015.

REFEREED PUBLICATIONS

17. N. Behbood, F. Martin Ciurana, G. Colangelo, M. Napolitano, G. Tóth, **R.J. Sewell** & M.W. Mitchell. Generation of macroscopic singlet states in a cold atomic ensemble. [Physical Review Letters 113\(9\):093601 \(2014\)](#).^{§¶}
16. **R.J. Sewell**, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana, & M.W. Mitchell. Ultra-sensitive atomic spin measurements with a nonlinear interferometer. [Physical Review X 4, 021045 \(2014\)](#).^{||}

15. G. Puentes*, G. Colangelo*, **R.J. Sewell***, & M.W. Mitchell. Planar quantum squeezing via quantum non-demolition measurements in cold atomic ensembles. *New Journal of Physics* 15, 103031 (2013).
14. N. Behbood, M. Napolitano, G. Colangelo, F. Martin Ciurana, **R.J. Sewell**, & M.W. Mitchell. Feedback-cooling of an atomic spin ensemble. *Physical Review Letters* 110(10):103601 (2013).
13. G. Colangelo*, **R.J. Sewell***, N. Behbood, F. Martin Ciurana, G. Triginer, & M.W. Mitchell. Quantum atom-light interfaces in the gaussian description* for spin-1 systems. *New Journal of Physics* 15, 103007 (2013).
12. **R.J. Sewell**, M. Napolitano, N. Behbood, G. Collangelo & M.W. Mitchell. Certified quantum non-demolition measurement of a macroscopic material system. *Nature Photonics*, 7, 517 (2013).
11. N. Behbood, F. Martin Ciurana, G. Colangelo, M.W. Mitchell & **R.J. Sewell**. Real-time vector field tracking with a cold-atom magnetometer. *Applied Physics Letters* 102(17):173504 (2013).[‡]
10. P. Hauke, **R.J. Sewell**, M.W. Mitchell, & M. Lewenstein. Quantum control of spin-correlations in ultracold lattice gases. *Physical Review A* 87(2):021601(R) (2013).
9. **R.J. Sewell**, M. Koschorreck, M. Napolitano, B. Dubost, N. Behbood, & M.W. Mitchell. Magnetic sensitivity beyond the projection noise limit by spin squeezing. *Physical Review Letters* 109(25):253605 (2012).
8. M.W. Mitchell, M. Koschorreck, M. Kubasik, M. Napolitano, & **R.J. Sewell**. Certified quantum non-demolition measurement of material systems. *New Journal of Physics* 14(8):085021 (2012).
7. B. Dubost, M. Koschorreck, M. Napolitano, N. Behbood, **R.J. Sewell**, & M.W. Mitchell. Efficient quantification of non-demolition Gaussian spin distributions. *Physical Review Letters* 108(18):183602 (2012).
6. M. Napolitano, M. Koschorreck, B. Dubost, N. Behbood, **R.J. Sewell**, & M.W. Mitchell. Quantum Optics & the “Heisenberg Limit” of Measurement. *Optics & Photonics News* 22, 40 (2011).
5. **R.J. Sewell** & M.W. Mitchell. Collaboration & precision in quantum measurement. *Physics Today* 64(12):72 (2011).[†]
4. F.A. Beduini, N. Behbood, Y. de Icaza, B. Dubost, M. Koschorreck, M. Napolitano, A. Predojević, **R.J. Sewell**, Sewell, F. Wolfgramm & M.W. Mitchell. Metrología cuántica con átomos y fotones. *Óptica pura y aplicada*, 44(2):315 (2011).
3. M. Napolitano, M. Koschorreck, B. Dubost, N. Behbood, **R.J. Sewell**, & M.W. Mitchell. Interaction-based quantum metrology showing scaling beyond the Heisenberg limit. *Nature* 471(7339):486 (2011).^{‡§}
2. F. Baumgärtner, **R.J. Sewell**, S. Eriksson, I. Llorente-García, J. Dingjan, J. P. Cotter, & E. A. Hinds. Measuring Energy Differences by BEC Interferometry on a Chip. *Physical Review Letters* 105(24):243003 (2010).
1. **R.J. Sewell**, J. Dingjan, F. Baumgärtner, I. Llorente-García, S. Eriksson, E. A. Hinds, G. Lewis, P. Srinivasan, Z. Maktadir, C. O. Gollasch & M. Kraft. Atom Chip for BEC Interferometry. *Journal of Physics B: Atomic, Molecular & Optical Physics*. 43(5):051003 (2010).*

* Leading co-authors contributed equally to this publication.

