

Supplementary Material

John Oswald Newton 1924–2016

Katja Curtin^A, Mahananda Dasgupta^{A,} and David Hinde^A*

^AAustralian National University, Department of Nuclear Physics and Accelerator Applications, Research School of Physics, Canberra, ACT 2601, Australia

*Correspondence to: Email: Mahananda.Dasgupta@anu.edu.au

CURRICULUM VITAE — J.O. NEWTON

Professor
Department of Nuclear Physics
Research School of Physical Sciences and Engineering

NAME: John Oswald NEWTON

BORN: 12th February 1924

PLACE OF BIRTH: Birmingham, England

MARITAL STATUS: Married

ACADEMIC RECORD:

1941 - 43 and 1946 – 51	St. Catharine's College, Cambridge B.A. 1944, M.A. 1948, Ph.D. 1953 (Cambridge) D.Sc. 1966 (Manchester)
1943 - 46	Junior Scientific Officer, T.R.E. Gt. Malvern, Worcs. England
1948 - 51	Research Student at Cavendish Laboratory, Cambridge
1951 - 59	A.E.R.E., Harwell: 1951- 54 Fellow 1954-59 Principal Scientific Officer
1956 - 58 1965 - 67 1975 1980 - 81	Lawrence Berkeley Laboratory, University of California, Berkeley, U.S.A.
1985-86	Visiting Professor, University of Manchester
1959 - 1970	University of Manchester: 1959 - 67 Senior Lecturer 1967 - 70 Reader in Physics
1970 - 1989	Head of Dept. (until July 1988) and Professor of Nuclear Physics, Australian National University, Canberra, Australia
1975	Elected member of Australian Academy of Science
1990 -	Emeritus Professor, Australian National University
1990-2008	Visiting Fellow in Department of Nuclear Physics, Institute of Advanced Studies, Australian National University

List of Publications J.O. Newton (Most significant contributions indicated by asterix)

1. *"Coincidences between protons and gamma-rays in (d,p) reactions"*
G.D. Curling and J.O. Newton, Nature **166** (1950) 339-343.
2. *"Nuclear transmutations of carbon-13"*
J.O. Newton and C.D. Curling, Nature **165** (1950) 609-611.
3. *"A note on the gamma radiation from ^{241}Am "*
J.O. Newton and B. Rose, Phys. Rev. **89** (1951) 1157.
- *4. *"Angular correlation in the reaction $^6\text{Li}(d,p)^7\text{Li}^*(\gamma)^7\text{Li}$ "*
J.O. Newton, Proc. Phys. Soc. A **64** (1951) 938-939.
5. *"Soft radiation from ^{241}Am "*
J.K. Beling, J.O. Newton and B. Rose, Phys. Rev. **86** (1952) 797-798.
6. *"The decay of the 2.4 MeV level in ^9Be "*
G.A. Dissanaik and J.O. Newton, Proc. Phys. Soc. A **65** (1952) 675-676.
7. *"The decay of ^{241}Am "*
J.K. Beling, J.O. Newton and B. Rose, Phys. Rev. **87** (1952) 670-671.
- *8. *"Polarization of the 6.13-MeV gamma-rays emitted in the reaction $^{19}\text{F}(p,\alpha)^{16}\text{O}^*(\gamma)^{16}\text{O}$ "*
A.P. French and J.O. Newton, Phys. Rev. **85** (1952) 1041.
9. *"Reactions in ^{23}Na induced by protons of energy 0.7 to 1.6 MeV"*
J.O. Newton, Proc. Glasgow Conf. on Nuclear and Meson Physics. 99-101, pub. by Pergamon Press (1954).
10. *"Gamma radiation from the decay of ^{228}Th "*
J.O. Newton and B. Rose, Phil. Mag. **45** (1954) 58-62.
11. *"Gamma radiations from the reactions $^{23}\text{Na} + p$ "*
J.O. Newton, Phys. Rev. **96** (1954) 241-242.
- *12. *"Nuclear properties of the very heavy elements"*
J.O. Newton, Review Article; Progress in Nuclear Physics, **4** (1954) 234-286, Pergamon Press.
13. *"The decay of ^{58}Co and ^{57}Co "*
M.A. Grace, G.A. Jones and J.O. Newton, Phil. Mag. **1** (1956) 363-369.
14. *"Coulomb excitation of heavy nuclei"*
J.O. Newton, Nuovo Cimento **4** (supplement), (1956) 1156-1161.

