

## Dr Stephen A Hopkins: Selected Publications

- 1) 'A field momentum approach to the semiclassical theory of light forces on atoms' A.V.Durrant, K.Hill, S.Hopkins and E.Usadi, *J. Mod. Opt.* **42**, 131, (1995).
- 2) 'Proposed temperature measurements of laser-cooled samples by coherent optical transients' A.V.Durrant, E.Usadi, K.E.Hill and S.Hopkins, Session QTuG5, IEEE Technical Digest European Quantum Electronics Conference, Amsterdam, (1994).
- 3) 'Electromagnetically induced transparency of laser-cooled rubidium atoms in three-level  $\Lambda$ -type systems' S.A.Hopkins, E.Usadi, H.X.Chen and A.V.Durrant, *Opt.Comm.* **138**, 185, (1997).
- 4) 'Parameters for polarisation gradients in three-dimensional standing waves' S.A.Hopkins and A.V.Durrant, *Phys.Rev.A* **56**, 4012, (1997).
- 5) 'Stochastic wavefunction diagrams for electromagnetically induced transparency and inversionless gain' J.A.Vaccaro, A.V.Durrant, D.Richards, S.A.Hopkins, H.X.Chen and K.E.Hill, *J.Mod.Opt.* **45**, 315, (1998).
- 6) 'Zeeman-coherence-induced transparency and gain without inversion in laser-cooled rubidium' A.V.Durrant, H.X.Chen, S.A.Hopkins and J.A.Vaccaro, *Opt. Comm.* **151**, 136, (1998).
- 7) 'Suppression of collisional loss from a magnetic trap' J.Arlt, P.Bance, S.Hopkins, J.Martin, S.Webster, A.Wilson, K.Zetie and C.J.Foot, *J.Phys.B: At.Mol.Opt.Phys* **31**, L321, (1998).
- 8) 'A pyramidal magneto-optical trap as a source of slow atoms' J.Arlt, S.Hopkins, O.Maragò, S.Webster and C.J.Foot, *Opt.Comm.* **157**, 303, (1998).
- 9) 'Measurement of elastic cross-section for cold caesium atoms' S.A.Hopkins, S.Webster, J.Arlt, P.Bance, S.Cornish, O.Maragò, and C.J.Foot, *Phys.Rev.A* **61**, 032707, (2000).
- 10) 'Bose-Einstein condensation in a rotating anisotropic TOP trap' J.Arlt, O.Maragò, E.Hodby, S.A.Hopkins, G.Hechenblaikner, S.Webster and C.J.Foot, *J.Phys.B: At.Mol.Opt.Phys* **32**, 5861, (1999).
- 11) 'Observation of the scissors mode and evidence for superfluidity of a trapped Bose-Einstein condensed gas' O.M.Maragò, S.A.Hopkins, J.Arlt, E.Hodby, G.Hechenblaikner and C.J.Foot, *Phys.Rev.Lett.* **84**, 2056,(2000).
- 12) 'Observation of harmonic generation and non-linear coupling in the collective dynamics of a Bose condensate' G.Hechenblaikner, O.M.Maragò, E.Hodby, J.Arlt, S.Hopkins and C.J.Foot, *Phys.Rev.Lett.* **85**, 692, (2000).
- 13) 'Bose-Einstein condensation in a stiff TOP trap with adjustable geometry' E.Hodby, G.Hechenblaikner, O.M.Maragò, J.Arlt, S.Hopkins and C.J.Foot, *J.Phys.B: At.Mol.Opt.Phys.* **33**, 4087, (2000).
- 14) 'Dipole force trapping of caesium atoms' S.A.Webster, G.Hechenblaikner, S.A.Hopkins, J.Arlt and C.J.Foot, *J.Phys.B: At.Mol.Opt.Phys.* **33**, 1, (2000).
- 15) 'UHV-compatible magnetic material for atom optics' S.A.Hopkins, E.A.Hinds, and M.G.Boshier, *Appl.Phys.B* **73**, 51 (2001).
- 16) 'The Moment of Inertia and the Scissors Mode of a Bose-condensed Gas', O.Maragò, G.Hechenblaikner, E.Hodby, S.A.Hopkins, C.J.Foot, *J.Phys.: Condens. Matter* **14**, 343 (2002).
- 17) 'Vortex nucleation in Bose-Einstein condensates in an oblate, purely magnetic potential', E. Hodby, G. Hechenblaikner, S.A. Hopkins, O.M. Maragò, C.J.Foot, *Phys. Rev. Lett.* **88**, 010405 (2002).
- 18) 'Direct observation of irrotational flow and evidence of superfluidity in a rotating Bose-Einstein condensate', G. Hechenblaikner, E. Hodby, S.A. Hopkins, O.M. Maragò, C.J. Foot. *Phys. Rev. Lett.* **88**, 070406 (2002).
- 19) 'Experimental observation of a superfluid gyroscope in a dilute Bose-Einstein condensate', E. Hodby, S.A. Hopkins, G. Hechenblaikner, N.L.Smith and C.J. Foot, *Phys.Rev.Lett.* **91**, 090403 (2003).