¶ Highlighted in *Scientific American*, 22 September 2014.

\$ Selected as a PRL Editors’ Suggestion, 25 August 2014.

|| Highlighted in Editors’ Choice section of Science 11 July 2014.

‡ Selected an Editor’s Pick in device physics by *Applied Physics Letters* June 2014.

‡ Selected for [Vanguardia de la Ciencia](#) award 2012.

§ Highlighted in [Physics World](#) March 24, 2011, and at [2Physics](#), April 10, 2011.

† Translated & published in [Parity \(Japanese Physics Magazine\)](#) in 2012.

Selected as one of the [Journal of Physics B Highlight Papers](#) in 2010.

PUBLISHED CONFERENCE PROCEEDINGS

17. **R.J. Sewell**, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell. *Certified quantum non-demolition measurement of atomic spins*. [CLEO:QELS FTh1B.4 \(San Jose, U.S.A., 2014\)](#).
16. N. Behbood, G. Colangelo, F. Martin Ciurana, M. Napolitano, **R.J. Sewell** & M.W. Mitchell. *Spin cooling via incoherent feedback in an ensemble of cold Rb atoms*. [CLEO:QELS, FTh3B.7 \(San Jose, U.S.A., 2014\)](#).
15. G. Colangelo, N. Behbood, F. Martin Ciurana **R.J. Sewell**, G. Puentes & M.W. Mitchell. *Generation of planar squeezed states in atomic ensembles*. [QIM JW2A.69 \(Berlin, Germany, 2014\)](#).
14. **R.J. Sewell**, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell. *Ultra-Sensitive Atomic Spin Measurements with a Nonlinear Interferometer*. [QIM QTu3B.3 \(Berlin, Germany, 2014\)](#).
13. **R.J. Sewell**, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell. *Simultaneous observation of super-Heisenberg scaling and spin squeezing in a nonlinear measurement of atomic spins*. [CLEO:QELS QTh1L.3 \(San Jose, U.S.A., 2013\)](#).
12. P. Hauke, **R.J. Sewell**, M.W. Mitchell & M. Lewenstein. *Quantum control of spin-correlations in ultracold lattice gases*. [CLEO:QELS QW3C.3 \(San Jose, U.S.A., 2013\)](#).
11. G. Colangelo, N. Behbood, F. Martin Ciurana, G. Puentes, **R.J. Sewell** & M.W. Mitchell. *Generation of planar quantum squeezing in an atomic ensemble*. [CLEO:QELS QTh1L.5 \(San Jose, U.S.A., 2013\)](#).
10. N. Behbood, F. Martin Ciurana, G. Colangelo, M. Napolitano, **R.J. Sewell** & M.W. Mitchell. *Spin cooling via incoherent feedback in an ensemble of cold Rb atoms*. [CLEO:QELS QTh1L.4 \(San Jose, U.S.A., 2013\)](#).
9. N. Behbood, F. Martin Ciurana, G. Colangelo, M. Napolitano, **R.J. Sewell** & M.W. Mitchell. *Spin cooling via incoherent feedback in an ensemble of cold Rb atoms*. [CLEOE-IQEC \(Munich, Germany, 2013\)](#).
8. **R.J. Sewell**, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell. *Simultaneous observation of super-Heisenberg scaling and spin squeezing in a nonlinear measurement of atomic spins*. [CLEOE-IQEC \(Munich, Germany, 2013\)](#).
7. P. Hauke, **R.J. Sewell**, M.W. Mitchell & M. Lewenstein. *Quantum control of spin-correlations in ultracold lattice gases*. [CLEOE-IQEC \(Munich, Germany, 2013\)](#).
6. N. Behbood, F. Martin Ciurana, G. Colangelo, M. Napolitano, **R.J. Sewell** & M.W. Mitchell. *Fast and non-destructive vector field magnetometry with cold atomic ensembles*. [CLEOE-IQEC \(Munich, Germany, 2013\)](#).
5. N. Behbood, F. Martin Ciurana, G. Colangelo, M. Napolitano, G. Tóth, **R.J. Sewell** & M.W. Mitchell. *Generation of macroscopic singlet states in a cold atomic ensemble*. [EPJ Web of Conferences 57, 03004 \(Paris, France, 2013\)](#).
4. **R.J. Sewell**, M. Koschorreck, M. Napolitano, B. Dubost, N. Behbood & M.W. Mitchell. *Spin-squeezing of a large-spin system via QND measurement*. [CLEOE-IQEC \(Munich, Germany, 2012\)](#).
3. Robert J. Sewell, M. Koschorreck, M. Napolitano, B. Dobust, N. Behbood & M.W. Mitchell. *Spin-squeezing of a large-spin system via QND measurement*. [CLEO:QELS QF2E.2 \(San Jose, U.S.A., 2011\)](#).

