

Andrew Murray's Journal Papers (Refereed)

- 1*. **Murray A J**, Webb C J, MacGillivray W R & Standage M C, *Phys. Rev. Lett.* **62** 411-414 (1989)
"Electron-Laser stepwise excitation coincidence experiment on the 6^1P_1 state of mercury"
2. **Murray A J**, MacGillivray W R & Standage M C, *J. Phys. B* **23** 3373-3392 (1990)
"Application of stepwise electron & laser excitation to electron-photon correlation studies: I. Theory"
3. **Murray A J**, MacGillivray W R & Standage M C *J. Mod. Optics* **38** 961-969 (1991)
"Effects of laser intensity variation & coherence on resonant excitation of $6^1P_1 - 6^1D_2$ transition of Hg"
4. **Murray A J**, MacGillivray W R & Standage M C, *Phys. Rev. A* **44** 3162-3168 (1991)
"Radiation trapping in a stepwise-excitation electron-laser coincidence experiment"
5. **Murray A J**, Pascual R, MacGillivray W R & Standage M C, *J. Phys. B* **25** 1915-1930 (1992)
"Application of stepwise electron & laser excitation to electron-photon correlation studies: II. Experiment"
6. **Murray A J**, Turton B C H & Read F H, *Rev. Sci. Inst.* **63** 3346-3351 (1992)
"Real-time computer-optimized electron coincidence spectrometer"
7. **Murray A J**, Woolf M B J and Read F H, *J. Phys. B* **25** 3021-3036 (1992)
"Results from symmetric and non-symmetric energy sharing ($e,2e$) experiments in the perpendicular plane"
- 8*. **Murray A J** and Read F H, *Phys. Rev. Lett.* **69** 2912-2915 (1992)
"Novel exploration of the helium ($e,2e$) ionization process"
9. **Murray A J** and Read F H, *J. Phys. B* **25** L579-L583 (1992)
"Coplanar doubly-symmetric He ($e,2e$) measurements with excitation of the residual ion"
10. **Murray A J** and Read F H, *Phys. Rev. A* **47** 3724-3732 (1993)
"Evolution from the coplanar to the perpendicular plane geometry of helium ($e,2e$) differential cross section symmetric in scattering angle and energy"
11. **Murray A J** and Read F H, *J. Phys. B* **26** L359-L365 (1993)
"Exploring He ($e,2e$) cross section at 64.6eV with symmetric scattering angles & non-symmetric energies"
12. **Murray A J**, Read F H and Bowring N J, *J. de Phys. IV* **3** 51-58 (1993)
" $(e,2e)$ Collisions at intermediate energies"
13. **Murray A J**, Read F H and Bowring N J, *Phys. Rev. A* **49** R3162-R3165 (1994)
"Decomposition of Experimentally Determined Atomic ($e,2e$) Ionization Measurements"
14. Masters A T, **Murray A J**, Pascual R & Standage M C *Phys. Rev. A* **53** 3884-3895 (1996)
"Multipole treatment of radiation trapping in a stepwise electron-photon coincidence experiment"
15. **Murray A J**, Read F H and Bowring N J *J. Phys. B* **30** 387-402 (1997)
"Parameterisation of low energy symmetric ($e,2e$) differential cross section measurements"
16. Bowring N J, **Murray A J** and Read F H *J. Phys. B* **30** L671-L676 (1997)
"Near-threshold doubly symmetric ($e,2e$) measurements on helium"
17. Shurgalin M, **Murray A J**, MacGillivray W R and Standage M C *J. Phys. B* **31** 4205-4224 (1998)
"Electron-impact excitation of the 3^2D state of sodium from the optically prepared 3^2P state"
- 18*. Shurgalin M, **Murray A J**, MacGillivray W R, Standage M C, Madison D, Winkler K D & Bray I *Phys. Rev. Lett.* **81** 4604-4607 (1998)
"First comparisons of electron-atom parameters for S - P transitions under reversal of energy transfer"
19. Storrow G, Gleeson H F and **Murray A J** *Pure and Applied Optics* **7** 1411-1423 (1998)
"An analysis of the optical properties of a single element liquid crystal device"
20. Hubbard J, Gleeson H F, Whatmore R, Shaw C, Zhang Q & **Murray A J** *Liquid Crystals* **26** 601-604 (1999)
"Local Fredericksz transitions at a nematic liquid crystal/thin film oxide ferroelectric interface"
21. **Murray A J** and Hammond P H *Meas. Sci. Tech.* **10** 225-231 (1999)
"Delay generators for time of flight experiments"
22. Hubbard J, Gleeson H F, Whatmore R, Shaw C, Zhang Q and **Murray A J** *Mol. Cryst. & Liquid Crystals* **329** 491-498 (1999) "The interaction of poled thin film ferroelectrics with nematic liquid crystals"
23. **Murray A J** and Hammond P H *Rev. Sci. Inst.* **70** 1939-1950 (1999)
"A combined laser-electron target excitation and deflection spectrometer"
24. Bowring N J, Read F H & **Murray A J** *J. de Physique* **9** Pr6-45-49 (1999)
"Dips and backward peaks in the helium ($e,2e$) differential cross section at low energies"