- 20) 'Strong evaporative cooling towards Bose-Einstein condensation of a magnetically trapped caesium gas', A.M. Thomas, S. Hopkins, S.L. Cornish and C.J. Foot, *J.Opt.B: Quantum Semiclass. Opt.* **5**, S107 (2003).
- 21) 'Off-resonance laser frequency stabilization using the Faraday effect', A.L. Marchant, S. Händel, T.P. Wiles, S.A. Hopkins, C.S. Adams, and S.L. Cornish, *Opt. Lett.*, **36**, 64 (2011).
- 22) 'Magnetic merging of ultracold atomic gases of 85Rb and 87Rb', S. Händel, T.P. Wiles, A.L. Marchant, S.A. Hopkins, C.S. Adams, S.L. Cornish, *Phys. Rev. A*, **83**, 053633 (2011).
- 23) 'Bose-Einstein condensation of 87Rb in a levitated crossed dipole trap', D.L. Jenkin, D.J. McCarron, M.P. Köppinger, H-W. Cho, S.A. Hopkins, S.L. Cornish, *Eur. Phys. J. D*, **65**, 11 (2011).
- 24) 'Guided transport of ultracold gases of rubidium up to a room-temperature dielectric surface', A.L. Marchant, S. Händel, T.P. Wiles, S.A. Hopkins, S.L. Cornish, *New J. Phys.*, **13**, 125003 (2011).
- 25) 'Magnetic transport apparatus for the production of ultracold atomic gases in the vicinity of a dielectric surface', S. Händel, A.L. Marchant, T.P. Wiles, S.A. Hopkins, S.L. Cornish, *Rev. Sci. Instrum.*, **83**, 013105 (2012).
- 26) 'Bose-Einstein condensation of 85Rb by direct evaporation in an optical dipole trap', A.L. Marchant, S. Händel, S. A. Hopkins, T.P. Wiles and S. L. Cornish, *Phys. Rev., A* **85**, 053647 (2012).
- 27) 'Quantum Gases, Finite Temperature and Non-Equilibrium Dynamics, chapter 2, 'Experimental Consideration', S.A. Hopkins and S.L. Cornish, eds: N. Proukakis, S. Gardiner and M. Davis, *World Scientific Press* (2012).
- 28) 'Production and characterization of a dual species magneto-optical trap of cesium and ytterbium', S. L. Kemp, K. L. Butler, R. Freytag, S. A. Hopkins, E. A. Hinds, M. R. Tarbutt and S. L. Cornish, *Rev. Sci. Instrum.*, **87**, 023105 (2016).
- 29) 'A versatile dual-species Zeeman slower for caesium and ytterbium', S. A. Hopkins, K. L. Butler, A. Guttridge, S. L. Kemp, R. Freytag, E. A. Hinds, M. R. Tarbutt and S. L. Cornish, *Rev. Sci. Instrum.*, 043109 (2016).
- 30) 'Direct loading of a large Yb MOT on the  $^1S_0 \rightarrow ^3P_1$  transition', A. Guttridge, S. A. Hopkins, S. L. Kemp, D. Boddy, R. Freytag, M.P.A. Jones, E. A. Hinds, M. R. Tarbutt and S. L. Cornish, *J. Phys. B*, **49**, 145006 (2016).
- 31) 'Interspecies thermalization in an ultracold mixture of Cs and Yb in an optical trap', A. Guttridge, S. A. Hopkins, S. L. Kemp, Matthew D. Frye, Jeremy M. Hutson and Simon L. Cornish, *Phys. Rev. A*, **96**, 012704 (2017).
- 32) 'Production of ultracold Cs\*Yb molecules by photoassociation', A. Guttridge, S. A. Hopkins, Matthew D. Frye, John J. McFerran, Jeremy M. Hutson and Simon L. Cornish, *Phys. Rev. A*, **97**, 063414 (2018).