- *15. *"Gamma radiation from the decay of ^{238}Pu , ^{242}Cm and ^{243}Cm "*
J.O. Newton, B. Rose and J. Milsted, Phil. Mag. **1** (1956) 981-1002.
- *16. *"The Coulomb excitation of ^{235}U , ^{239}Pu and ^{238}U "*
J.O. Newton, Nucl. Phys. **3** (1957) 345-363
- 17. *"Coulomb excitation"*
J.O. Newton, University of California, Radiation Laboratory, UCRL - **3797** (1957) 1-35.
- *18. *"The Coulomb excitation of ^{233}U and ^{237}Np and a discussion of the energy levels of ^{233}U "*
J.O. Newton, Nucl. Phys. **5** (1958) 218-234.
- *19. *"Experimental observation of double Coulomb excitation"*
J.O. Newton and F.S. Stephens, Phys. Rev. Lett. **1** (1958) 63-65.
- 20. *"The decay of 13 hour ^{182}Re "*
C.J. Gallagher Jr, J.O. Newton and V.S. Shirley, Phys. Rev. **113** (1959) 1298-1302.
- *21. *"Auger transitions in ^{183}Re and the M3 isomer in ^{189}Os "*
J.O. Newton, Phys. Rev. **117** (1960) 1529-1532.
- *22. *"Resonances in the reactions $^{28}\text{Si} + p$ "*
J.O. Newton, Nucl. Phys. **21** (1960) 529-541.
- 23. *"Lifetime measurements on the first excited states of ^{25}Mg and ^{25}Al "*
A.T.G. Ferguson, M.A. Grace and J.O. Newton, Nucl. Phys. **17** (1960) 1-8.
- 24. *"The decay of the 136 keV level in ^{57}Fe "*
A.T.G. Ferguson, M.A. Grace and J.O. Newton, Nucl. Phys. **17** (1960) 9-15.
- *25. *"Decay of ^{182}Os and ^{183}Os I. Gamma and beta spectroscopy"*
J.O. Newton, Phys. Rev. **117** (1960) 1510-1519.
- *26. *"Decay of ^{182}Os and ^{183}Os II. Coincidences, conversion coefficients and decay schemes"*
J.O. Newton, Phys. Rev. **117** (1960) 1520-1528.
- 27. *"The $^{13}\text{C}(d,p)^{14}\text{C}$ reaction"*
J.C. Lisle, J.O. Newton, W.R. Phillips and F.H. Read, Nucl. Phys. **47** (1963) 56-64.
- 28. *"Etude de ^{15}O entre 14, 17 MeV et 16, 87 MeV d'Excitation"*
R. Blake, S. Cirilov, D. Jacobs, J.O. Newton and J.P. Schapira, Congress International De Physique Nucleaire, Paris (1964) Vol. II, 799-801.

- *29. *"Lectures on Coulomb excitation"*
J.O. Newton, Nuclear Structure and Electromagnetic Interactions Published by Oliver and Boyd, Edinburgh, (1964) 287-315.
- *30. *"Angular correlations in the reactions $^{12}\text{C}(\beta\text{He}, \alpha\gamma)^{11}\text{C}$ and $^{12}\text{C}(\beta\text{He}, \pi\gamma)^{14}\text{N}$ "*
J.O. Newton, R.S. Blake, D.J. Jacobs and J.P. Schapira, Nucl. Phys. **71** (1965) 113-128.
- 31. *"A mixed E1, M2, E3 transition in the decay of the 5.10 MeV level of ^{14}N "*
R.S. Blake, D.J. Jacobs, J.O. Newton and J.P. Schapira, Phys. Lett. **14** (1965) 219-220.
- 32. *"A note on resonant backward peaks in nuclear reactions"*
J.O. Newton, Phys. Lett. **17** (1965) 132-134.
- 33. *"The reactions $^{12}\text{C}(\beta\text{He}, \alpha)^{11}\text{C}$ and $^{12}\text{C}(\beta\text{He}, p)^{14}\text{N}$ "*
R.S. Blake, D.J. Jacobs, J.O. Newton and J.P. Schapira, Nucl. Phys. **77** (1965) 254-266.
- 34. *"Total cross sections for the reaction $^{12}\text{C}(\beta\text{He}, \alpha)^{11}\text{C}$ and $^{12}\text{C}(\beta\text{He}, n)^{14}\text{O}$ "*
S.D. Cirilov, J.O. Newton and J.P. Schapira, Nucl. Phys. **77** (1966) 472-476.
- *35. *"An isomer of spin $\frac{25}{2}^+$ in ^{183}Re "*
M.J. Emmott, J.R. Leigh, D. Ward and J.O. Newton, Phys. Lett. **20** (1966) 56-58.
- 36. *"The elastic scattering of ^3He by ^{12}C "*
J.P. Schapira, J.O. Newton, R.S. Blake and D.J. Jacobs, Nucl. Phys. **80** (1966) 565-567.
- 37. *"Nuclear alignment in heavy-ion reactions"*
R.M. Diamond, E. Matthias, J.O. Newton and F.S. Stephens, Phys. Rev. Lett. **16** (1966) 1205-1207.
- 38. *"The rotational states of ^{184}Os , ^{186}Os and ^{188}Os "*
J.O. Newton, F.S. Stephens and R.M. Diamond, Nucl. Phys. **A 95** (1967) 377-384.
- *39. *"Angular distributions of gamma rays produced in reactions with heavy ions"*
J.O. Newton, F.S. Stephens, R.M. Diamond, K. Kotajima and E. Matthias, Nucl. Phys. **A 95** (1967) 357-376.
- 40. *"Nuclear spectroscopy following ^{40}Ar , xn reactions"*
F.S. Stephens, D. Ward and J.O. Newton, J. Phys. Soc. Japan Suppl. **24** (1968) 160-164.
- 41. *"Gamma rays following ^{40}Ar -induced reactions"*
D. Ward, F.S. Stephens and J.O. Newton, Phys. Rev. Lett. **19** (1967) 1247-1250.