2. M. Napolitano, M. Koschorreck, B. Dubost, N. Behbood, Robert J. Sewell & M.W. Mitchell. *Interaction-based quantum metrology giving a scaling beyond the Heisenberg limit*. [CLEO:QELS QTuJ2 \(San Jose, U.S.A., 2011\)](#).
1. M. Koschorreck, M. Napolitano, B. Dubost, N. Behbood, **R.J. Sewell** & M.W. Mitchell. *Spin Squeezing via Quantum Non-Demolition Measurements in Cold ^{87}Rb Atomic Ensemble*. [CLEO:QELS QThA4 \(San Jose, U.S.A., 2010\)](#).

POPULAR ARTICLES

3. M. Campoy Quiles & **R.J. Sewell**. ¡Y Se Hizo La Luz!... Láser. [Ciencia, Publicación Semestral de la Agrupación Astronómica Rias Baixas 8:13 \(2010\)](#).
2. **R.J. Sewell** & M.W. Mitchell. Collaboration & precision in quantum measurement. [Physics Today 64\(12\):72 \(2011\)](#).
1. **R.J. Sewell** & M.W. Mitchell. コラホて上かる測定精度. [Parity \(Japanese Physics Magazine\) 27\(10\):50 \(2012\)](#).

CONFERENCE PRESENTATIONS*

* Presenting author underlined.

INVITED TALKS

3. **2014 ICO23 (Santiago de Compostella, Spain)**: R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Certified quantum non-demolition measurement of atomic spins.
2. **2014 Información cuántica en España (Zaragoza, Spain)**: R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Quantum-enhanced atomic magnetometry.
1. **2010, J2IFAM (Barcelona, Spain)**: R.J. Sewell, F. Baumgärtner, R.J. Sewell, S. Eriksson, I. Llorente-García, J. Dingjan, & E. A. Hinds, Atom chip BEC Interferometer.

CONTRIBUTED TALKS

37. **2014 AIP Congress (Canberra, Australia)**: R.J. Sewell, N. Behbood, F. Martin Ciurana, G. Colangelo, G. Tóth & M.W. Mitchell, Generation of a macroscopic spin singlet in a cold atomic ensemble.
36. **2014 QCMC (Hefei, China)**: R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana, & M.W. Mitchell, Certified quantum non-demolition measurement of a macroscopic material system.
35. **2014 EGAS (Lille, France)**: N. Behbood, G. Colangelo, F. Martin Ciurana, M. Napolitano, G. Tóth, R.J. Sewell & M.W. Mitchell, Generation of a macroscopic spin singlet.
34. **2014 CEWQO (Brussels, Belgium)**: R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Certified quantum non-demolition measurement of atomic spins.
33. **2014 CEWQO (Brussels, Belgium)**: G. Colangelo, F. Martin Ciurana, N. Behbood, G. Puentes, R.J. Sewell & M.W. Mitchell, Generation of a Planar Squeezed state in a cold atomic ensemble.