25. Hall BV, Shurgalin M, **Murray AJ**, MacGillivray WR & Standage MC *J. Aust. Phys.* **52** p515-522 (1999)
"Transfer of Angular Momentum in Electron Collisions with Alkali Atoms"
- 26*. **Murray A J** and Hammond P *Phys. Rev. Lett.* **82** 4799-4802 (1999)
"Laser probing of metastable atoms and molecules deflected by electron impact"
27. Shurgalin M, **Murray AJ**, MacGillivray WR, Standage MC, Madison DH, Winkler KD, Bray I *J. Phys. B* **32** 2439-2459 (1999)
"Atomic collision parameters for electron de-excitation of the 4S-3P transition of sodium"
28. Bowring NJ, Read FH, **Murray AJ** *J. Phys. B* **32** L57-L63 (1999)
"Two-electron interference in the helium ($e, 2e$) differential cross section at 64.6eV"
29. **Murray A J** and Read F H *J. Phys. B* **33** L297-L302 (2000)
"Low energy ($e, 2e$) differential cross sections on neon from coplanar to perpendicular geometry"
30. **Murray A J**, Bowring N J and Read F H *J. Phys. B* **33** 2859-2867 (2000)
"Comparison of Ar, He ($e, 2e$) cross sections at 64.6eV using symmetric detection energies and angles"
31. **Murray A J** and Read F H *Phys. Rev. A* **63** 0127141-0127144 (2001)
"Deep Interference Minima in Experimental Ionisation Differential Cross Sections"
32. **Murray A J** *Meas. Sci. Tech.* **13** pN12 (2002)
"Construction of a gravity fed circulating liquid nitrogen dewar for experiments in high vacuum"
33. Hussey M and **Murray AJ** *J. Phys. B* **35** 3399-3409 (2002)
"Low energy ($e, 2e$) differential cross-sections on the $3\sigma_g$ and $1\pi_u$ molecular orbitals of N_2 "
34. Cvejanovic D and **Murray A J** *Meas. Sci. Tech.* **13** 1482-1487 (2002)
"Design and characterization of an atomic beam oven for combined laser and electron impact experiments"
35. Gleeson H F, **Murray A J**, Fraser E and Zoro A *Opt. Comm.* **212** 165-167 (2002)
"An electrically addressed liquid crystal filter for tunable lasers"
36. Harries J, Hammond P and **Murray A J** *J. Phys. B* **36** 2579 - 2590 (2003)
"Electron-impact excitation of He & H_2 in doubly-excited state region observed using momentum transfer."
37. **Murray A J** *Meas. Sci. Tech.* **14** N1-4 (2003)
"Design of a non-magnetic translator for use in vacuum systems"
38. Cvejanovic D & **Murray A J** *J. Phys. B* **36** 3591-3605 (2003)
"Single ionization of calcium by electron impact"
39. **Murray A J** & Cvejanovic D *J. Phys. B* **36** 4889-4910 (2003)
"Low Energy Superelastic Scattering from the 4^1P_1 state of Calcium in an ($e, 2e$) spectrometer."
40. **Murray A J** & Cvejanovic D *J. Phys. B* **36** 4875-4888 (2003)
"Coplanar symmetric ($e, 2e$) measurements from calcium at low energy."
41. Harries J, Hammond P, Chandler R & **Murray A J** *J. Phys. B* **37** 179-199 (2004)
"Laser probing of the electron-impact excited $c(2p)^3\Pi_u$ manifold of states in H_2 "
42. **Murray A J** & Atkinson S *Meas. Sci. Tech.* **15** N31- N34 (2004)
"An Automatic Controller for Filling and Maintaining Liquid Nitrogen Levels in Dewars"
43. Hall B, Shen Y, **Murray AJ**, Standage MC, MacGillivray WR & Bray I *J. Phys. B* **37** 1113-1124 (2004)
"Superelastic electron scattering from laser excited rubidium at 20eV incident energy"
44. **Murray A J** "Electron excitation & ionization of ^{40}Ca at low energy" (EPIIRT Conf: Belgium) (2004)
45. **Murray A J**, Hussey M J and Venables A *Meas. Sci. Tech.* **16** N19-N23 (2005)
"Design of a non-magnetic high accuracy linear translator for use in vacuum systems"
46. **Murray A J** *J. Phys. B* **38** 1999-2013 (2005)
" $(e, 2e)$ studies of H_2 in the intermediate energy regime"
47. Hussey M J & **Murray A J** *J. Phys. B* **38** 2965-2977 (2005)
"Low energy ($e, 2e$) differential cross-sections on the $1\pi_g$ and $4\sigma_g$ molecular orbitals of CO_2 ."
48. **Murray A J** *Phys. Rev. A* **72** 062711 - 062725 (2005)
" $(e, 2e)$ studies of alkali and alkali earth targets: Na, Mg, K & Ca, from threshold to intermediate energies."
49. Wright A, Wood T, Dickinson M, Gleeson H, Mullin T & **Murray A J** *Proc. SPIE* **4622** 195-203 (2002)
50. Wood T, Wright A, Dickinson M, Gleeson H, Mullin T & **Murray A J** *Proc. SPIE* **4634** 128-134 (2002)