42. *"Coulomb excitation of ^{235}U "*
F.S. Stephens, M.D. Holtz, R.M. Diamond and J.O. Newton, Nucl. Phys. **A 115** (1968) 129-156.
43. *"Studies of (d,d) and (d,p) reactions with carbon isotopes at low bombarding energies"*
R.L.A. Cottrell, J.C. Lisle and J.O. Newton, Nucl. Phys. **A 109** (1968) 288-304.
- *44. *"Energy levels in ^{183}Re from the $^{181}\text{Ta}(^4\text{He}, 2n\gamma)^{183}\text{Re}$ reaction"*
J.O. Newton, Nucl. Phys. **A 108** (1968) 353-381.
45. *"Structure in the excitation functions of ($^3\text{He}, \alpha$) reactions on a number of alpha-type nuclei"*
C.M. da Silva, J.O. Newton, J.C. Lisle and M.F. da Silva, Nucl. Phys. **A 132** (1969) 9-27.
- *46. *"Nuclear spectroscopy with heavy ions" Review Paper*
J.O. Newton, Progress in Nuclear Physics, **11** (1969) 53-144, published by Pergamon Press.
- *47. *"Gamma-ray de-excitation of compound-nucleus-reactions products"*
J.O. Newton, F.S. Stephens, R.M. Diamond, W.H. Kelly and D. Ward, Nucl. Phys. **A 141** (1970) 631-640.
- *48. *"Possible oblate shape of $9/2^-$ isomer in ^{199}Tl "*
J.O. Newton, S.D. Cirilov, F.S. Stephens and R.M. Diamond, Nucl. Phys. **A 148** (1970) 593-614.
49. *"The $9/2^- [514]$ state in ^{185}Re "*
M. Evans, J.O. Newton, A.E. Ellis and J.R. Leigh, Phys. Lett. **34B** (1971) 609-611.
50. *"A study of the odd-A rhenium isotopes ^{177}Re and ^{179}Re "*
J.R. Leigh, J.O. Newton, L.A. Ellis, M.C. Evans and M.J. Emmott, Nucl. Phys. **A 183** (1972) 177-196.
51. *" $^{16}\text{O} + ^{12}\text{C}$ quasimolecular states"*
B.M. Nagorcka and J.O. Newton, Phys. Lett. **41B** (1972) 34-38.
52. *"Feeding times in (HI, xn γ) reactions"*
J.O. Newton, F.S. Stephens and R.M. Diamond, Nucl. Phys. **A 210** (1973) 19-28.
- *53. *"Coulomb excitation"*
J.O. Newton, Chapter in the book "The Electromagnetic Interaction in Nuclear Physics" (ed. W.D. Hamilton, North-Holland Pub. Co.) Chap. 7 (1974) 234-279.

- *54. *"Gamma rays from heavy-ion reactions"*
J.O. Newton, Chapter VIIIE in Part C of "Nuclear Spectroscopy and Reactions" (1974)
pp 185-225, (ed. J. Cerny, Academic Press).
- 55. *"Probability distributions for the heights of maxima and minima in fluctuating cross sections"*
D. Branford and J.O. Newton, Aust. J. Phys. **27** (1974) 293-299.
- 56. *"Possible resonance anomalies in the $^{16}\text{O} + ^{12}\text{C}$ reaction"*
D. Branford, J.O. Newton, J.M. Robinson and B.N. Nagorcka, J. Phys. **A7** (1974)
1193-1198.
- *57. *"Rotational bands in the light odd-mass thallium nuclei"*
J.O. Newton, R.M. Diamond and F.S. Stephens, Nucl. Phys. **A 236** (1974) 225-251.
- 58. *"The 14UD Pelletron Accelerator at the Australian National University"*
T.R. Ophel, J.S. Harrison, J.O. Newton, R.H. Spear, E.W. Titterton and D.C. Weisser,
Nucl. Instr. & Meth. **122** (1974) 227-234.
- *59. *"Observation of the yrast and statistical cascades in (Heavy-Ion, $xn\gamma$) reactions"*
J.O. Newton, J.C. Lisle, G.D. Dracoulis, J.R. Leigh and D.C. Weisser, Phys. Rev.
Lett. **34** (1975) 99-103.
- 60. *"Rotational bands in ^{153}Eu ",*
G.D. Dracoulis, J.R. Leigh, M.G. Slocombe and J.O. Newton, J. Phys. G. **1** (1975)
853-864.
- 61. *"Further evidence for resonance anomalies in the $^{12}\text{C} + ^{16}\text{O}$ system"*
D. Branford, B.N. Nagorcka and J.O. Newton, J. Phys. G: Nucl. Phys. **3** (1977) 1565-
1575.
- *62. *"A study of states in $^{201,203}\text{Tl}$ using the $(d,3n\gamma)$ reactions: A new $9/2^-$ band"*
M.G. Slocombe, J.O. Newton and G.D. Dracoulis, Nucl. Phys. **A 275** (1977) 166-188.
- 63. *"Angular momentum distributions and delayed feeding in $(d,3n)$ reactions to deformed nuclei"*
G.D. Dracoulis, S.M. Ferguson, J.O. Newton and M.G. Slocombe, Nucl. Phys. **A 279**
(1977) 251-268.
- 64. *"Band structure in the $N = 88$ nucleus ^{151}Eu "*
J.R. Leigh, G.D. Dracoulis, M.G. Slocombe and J.O. Newton, J. Phys. G: Nucl. Phys.
3 (1977) 519-532.