32. **2014 CEWQO (Brussels, Belgium):** N. Behbood, G. Colangelo, F. Martin Ciurana, M. Napolitano, G. Tóth, R.J. Sewell & M.W. Mitchell, Generation of a macroscopic spin singlet.
31. **2014 CLEO:QELS (San Jose, U.S.A.):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Certified quantum non-demolition measurement of atomic spins.
30. **2014 CLEO:QELS (San Jose, U.S.A.):** N. Behbood, G. Colangelo, F. Martin Ciurana, M. Napolitano, G. Tóth, R.J. Sewell & M.W. Mitchell, Spin cooling via incoherent feedback in an ensemble of cold ^{87}Rb atoms.
29. **2014 DAMOP (Madison, U.S.A.):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Certified quantum non-demolition measurement of atomic spins.
28. **2014 DAMOP (Madison, U.S.A.):** G. Colangelo, N. Behbood, F. Martin Ciurana, G. Puentes, R.J. Sewell & M.W. Mitchell, Generation of Planar squeezing in a cold atomic ensemble.
27. **2014 DAMOP (Madison, U.S.A.):** N. Behbood, G. Colangelo, F. Martin Ciurana, M. Napolitano, G. Tóth, R.J. Sewell & M.W. Mitchell, Spin cooling via incoherent feedback in an ensemble of cold ^{87}Rb atoms.
26. **2014 Entanglement Detection & Quantification (Bilbao, Spain):** N. Behbood, G. Colangelo, F. Martin Ciurana, R.J. Sewell & M.W. Mitchell, Generation of macroscopic singlet states in a cold atomic ensemble.
25. **2014 QIM (Berlin, Germany):** N. Behbood, G. Colangelo, F. Martin Ciurana, M. Napolitano, R.J. Sewell & M.W. Mitchell, Spin cooling via incoherent feedback in an ensemble of cold ^{87}Rb atoms.
24. **2014 QIM (Berlin, Germany):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Ultra-sensitive atomic spin measurements with a nonlinear interferometer.
23. **2013 Quantum Simulators (Benasque, Spain):** R.J. Sewell, P. Hauke, M.W. Mitchell & M. Lewenstein, Quantum control of spin-correlations in ultracold lattice gases.
22. **2013 QuAMP (Swansea, U.K.):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Simultaneous observation of super-Heisenberg scaling & spin squeezing in a nonlinear measurement of atomic spins.
21. **2013 RSEF (Valencia, Spain):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Simultaneous observation of super-Heisenberg scaling & spin squeezing in a nonlinear measurement of atomic spins.
20. **2013 ICSSUR (Nuremberg, Germany):** G. Colangelo, N. Behbood, F. Martin Ciurana, G. Puentes, R.J. Sewell & M.W. Mitchell, Generation of planar quantum squeezing in an atomic ensemble.
19. **2013 CLEO:QELS (San Jose, USA):** P. Hauke, R.J. Sewell, M.W. Mitchell & M. Lewenstein, Quantum control of spin-correlations in ultracold lattice gases.
18. **2013 CLEO:QELS (San Jose, USA):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Simultaneous observation of super-Heisenberg scaling & spin squeezing in a nonlinear measurement of atomic spins.
17. **2013 CLEO:QELS (San Jose, USA):** N. Behbood, F. Martin Ciurana, R.J. Sewell, G. Colangelo, M. Napolitano & M.W. Mitchell, Spin cooling via incoherent feedback in an ensemble of cold ^{87}Rb atoms.
16. **2013 CLEO:QELS (San Jose, USA):** G. Colangelo, N. Behbood, F. Martin Ciurana, G. Puentes, R.J. Sewell & M.W. Mitchell, Generation of planar quantum squeezing in an atomic ensemble.
15. **2013 DAMOP (Quebec, Canada):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Simultaneous observation of super-Heisenberg