51. Gao J, Madison D H, Peacher J L, **Murray A J** & Hussey M J, *J Chem. Phys.* **124** 194306.1 – 8 (2006)
 “Experimental and theoretical ($e, 2e$) ionization cross sections for a hydrogen target at 75.3 eV incident energy in a coplanar asymmetric geometry”
52. **Murray A J**, Hussey M J, Gao J & Madison D H, *J. Phys. B* **39** 3945-3956 (2006)
 “($e, 2e$) Ionization measurements from the $3\sigma_g$ and $2\sigma_u$ states of N_2 – comparison between experiment and theoretical predictions of the effects of two-centre interferences”
53. **Murray A J**, Hussey M J & Needham M, *Meas. Sci. Tech.* **17** 3094-3101 (2006)
 “Design of an atomic beam source for alkali & alkali-earth targets with narrow angular divergence.”
54. **Murray A J**, Hussey M J, Kaiser C, Gao J & Madison D *J Elect Spect & rel Phenom* **161** 11-16 (2007), “Electron impact ionization of molecules at low to intermediate energies – a search for Young’s double slit type interferences”
55. Kaiser C, Spieker D, Gao J, Hussey M, **Murray A J** and Madison D *J. Phys B.* **40** 2563-2576 (2007)
 “Coplanar symmetric and asymmetric electron impact ionization studies from the $1b_1$ state of H_2O at low to intermediate impact energies”
56. Hussey M, **Murray A J**, MacGillivray W R, King G C & Bowring N *Jour Phys* **88** 012061-(1-6) (2007)
 “Super-elastic scattering from Ca over complete angular range using a Magnetic Angle Changing device”
- 57*. Hussey M, **Murray A J**, MacGillivray W R & King G C, *Phys Rev Lett* **99** 133202 (2007)
 “Super-elastic Electron Scattering within a Magnetic Angle Changer - Determination of the Angular Momentum Transferred during Electron Excitation over all Scattering Angles.”
58. Hussey M, **Murray A J**, MacGillivray W R and King G C *Phys Rev A* **41** 055202 (2008)
 “Superelastic scattering from Calcium at low incident energies using a Magnetic Angle Changing device”
59. **Murray A J**, MacGillivray W R, and Hussey M *Phys Rev A* **77**, 013409 1-12 (2008)
 “Theoretical determination of the effects of a magnetic field on laser-atom excitation processes”
- 60**. Hussey M, **Murray A J**, MacGillivray W R and King G C, *Europhysics News* **3**, V39 p23 (2008)
 “Superelastic scattering from Calcium at low incident energies using a Magnetic Angle Changing device”
- 61**. Al-Hagan O, Kaiser C, Madison D H and **Murray A J** *Nature physics* **5** 59 (2009)
 “Atomic and molecular signatures for charged particle ionization”
- 62*. Harvey M and **Murray A J** *Phys Rev Lett* **101**, 173201 - 173201-4 (2008)
 “A cold atom trap with zero residual magnetic field - the AC-MOT”
- 63*. Colgan J, Pindzola M S, Robicheaux F, Kaiser C, **Murray A J** and Madison D H *Phys Rev Lett* **101**, 233201-1 - 233201-4 (2008).
 “Differential cross sections for the ionization of oriented H_2 molecules by electron impact”
64. Colgan J, Al-Hagan O, Madison DH, Kaiser C, **Murray AJ** & Pindzola M S *Phys Rev A* **79**, 052704-1-7 (2009)
 “TDCS for electron impact ionization of H_2 for equal and unequal outgoing electron energies”
65. Colgan J, Al-Hagan O, Madison D H, **Murray A J** and Pindzola M S *J Phys B* **42**, 171001-6 (2009)
 “Deep interference minima in non-coplanar triple differential cross sections for the electron-impact ionization of small atoms and molecules”
66. MacGillivray WR, **Murray AJ**, Hussey M, King G, Knight-Percival A & Satti S *Jour Phys*, **185**, 012025 (2009)
 “Super-elastic scattering from calcium over all angles”
67. Al-Hagan O, Kaiser C, **Murray AJ** & Madison D H *Jour Phys*, **194**, 042042 (2009)
 “Theoretical & experimental ($e, 2e$) studies for electron impact ionization of Ar in the perpendicular plane”
68. Colgan J, Kaiser C, **Murray AJ**, Al-Hagan O, Madison DH & Pindzola MS *Jour Phys*, **194**, 042043 (2009)
 “Minima in the TDCS for electron impact ionization of helium”
69. Nixon KL, **Murray AJ** & Kaiser C, *J Phys B* **43**, 085202 1-11 (2010)
 “Low energy ($e, 2e$) studies of the noble gases in the perpendicular plane”
70. Nixon KL, **Murray AJ**, Al-Hagan O, Madison DH & Ning C *J Phys B* **43**, 035201 1-7 (2010)
 “Low energy symmetric coplanar and non-coplanar $e, 2e$ studies from the $3a_1$ state of H_2O ”
71. Al-Hagan O, **Murray AJ**, Kaiser C, Colgan J & Madison D H *Phys Rev A*, **81**, 030701 (2010)
 “Electron impact ionization of H_2 for low energy electrons from 1eV to 10eV”
72. **Murray A J** *Jour Phys* **212**, 012016 (2010)
 “Combining laser & electron interactions- current experiments & future possibilities”

