PERSONAL

- **Name**: Dr. Simon A. Haine
- **Gender**: Male
- **Date of Birth**: 7th June, 1978.
- **Nationality**: Australian.
- **Contact Details**:

email: haine@physics.uq.edu.au
phone: (+61 -7) 3365 3433 (day)
mobile: +61434 946 927

EDUCATION

- **Doctor of Philosophy**: The Australian National University, 2007.

  Thesis: *'An Atom Laser for Quantum-Atom Optics'*.

- **Undergraduate**: BSc (1st class hons), The Australian National University, 2002.

  Honours thesis: *'The Stability of a Continuously Pumped Atom Laser'*.

EMPLOYMENT HISTORY

- Australian Research Council Postdoctoral Fellow (01/01/2009 - Present).
- University of Queensland Postdoctoral Research Fellow (01/01/2008 - 31/12/2009).
- Postdoctoral Research Fellow (University of Queensland) (23/04/2007 - 31/12/2007).
- Postdoctoral Research Fellow (The Australian National University) (15/01/2007 - 31/03/2007).
- Undergraduate Physics Tutor (The Australian National University) (2003-2006).

RESEARCH INTERESTS

- The generation of squeezed and entangled matterwave sources.
- Precision measurement with atom lasers.
- Investigation of the properties of atom lasers.
- Design of quantum-atom optics experiments.
- Investigations of the properties of cold atoms through comparison between experimental and theoretical results.

FELLOWSHIPS, SCHOLARSHIPS, AND PRIZES

- **Fellowships**
  - Australian Research Council Postdoctoral Fellowship.
  - University of Queensland Postdoctoral Fellowship.
- **Schollarships**
  - Australian National University Endowment of Excellence Graduate School Schollarship.
- **Prizes**
  - Dean's prize for the Graduate School of Physical Sciences Seminar Series (Australian National University).

References:

1. Dr. Joseph Hope.

   Primary Ph.D. Supervisor, and course coordinator for a course that I have tutored (PHYS1007, ANU).

   email: Joseph.Hope@anu.edu.au.

   Phone:+61-2 6125 2780

2. Dr. John Close.

   Ph.D. Advisor and course coordinator for a course that I have tutored (PHYS2016, ANU).

   email: John.Close@anu.edu.au.

   Phone: +61-2 6125 4390

3. Dr. Matthew Davis

   Current Employment Supervisor.

   email: mdavis@physics.uq.edu.au

   Phone: +61 -7 334 69824

PUBLICATIONS

(three most significant publications marked with a *)

1. * *'Stability of Continuously Pumped Atom Lasers'*
   S. A. Haine, J. J. Hope, N. P. Robins, and C. M. Savage
   Phys. Rev. Lett. 88, 170403 (2002).

2. *'Mode Selectivity and Stability of Continuously Pumped Atom Lasers'*
   S. A. Haine and J. J. Hope
   Phys. Rev. A **68**, 023607 (2003).

3. *'Dynamical effects of back-coupling on an atom laser'*
   N. P. Robins, J. E. Lye, C. S. Fletcher, **S. A. Haine**, J. Dugue, C. Breme, J. J. Hope and J. D. Close
   Laser Spectroscopy - Proceedings of the XVI International Conference (ICOLS 2003)

4. *'Control of an atom laser using feedback'*
   S. A. Haine, A. J. Ferris, J. D. Close, and J. J. Hope
   Phys. Rev. A **69**, 013605 (2004).

5. *'Fluctuations and flux: The limits of multistate atom lasers'*
   N. P. Robins, C. M. Savage, J. J. Hope, J. E. Lye, C. S. Fletcher, **S. A. Haine** and J. D. Close.
   Phys. Rev. A **69** 051602(R) (2004).

6. *'Outcoupling from a Bose-Einstein condensate with squeezed light to produce entangled atom laser beams'*
   S. A. Haine and J. J. Hope
   Phys. Rev. A. **72**, 033601 (2005).

7. *'A multi-mode model of a non-classical atom laser produced by outcoupling from a Bose-Einstein condensate with squeezed light'*
   S. A. Haine and J. J. Hope
   Laser Phys. Lett. **2** No. 12, 597-602 (2005).

8. *'Stabilizing an atom laser using spatially selective pumping and feedback'*
   M. T. Johnsson, **S. A. Haine** and J. J. Hope
   Phys. Rev. A **72**, 053603 (2005).

9. * *'Generating controllable atom-light entanglement with a Raman atom laser system'*
   S. A. Haine, M. K. Olsen, and J. J. Hope
   Phys. Rev. Lett. 96, 133601 (2006).

10. *'Achieving peak brightness in an atom laser'*
    N. P. Robins, C. Figl, **S. A. Haine**, A. K. Morrison, M. Jeppesen, J. J. Hope, J. D. Close
    Phys. Rev. Lett. 96, 140403 (2006).

11. *'Semiclassical limits to the linewidth of an atom laser'*
    M. T. Johnsson, **S. A. Haine**, *et al*
    Phys. Rev. A **75**, 043618 (2007).

12. *'Quantum Statistical measurements of an atom laser beam'*
M. K. Olsen, A. S. Bradley, **S. A. Haine** and J. J. Hope
Nuclear Physics A, **790**, 733c (2007).

13. * *'Generating Quadrature Squeezing in an Atom Laser through Self-Interaction'*
M. T. Johnsson and **S. A. Haine**
Phys. Rev. Lett. 99 010401 (2007).

14. *'Raman scheme to measure the quantum statistics of an atom laser beam'*
A. S. Bradley, M. K. Olsen, **S. A. Haine** and J. J. Hope
Phys. Rev. A **76**, 033603 (2007).

15. *'From Squeezed Atom Lasers to Teleportation of Massive Particles'*
M. K. Olsen, **S. A. Haine**, A. S. Bradley, and J. J. Hope
Eur. Phys. J. Special Topics, **160**, 331-342 (2008).

16. *'Dynamic scheme for generating number squeezing in Bose-Einstein condensates through nonlinear interactions'*, **S. A. Haine** and M. T. Johnsson, Phys. Rev. A, **80**, 023611, (2009).

17. *'Observation of shock waves in a large Bose-Einstein condensate'*, R. Meppelink, S. B. Koller, J. M. Vogels, P. van der Straten, E. D. van Ooijen, N. R. Heckenberg, H. Rubinsztein-Dunlop, **S. A. Haine**, and M. J. Davis, Phys. Rev. A, **80** 043606 (2009).

18. *'Optically trapped atom interferometry using the clock transition of large Rb-87 Bose-Einstein condensates'* P.A. Altin, G. McDonald, D. Doring, J.E. Debs, T. Barter, N.P. Robins, J.D. Close, **S.A. Haine**, T.M. Hanna, R.P. Anderson New Journal of Physics, **13**, 065020 (2011).

19. *'Surpassing the standard quantum limit in an atom interferometer with four-mode entanglement produced from four-wave mixing'*, **S. A. Haine** and A. J. Ferris, Phys. Rev. A **84**, 043624 (2011).

Selected Commentaries of Research

- *'Atom Lasers at the Limit'*, Nature Physics Portal, (April 2002).
- *'Teleportation, but not as we know it'*, New Scientist, (June 2007).
- *'A step closer to a practical atom laser'*, Physorg.com, (July 2007).

Teaching

- PHYS2041 (2nd year Quantum Physics) - Course Coordinator and Lecturer. University of Queensland 2009, 2010, 2011.