- scaling & spin squeezing in a nonlinear measurement of atomic spins.
14. **2013 CLEOE-IQEC (Munich, Germany):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Simultaneous observation of super-Heisenberg scaling & spin squeezing in a nonlinear measurement of atomic spins.
 13. **2012 QCMC (Vienna, Austria):** F. A. Beduini, N. Behbood, B. Dubost, Y. de Icaza, M. Napolitano, R.J.Sewell, F. Wolfgramm, J. Zielińska, & M.W. Mitchell, Quantum-enhanced magnetometry with photons & atoms.
 12. **2012 ICAP (Paris, France):** M. Napolitano, M. Koschorreck, B. Dubost, N. Behbood, R.J. Sewell, & M.W. Mitchell, Interaction-based spin measurements in a cold atomic ensemble.
 11. **2012 QIM (Berlin, Germany):** R.J. Sewell, M.Koschorreck, M. Napolitano, B. Dubost, N. Behbood, & M.W. Mitchell, Spin Squeezing of Large-Spin Ensembles via Quantum Non-demolition Measurement.
 10. **2012 QIM (Berlin, Germany):** N. Behbood, M. Napolitano, G. Colangelo, B. Dubost, S. Palacios Álvarez, R.J. Sewell, G. Tóth, & M.W. Mitchell Generation of a macroscopic singlet state in an atomic ensemble.
 9. **2012 CLEO:QELS (San Jose, USA):** R.J. Sewell, M.Koschorreck, M. Napolitano, B. Dubost, N. Behbood, & M.W. Mitchell, Spin-squeezing of a large-spin system via QND measurement.
 8. **2012 CLEO:QELS (San Jose, USA):** N. Behbood, M. Napolitano, G. Colangelo, B. Dubost, S. Palacios Álvarez, R.J. Sewell, G. Tóth, & M.W. Mitchell Generation of a macroscopic singlet state in an atomic ensemble.
 7. **2012 YAO (Cracow, Poland):** G. Colangelo, R.J. Sewell, & M.W. Mitchell, The quantum limits of magnetometry in a cold atomic ensemble.
 6. **2011 CLEO:QELS (Munich, Germany):** N. Behbood, B. Dubost, M. Napolitano, M. Koschorreck, R.J. Sewell, G. Tóth, & M.W. Mitchell, Generation of macroscopic singlet states in atomic ensembles.
 5. **2011 CLEO:QELS (Baltimore, USA):** M. Napolitano, M. Koschorreck, B. Dubost, N. Behbood, R.J. Sewell, & M.W. Mitchell, Interaction-based quantum metrology giving a scaling beyond the Heisenberg limit.
 4. **2011 YAO (Hannover, Germany):** N. Behbood, B. Dubost, M. Napolitano, M. Koschorreck, R.J. Sewell, G. Tóth, & M.W. Mitchell, Generation of a macroscopic singlet state in an atomic ensemble.
 3. **2010, EMALI (Barcelona, Spain):** R.J. Sewell, M. Koschorreck, M. Napolitano, B. Dubost, N. Behbood, & M.W. Mitchell, Quantum Metrology with Ultracold Atoms.
 2. **2010, QCMC (Briabane, Australia):** R.J. Sewell, M. Napolitano, M. Koschorreck, B. Dubost, N. Behbood, & M.W. Mitchell, Nonlinear Quantum Metrology of Atomic Spins.
 1. **2010, CLEO:QELS (San Jose, USA):** M. Koschorreck, M. Napolitano, B. Dubost, N. Behbood & R.J. Sewell ,and M.W. Mitchell, Spin Squeezing via Quantum Non-Demolition Measurements in Cold ^{87}Rb Atomic Ensemble.

POSTERS

15. **2014 Quantum Information Processing (Barcelona, Spain):** R.J. Sewell, M. Napolitano, N. Behbood, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Ultra-sensitive atomic spin measurements with a nonlinear interferometer.
14. **2014 Quantum Simulators (Barcelona, Spain):** N. Behbood, R.J. Sewell, M. Napolitano, G. Colangelo, F. Martin Ciurana & M.W. Mitchell, Spin cooling via incoherent feedback in an ensemble of cold Rb atoms.
13. **2013 CLEO (Munich, Germany):** P. Hauke, R.J. Sewell, M.W. Mitchell & M. Lewenstein Quantum control of spin-correlations in ultracold lattice gases.