73. Al-Hagan O, Ning C, Nixon K L, **Murray A J**, Colyer C, Stevenson M, Lohmann B and Madison D H *Jour Phys* **212**, 012004 (2010)
“Recent progress in treating electron impact ionization of molecules”
74. Nixon K L, Murray A J, Chaluvadi H, Ning C & Madison D H *J Chem Phys* **134**, 174304 1-8 (2011)
“Low energy ($e,2e$) studies from CH_4 results from symmetric coplanar expts & M3DW theory”
- 75*. Nixon K L and Murray A J, *Phys Rev Lett* **106**, 123201 1-4 (2011)
“Differential Cross Sections for Ionization of Laser-Aligned Atoms by Electron Impact”
76. Knight-Percival A, Jhumka S, Hussey M and Murray A J, *J Phys B* **44**, 105203 1-9 (2011)
“Superelastic scattering from the laser excited 4^1P_1 state of Ca at low incident energy”
77. Nixon K L and Murray A J, *Phys Rev A* **85**, 022716 1-11 (2012)
“Mapping the ($e,2e$) DCS from coplanar to perpendicular geometries”
78. Nixon K L Murray A J, Chaluvadi H, Amami S & Madison D H, *J Chem Phys* **136**, 094302 1-12 (2012)
“Low energy ($e,2e$) measurements of CH_4 and neon in the perpendicular plane”
79. Murray A J, *Meas Sci Tech* **23**, 107001 1-4 (2012)
“Low-cost high-speed pulsed amplifiers for electron, ion and photon detectors”
80. Hussey M H, Jhumka S and Murray A J, *Phys Rev A* **86**, 042705 1-5 (2012)
“Low energy ($e,2e$) measurements of CH_4 and neon in the perpendicular plane”
81. Murray A J, Hussey M, Knight-Percival A, Jhumka S, Nixon K L, Harvey M & Agomuo J, *J Phys* **388**, 012009 1-8 (2012)
“Electron impact ionization and excitation studies of laser prepared atomic targets”
82. Nixon K L and Murray A J, *Phys Rev A* **87**, 022712 1-11 (2013)
“($e,2e$) ionization studies of the stable noble gases in a coplanar symmetric geometry”
83. Nixon K L, **Murray A J**, Chaluvadi H, Ning C, Colgan J & Madison D H *J Chem Phys* **138**, 174304 1-11 (2013)
“Low energy ($e,2e$) studies of NH_3 : results from experiment & theory”
84. Jhumka S, Nixon K L, Hussey M and **Murray A J**, *Phys Rev A* **87**, 052714 1-7 (2013)
“Super-elastic electron collisions with silver: measuring the angular momentum transferred to the target during the collision”
- 85*. Nixon K L and Murray A J, *Phys Rev Lett* **112**, 023202 1-4 (2014)
“Parameterization of Electron-Impact Ionization Cross Sections from Laser-Excited and Aligned Atoms”