- *65. *Energy-dependent multiplicities of continuum γ rays*
J.O. Newton, I.Y. Lee, R.S. Simon, M.M. Aleonard, Y. El Masri, F.S. Stephens and R.M. Diamond, Phys. Rev. Lett. **38** (1977) 810-813.
- 66. *"Fission of ^{232}Th , ^{238}U , ^{244}Pu , ^{248}Cm induced by Xe and Kr ions at Coulomb barrier energies"*
P.B. Butler, I.Y. Lee, J.O. Newton, Y. El Masri, M.M. Aleonard, P. Colombani, R.M. Diamond and F.S. Stephens, Phys. Lett. **68 B** (1977) 122-124.
- 67. *"Second discontinuity in the yrast levels of ^{158}Er "*
I.Y. Lee, M.M. Aleonard, M.A. Deleplanque, Y. El Masri, J.O. Newton, R.S. Simon, R.M. Diamond and F.S. Stephens, Phys. Rev. Lett. **38** (1977) 1454-1457.
- 68. *"The average moment of inertia of collective bands in the yrast region at very high spin"*
J.O. Newton, Invited paper presented at the "Symposium on the Macroscopic Features of Heavy Ion Collisions and Pre-Equilibrium Processes", Hakone, Japan, September 1977, IPCR Progress Report, Suppl. No. **6**, 333-351.
- 69. *"Yrast cascades in $^{174,175}\text{W}$ and ^{161}Yb and a possible dipole component"*
J.O. Newton, S.H. Sie, G.D. Dracoulis and J.R. Leigh, Paper selected for oral presentation at "The International Conference on Nuclear Structure", Tokyo, September 1977, J. Phys. Soc. Japan, Suppl., (1978) 620-624.
- 70. *"Angular-momentum transfer in deep-inelastic processes"*
P. Glassel, R.S. Simon, R.M. Diamond, R.C. Jared, I.Y. Lee, L.G. Moretto, J.O. Newton, R.C. Schmitt and F.S. Stephens, Phys. Rev. Lett. **38** (1977) 331-334.
- 71. *"Determination of γ -softness in $^{192,194,196}\text{Pt}$ from Coulomb excitation with ^{136}Xe projectiles"*
I.Y. Lee, D. Cline, P.A. Butler, R.M. Diamond, J.O. Newton, R.S. Simon and F.S. Stephens, Phys. Rev. Lett. **39** (1977) 684-687.
- 72. *"Experimental study of Yb nuclei at high angular momentum"*
R.S. Simon, M.V. Banaschik, R.M. Diamond, J.O. Newton and F.S. Stephens, Nucl. Phys. A **290** (1977) 253-271.
- *73. *"Evidence for a dipole component in the yrast cascade"*
J.O. Newton, S.H. Sie and G.D. Dracoulis, Phys. Rev. Lett. **40** (1977) 625-628.
- 74. *"Shell effects at high spin in the γ -continuum from Te evaporation residues"*
R.S. Simon, R.M. Diamond, Y. El Masri, J.O. Newton, P. Sawa and F.S. Stephens, Nucl. Phys. A **313** (1979) 209-220.
- 75. *"Fission following transfer to ^{232}Th at energies below the Coulomb barrier"*
J.R. Leigh, R.M. Diamond, A. Johnston, J.O. Newton and S.H. Sie, Phys. Rev. Lett. **42** (1979) 153-156.