12. **2013 CLEO (Munich, Germany):** N. Behbood, F. Martin Ciurana, R.J. Sewell, G. Colangelo, M. Napolitano & M.W. Mitchell, Spin cooling via incoherent feedback in an ensemble of cold ^{87}Rb atoms.
11. **2013 CLEO (Munich, Germany):** N. Behbood, F. Martin Ciurana, R.J. Sewell, G. Colangelo, M. Napolitano & M.W. Mitchell, Fast & non-destructive vector field magnetometry with cold atomic ensembles.
10. **2012, QCMC (Vienna, Austria):** R.J. Sewell, M. Koschorreck, M. Napolitano, B. Dubost, N. Behbood, G. Colangelo, F. Martin & M.W. Mitchell, Spin squeezing via QND measurement in an Optical Magnetometer.^{\$}
9. **2010, ICAP (Cairns, Australia):** R.J. Sewell, M. Koschorreck, M. Napolitano, B. Dubost, N. Behbood, & M.W. Mitchell, Spin Squeezing in Broadband Atomic Magnetometry.
8. **2010, SQUINT (Santa Fe, USA):** R.J. Sewell, F. Baumgärtner, S. Eriksson, I. Llorente-García, J. Dingjan, J. P. Cotter, & E. A. Hinds, Atom Chip BEC Interferometer.
7. **2009, QuAMP (Leeds, UK):** F. Baumgärtner, R.J. Sewell, S. Eriksson, I. Llorente-García, J. Dingjan, & E. A. Hinds, Atom Chip BEC Interferometer.
6. **2009, EPSRC (London, UK):** R.J. Sewell, F. Baumgärtner, S. Eriksson, I. Llorente-García, J. Dingjan, & E. A. Hinds, Atom Chip BEC Interferometer.
5. **2008, Interf (Triest, Italy):** S. Eriksson, R.J. Sewell, F. Baumgärtner, J. Dingjan, & E. A. Hinds, Single & Double Well Potentials on an Atom Chip.
4. **2007, QuAMP IV (London, UK):** R.J. Sewell, S. Eriksson, J. Dingjan, & E. A. Hinds, Single & Double Well Potentials on an Atom Chip.
3. **2007, PAQ (London, UK):** R.J. Sewell, S. Eriksson, J. Dingjan, & E. A. Hinds, Single & Double Well Potentials on an Atom Chip.
2. **2007, YAO (Durham, UK):** R.J. Sewell, S. Eriksson, J. Dingjan, & E. A. Hinds, Towards an Atom Chip Interferometer.
1. **2006, YAO (Orsay, France):** R.J. Sewell, S. Eriksson, & E. A. Hinds, Towards an Atom Chip Interferometer.

^{\$} Withdrawn.

LECTURES & SEMINARS

INVITED LECTURES

1. **2014, Winter School on Quantum Physics & Quantum Information, (Olomouz University, Czech Republic):** Atomic Physics.

SEMINARS & COLLOQUIA

13. **2014, University College (London, U.K.):** Entanglement of atomic spins beyond simple spin squeezing.
12. **2014, Oxford University (Oxford, U.K.):** Entanglement of atomic spins beyond simple spin squeezing.
11. **2013, MIT (Boston, USA):** Quantum-enhanced optical magnetometry.
10. **2013, Imperial College, (London, U.K.):** Quantum non-demolition measurement & quantum control of atomic spins.
9. **2013, ICFO (Barcelona, Spain):** Certified quantum non-demolition measurement of ultracold atomic spins.

8. **2012, UPV (Bilbao, Spain):** Squeezing, entanglement & quantum control of atomic spins.
7. **2011, Imperial College London, (London, U.K.):** Nonlinear quantum metrology with atomic spins.
6. **2010, Monash University (Melbourne, Australia):** Spin Squeezing, Entanglement & Nonlinear Quantum Metrology with Ultracold Atoms.
5. **2010, Melbourne University, (Melbourne, Australia):** Spin Squeezing, Entanglement & Nonlinear Quantum Metrology with Ultracold Atoms.
4. **2010, A.N.U. (Canberra, Australia):** Spin Squeezing, Entanglement & Nonlinear Quantum Metrology with Ultracold Atoms.
3. **2009, ICFO (Barcelona, Spain):** Atom–chip BEC interferometer.
2. **2009, I.E.S.L. (Heraklion, Greece):** Atom–chip BEC interferometer.
1. **2007, A.N.U. (Canberra, Australia):** Atom–chip BEC interferometer.

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