Andrew Murray's Invited Review Articles (refereed)

1. **Murray A J** and Hammond P *Adv. At. Mol. Opt. Phys.* **47** 163 – 202 (2001)
“*Studies of electron excited targets using recoil momentum spectroscopy with laser probing the excited state*”

Web-based Review Articles (refereed)

1. **Murray A J** and Hammond P *Physical Review Focus* (1999) “*A narrow filter for atoms*”

Andrew Murray's Academic Papers in Books (Refereed)

1. **Murray A J** and Read F H,
Atomic Physics 13 (Editors Walther, Honsch and Neizert) (AIP publishing, New York) 524-539 (1992) “*Continuum correlations in atomic ionization*”
2. **Murray A J**,
Proceedings of the NATO (e,2e) Meeting (Cambridge) 327-340 (1992) “*Coupling the coplanar (e,2e) geometry to the perpendicular plane geometry*”
3. **Murray A J**, Bowring N J and Read F H,
Selected Topics in Electron Physics (Eds. D M Campbell and H Kleinpoppen, Plenum Press) 1 - 14 (1996)
4. Shurgalin M, **Murray A J**, MacGillivray W R & Standage M C
Kleinpoppen symposium, UK (1999) “*Transfer of angular momentum for electron-atom collisions involving excited S to P & P to S transitions*”
5. **Murray A J** and Read F H
“*Many particle spectroscopy of atoms, molecules, clusters & surfaces*” (Ed: Berakdar & Kirschener) 3 - 14 (2001)
6. **Murray A J**
“*Probing electron ionization dynamics using laser radiation*” (ICPEAC Conference invited papers :Sante Fe) (2001)
7. **Murray A J**, Hussey M J, MacGillivray W R & King G C
“*Low energy superelastic scattering from Ca & Rb using a Magnetic Angle Changing spectrometer*” AIP Conference Proceedings; **811** (2005)
8. **Murray A J**
“*Low energy (e,2e) collision processes at Manchester*” in *Nanoscale interactions and their applications: Essays in honour of Ian McCarthy*, 2007 Ed: Wang & Brunger, Res. Signpost, India (2007)
9. **Murray A J**
“*Electron Impact Ionization using (e,2e) coincidence techniques – from threshold to intermediate energies*” *Fragmentation Processes: Cambridge University Press* (Ed Colm Whelan) (2012).