- *76. *"A dipole component in the yrast cascade and its possible interpretation"*
J.O. Newton and S.H. Sie, Nucl. Phys. A **334** (1980) 499-518.
- *77. *"Multiplicity of the statistical γ rays following ($^{16}\text{O}, xn$) reactions"*
S.H. Sie, J.O. Newton, J.R. Leigh and R.M. Diamond, Phys. Rev. Lett. **46** (1981) 405-408.
- 78. *"The dipole component in the yrast cascade and the multiplicity of statistical γ -rays"*
S.H. Sie, R.M. Diamond, J.O. Newton and J.R. Leigh, Nucl. Phys. A **352** (1981) 279-300.
- 79. *"Limits to evaporation residue cross sections from fission and particle decay at high angular momentum"*
J.O. Newton, Physica Scripta **24** (1981) 83-92.
- *80. *"Observation of giant dipole resonances built on states of high energy and spin"*
J.O. Newton, B. Herskind, R.M. Diamond, E.L. Dines, J.E. Draper, K.H. Lindenberg, C. Schück, S. Shih and F.S. Stephens, Phys. Rev. Lett. **46** (1981) 1383-1386.
- 81. *"Study of continuum gamma-rays following low angular momentum reactions"*
S.H. Sie, J.O. Newton and R.M. Diamond, Nucl. Phys. A **367** (1981) 176-188.
- 82. *"Fission-imposed limits to the angular momentum carried by evaporation residues from the compound nucleus ^{200}Pb "*
J.R. Leigh, D.J. Hinde, J.O. Newton, W. Galster and S.H. Sie, Phys. Rev. Lett. **48** (1982) 527-530.
- 83. *"Fission and evaporation competition in ^{200}Pb "*
D.J. Hinde, J.R. Leigh, J.O. Newton, W. Galster and S.H. Sie, Nucl. Phys. A **385** (1982) 109.
- *84. *"Dependence of the giant dipole strength function on excitation energy"*
J.E. Draper, J.O. Newton, L.G. Sobotka, H. Lindenberg, F.J. Wozniak, L.G. Moretto, F.S. Stephens, R.M. Diamond and R.J. McDonald, Phys. Rev. Lett. **49** (1982) 434-437.
- 85. *"Fissions barriers of Pb nuclei at high angular momentum"*
D.J. Hinde, J.O. Newton, J.R. Leigh and R.J. Charity, Nucl. Phys. A **389** (1983) 308-324.
- *86. *"Measurement of pre-fission neutrons from ^{200}Pb ; further limits to the statistical fission parameters"*
D. Ward, R.J. Charity, D.J. Hinde, J.R. Leigh and J.O. Newton, Nucl. Phys. A **403** (1983) 189-204.

87. *"High spin states in ^{222}Th "*
D. Ward, G.D. Dracoulis, J.R. Leigh, R.J. Charity, D.J. Hinde and J.O. Newton, Nucl. Phys. A **406** (1983) 591.
88. *"Evidence for reduced neutron pairing correlations in ^{165}Yb "*
C. Schuck, N. Bendjaballah, R.M. Diamond, Y. Ellis-Akovali, K.H. Lindenberg, J.O. Newton, F.S. Stephens, J.D. Garrett and B. Herskind, Phys. Lett. **142 B** (1984) 253-257.
89. *"Neutron Emission from Fission Fragments during Acceleration"*
D.J. Hinde, R.J. Charity, G.S. Foote, J.R. Leigh, J.O. Newton, S. Ogaza and A. Chatterjee, Phys. Rev. Lett. **52** (1984) 986-989.
90. *"Fusion-fission at high angular momentum"*
J.O. Newton, Nuclear Spectroscopy and Nuclear Interactions, Proc. of the Internat. Symposium on Nuclear Spectroscopy & Nuclear Interactions, Osaka, Japan March 1984, Ed. H. Ejiri and T. Fukuda (pub. World Scientific Co. Pty. Ltd. Singapore) p. 58-71.
91. *"Angular momentum partition in heavy ion induced fission and the effects of shells on gamma-ray multiplicities"*
J.R. Leigh, W.R Phillips, J.O. Newton, G.S. Foote, D.J. Hinde and G.D. Dracoulis, Phys. Lett. **159 B** (1985) 9-14.
- *92. *"Neutron multiplicities in heavy-ion induced fission: timescale of fusion-fission"*
D.J. Hinde, R. Charity, G.S. Foote, J.R. Leigh, J.O. Newton, S. Ogaza and A. Chatterjee, Nucl. Phys. A **452** (1986) 550-572.
93. *"Heavy-ion induced fusion-fission systematics and the effect of the compound nucleus spin distribution of fission-barrier determination"*
R.J. Charity, J.R. Leigh, J.J.M. Bokhorst, A. Chatterjee, G.S. Foote, D.J. Hinde, J.O. Newton, S. Ogaza and D. Ward, Nucl. Phys. A **457** (1986) 441-460.
94. *"Mass-Split Dependence of the pre- and post-scission neutron multiplicities for fission of ^{251}Es "*
D.J. Hinde, J.R. Leigh, J.J.M. Bokhorst, J.O. Newton, R.L. Walsh and J.W. Boldeman, Nucl. Phys. A **472** (1987) 318-332.
95. *"Recent developments in Heavy-Ion Induced fission"*
J.O. Newton, Proceedings of XXII Zakopane School of Physics (R. Broda, Z. Stachura ed.) May 1987, p203-230.
- *96. *"Measurement and statistical model analysis of pre-fission neutron multiplicities"*
J.O. Newton, D.J. Hinde, R.J. Charity, J.R. Leigh, J.J.M. Bokhorst, A. Chatterjee, G.S. Foote and S. Ogaza, Nucl. Phys. A **483** (1988) 126-152.

97. *"Observation of sub-barrier fusion enhancement due to negative hexadecapole deformation"*
J.R. Leigh, J.J.M. Bokhorst, D.J. Hinde and J.O. Newton, J. Phys. G. **14** (1988) L55-L60.
- *98. *"Nuclear fission induced by heavy ions"* (a review)
J.O. Newton, Fiz. Elem. Chastits At. Yadra **21** (1990) 821-913, Sov. J. Part. Nuc. **21** (1990) 349-383.
- *99. *"Pre-Scission Particle and Gamma-Ray Emission in Heavy-Ion Induced Fission"*
J.O. Newton, (An invited review paper for a special issue of Pramana to commemorate the 50th anniversary of the discovery of nuclear fission.)
Pramana - J. Phys. **33** (1989) 175-208.
100. *"Spinning Nuclei"*
J.O. Newton, Contemporary Physics, **30** (1989) 277-299.
101. *"Fission Fragment Angular Distributions Following Transfer Reactions for $^{232}\text{Th} + ^{16}\text{O}$ "*
J.P. Lestone, J.R. Leigh, J.O. Newton and J.X. Wei, Nucl. Phys. A **509** (1990) 178-194.
102. *"Inclusion of Temperature Dependence of Fission Barriers in Statistical Model Calculations"*
J.O. Newton, D.G. Popescu and J.R. Leigh, Phys. Rev. C **42** (1990) 1772-1774
103. *"The Effect of the Angular Momentum Dependence of the Fission Probability on the Determination of Fission Time Scales from Fission Excitation Functions"*
D.J. Hinde, J.R. Leigh, J.P. Lestone, J.O. Newton, S. Elfström, J.X. Wei and M. Zielinska-Pfabé, Phys. Lett. **258** (1991) 35-38
104. *"A Compact Velocity Filter for Evaporation Residue Measurements"*
J.X. Wei, J.R. Leigh, D.C. Weissner, J.O. Newton, S. Elfstrom, J.P. Lestone, J.X. Chen, D.G. Popescu and D.J. Hinde, Nucl. Instr. and Meths. A **306** (1991) 557-562.
105. *"Experimental Determination of the Fusion Barrier Distribution for the $^{154}\text{Sm} + ^{16}\text{O}$ Reaction"*
J.X. Wei, J.R. Leigh, D.J. Hinde, J.O. Newton, R.C. Lemmon, S. Elfstrom, J.X. Chen and N. Rowley, Phys. Rev. Lett. **67** (1991) 3368-3371.
- *106. *"Fission Time Scales from Precision Charged Particle Multiplicities"*
J.P. Lestone, J.R. Leigh, J.O. Newton, D.J. Hinde, J.X. Wei, J.X. Chen, S. Elfstrom and D.G. Popescu, Phys. Rev. Lett. **67** (1991) 1078-1081.

107. *“Reconciling Deformation Parameters from Fusion with Those from Coulomb Excitation”*
J.R. Leigh, N. Rowley, R.C. Lemmon, D.J. Hinde, J.O. Newton, J.X. Wei, J.C. Mein, C.R. Morton, S. Kuyucak and A.T. Kruppa, Phys. Rev. **C47** (1993) R437-R440.
108. *“Influence of Pre-Fission Particle Emission on Fragment Angular Distributions Studied for ^{208}Pb ($^{16}\text{O},f$)”*
H. Rossner, D.J. Hinde, J.R. Leigh, J.P. Lestone, J.O. Newton, J.X. Wei and S. Elfstrom
Phys. Rev. **C 45** (1992) 719-725.
109. *“Pre-Scission Charged Particle Multiplicities Following the Reactions $^{164,167,170}\text{Er} + ^{28}\text{Si}$ ”*
J.P. Lestone, J.R. Leigh, J.O. Newton, D.J. Hinde, J.X. Wei, J.X. Chen, S. Elfstrom and M. Zielinska-Pfabe, Nucl. Phys. **A 559** (1993) 277-316.
110. *“Strong Dependence of Sub-Barrier Fusion on the Nuclear Hexadecapole Deformation”*
R.C. Lemmon, J.R. Leigh, J.X. Wei, C.R. Morton, D.J. Hinde, J.O. Newton, J.C. Mein, M. Dasgupta and N. Rowley, Phys. Lett. **B 316** (1993) 32-37.
111. *“Clear Signatures of Specific Inelastic and Transfer Channels in the Distribution of Fusion Barriers”*
C.R. Morton, M. Dasgupta, D.J. Hinde, J.R. Leigh, R.C. Lemmon, J.P. Lestone, J.C. Mein, J.O. Newton, H. Timmers, N. Rowley and A.T. Kruppa, Phys. Rev. Lett. **72** (1994) 4074-4077.
112. *“Probing Fission Barrier Distributions with Quasi-elastic Scattering”.*
H. Timmers, J.R. Leigh, M. Dasgupta, D.J. Hinde, R.C. Lemmon, J.C. Mein, C.R. Morton, J.O. Newton and N. Rowley, Nucl. Phys. **A 584** (1995) 190-204.
113. *“Fusion Barrier Distributions and Fission Anisotropies”.*
D.J. Hinde, C.R. Morton, M. Dasgupta, J.R. Leigh, J.P. Lestone, R.C. Lemmon, J.C. Mein, J.O. Newton, H. Timmers, N. Rowley and A.T. Kruppa, Nucl. Phys. **A 583** (1995) 135-140
114. *“Fusion Fission versus Quasifission; Effect of Nuclear Orientation”.*
D.J. Hinde, M. Dasgupta, J.R. Leigh, J.P. Lestone, J.C. Mein, C.R. Morton, J.O. Newton and H. Timmers, Phys.Rev. Lett.. **74** (1995) 1295-1298.
115. *“Resolution of the Anomalous Fission Fragment Anisotropies for the $^{16}\text{O} + ^{208}\text{Pb}$ Reaction”.*
C.R. Morton, D.J. Hinde, J.R. Leigh, J.P. Lestone, M. Dasgupta, J.C. Mein, J.O. Newton and H. Timmers, Phys. Rev. **C 52** (1995) 243-252

116. “*Barrier Distributions from the Fusion of Oxygen Ions with $^{144,148,154}\text{Sm}$ and ^{186}W .*”
J.R. Leigh, M. Dasgupta, D.J. Hinde, J.C. Mein, C.R. Morton, R.C. Lemmon, J.P. Lestone, J.O. Newton, H. Timmers, J.X. Wei and N. Rowley, Phys.Rev. **C 52** (1995) 3151-3166
117. “*Conclusive Evidence for the Influence of Nuclear Orientation on Quasi-Fission.*”
D.J. Hinde, M. Dasgupta, J.R. Leigh, J.C. Mein, C.R. Morton, J.O. Newton and H. Timmers, Phys.Rev. **C 53** (1996)1290-1300.
118. “*Barrier Distributions from Elastic Scattering.*”
N. Rowley, H. Timmers, J.R. Leigh, M. Dasgupta, D.J. Hinde, J.C. Mein, C.R. Morton and J.O. Newton, Phys.Lett. **B 373** (1996)23-29.
119. “*Quadrupole Collectivity and Shapes of Os-Pt Nuclei.*”
C.Y. Wu, D. Cline, T. Czosnyka, A. Backlin, C. Baktash, R.M. Diamond, G.D. Dracoulis, L. Hasselgren, H. Kluge, B. Kotlinski, J.R. Leigh, J.O. Newton, W.R. Phillips, S.H. Sie, J. Srebrny and F.S. Stephens, Nucl.Phys. **A 607** (1996) 178-234.
120. “*Precise Fission Fragment Anisotropies for the $^{12}\text{C} + ^{232}\text{Th}$ Reaction: Supporting the Nuclear Orientation Dependence of Quasifission*”.
J.C. Mein, D.J. Hinde, M. Dasgupta, J.R. Leigh, J.O. Newton and H. Timmers, Phys. Rev. **C 55** (1997) R995-R998.
121. “*Correlated Oscillations in the Excitation Functions of Deep-Inelastic Collisions: Evidence for Nuclear Pulsars*”
S. Yu. Kun, D.J. Hinde, M. Dasgupta, J.R. Leigh, J.C. Mein, C.R. Morton, J.O. Newton, H. Timmers and A.V. Vagov, Z. Phys. **A 359** (1997) 263-270.
122. “*Barrier Distributions and Scattering*”
H. Timmers, J.R. Leigh, N. Rowley, A.M. Stefanini, D. Ackerman, S. Beghini, L. Corradi, M. Dasgupta, J.H. He, D.J. Hinde, J.C. Mein, G. Montagnoli, C.R. Morton, J.O. Newton, F. Scarlassara, and G.F. Segato, J. Phys. **G 23** (1997) 1175-1181.
123. “*Evidence of Double Phonon Excitations in the Fusion of $^{16}\text{O} + ^{208}\text{Pb}$* ”
M. Dasgupta, K. Hagino, C.R. Morton, D.J. Hinde, J.R. Leigh, N. Takigawa, H. Timmers and J.O. Newton, J. Phys. **G 23** (1997) 1491-1496.
124. *Comment on “Anomalous peaklike structure in the fission fragment anisotropies at sub-barrier energies in ^{11}B , ^{12}C , ^{16}O , $^{19}\text{F} + ^{232}\text{Th}$ reactions”*
D.J. Hinde, M. Dasgupta, J.R. Leigh, D.G. Marinaro and J.O. Newton, Phys. Rev. Lett. **81** (1998) 4777.
125. “*Fusion versus Breakup: Observation of Large Fusion Suppression for $^9\text{Be} + ^{208}\text{Pb}$* ”
M. Dasgupta, D.J. Hinde, R.D. Butt, R.M. Anjos, A.C. Berriman, N. Carlin, P.R.S. Gomes, C.R. Morton, J.O. Newton, A. Szanto de Toledo and K. Hagino, Phys. Rev. Lett. **82** (1999) 1395.

126. *“Coupled-channels analysis of the $^{16}\text{O} + ^{208}\text{Pb}$ fusion barrier distribution”*
C.R. Morton, A.C. Berriman, M. Dasgupta, D.J. Hinde, J.O. Newton, K. Hagino, and I.J. Thompson, *Phys. Rev C* **60** (1999) 044608.
127. *“Exploiting Barrier Distributions to Investigate Breakup Effects in the Fusion of $^9\text{Be} + ^{208}\text{Be}$ ”*
M. Dasgupta, D.J. Hinde, R.D. Butt, A.C. Berriman, C.R. Morton, J.O. Newton and K. Hagino, *Pramana* **53** (1999) 513-520.
128. *“Insights into Nuclear Reactions through Fusion Barrier Distribution Measurements”*
D.J. Hinde, M. Dasgupta, C.R. Morton, A.C. Berriman, R. Butt and Newton, J.O.
Proceedings, International Nuclear Physics Conference 1998, Paris, France, 24-28 August, *Nucl. Phys. A* **654** (1999) 864c - 869c.
129. *“Limiting Angular Momentum for Statistical Model Description of Fission”*
D J Hinde, A C Berriman, M Dasgupta, J R Leigh, J C Mein, C R Morton and J O Newton, *Phys. Rev. C* **60** (1999) 054602.
130. *“Memory of entrance-channel deformation for fast-fission”*
C.R. Morton, D.J. Hinde, A.C. Berriman, R.D. Butt, M. Dasgupta, A. Godley, and J.O. Newton, *Phys. Lett. B* **481** (2000) 160-164.
131. *“Memory of the entrance-channel K-distribution observed in fission at high angular momentum”*
C.R. Morton, A.C. Berriman and R.D. Butt, M. Dasgupta, A. Godley, D.J. Hinde and J.O. Newton, *Phys. Rev. C* **62** (2000) 024607-1-11.
132. *“Loss of Memory of Target Nucleus Deformation Axis in Heavy-ion Fusion-Fission”*
D.J. Hinde, W. Pan, A.C. Berriman, R.D. Butt, M. Dasgupta, C.R. Morton and J.O. Newton, *Phys. Rev. C* **62** (2000) 024615-1-8.
133. *“Influence of higher-order deformations in the $^{34}\text{S} + ^{168}\text{Er}$ fusion reaction”*
C.R. Morton, A.C. Berriman, R.D. Butt, M. Dasgupta, D.J. Hinde, A. Godley, J.O. Newton and K. Hagino, *Phys. Rev. C* **64** (2001) 034604.
134. *“Fusion around the barrier for $^7\text{Li} + ^{12}\text{C}$ ”*
A. Mukherjee, M. Dasgupta, D.J. Hinde, C.R. Morton, A.C. Berriman, R.D. Butt, J.O. Newton and H. Timmers, *Pramana - Journal of Physics* **57** (2001) 195 - 198.
135. *“Dynamical Interplay of Fusion and Fission in Low Energy Nucleus-Nucleus Collisions”*
D.J. Hinde, A.C. Berriman, R.D. Butt, M. Dasgupta, C.R. Morton, and J.O. Newton, *Nucl. Phys. A* **685** (2001) 72c - 79c.
- *136. *“Experimental barrier distributions for the fusion of ^{12}C , ^{16}O , ^{28}Si and ^{35}Cl with ^{92}Zr and coupled-channels analyses”*
J.O. Newton, C.R. Morton, M. Dasgupta, J.R. Leigh, J.C. Mein, D.J. Hinde, H. Timmers and K. Hagino, *Phys. Rev. C* **64** (2001) 064608-1-12.

137. *“Unexpected inhibition of fusion in nucleus-nucleus collisions”*
A.C. Berriman, D.J. Hinde, M. Dasgupta, C.R. Morton, R.D. Butt and J.O. Newton,
Nature **413** (2001) 144-147.
138. *“Influence of entrance-channel properties on heavy-ion reaction dynamics”*
D.J. Hinde, A.C. Berriman, R.D. Butt, M. Dasgupta, C.R. Morton, A. Mukherjee and
J.O. Newton, Eur. Phys. J.A **13** (2002) 149-154.
139. *“Role of Entrance-channel Dynamics in Heavy Element Synthesis”*
D.J. Hinde, A.C. Berriman, R.D. Butt, M. Dasgupta, I.I. Gontchar, C.R. Morton,
A. Mukherjee and J.O. Newton, J. Nucl. Rad. Sci. **3** (2002) 31-38.
140. *“Effects of Finite Ground-State Spin on Fission Fragment Angular Distributions
Following Collisions with Spherical or Deformed Nuclei”*
R.D. Butt, M. Dasgupta, I.I. Gontchar, D.J. Hinde, A. Mukherjee, A.C. Berriman,
C.R. Morton, J.O. Newton and A.E. Stuchbery, Phys. Rev. C **65** (2002) 044606 1-8.
141. *“Dominance of collective over proton transfer couplings in the fusion of ^{32}S and ^{34}S
with ^{89}Y ”.*
A. Mukherjee, M. Dasgupta, D.J. Hinde, K. Hagino, J.R. Leigh, J.C. Mein, C.R.
Morton, J.O. Newton and H. Timmers, Phys. Rev. C **66** (2002) 034607 1-8.
142. *“Measurement of the effect of large deformation-aligned ground-state spin on fission
fragment anisotropies”.*
R.D. Butt, D.J. Hinde, M. Dasgupta, A.C. Berriman, A. Mukherjee, C.R. Morton and
J.O. Newton, Phys. Rev. C **66** (2002) 044601 1-11.
143. *“Surface Diffuseness Anomaly In Heavy-Ion Fusion Potentials”*
K. Hagino, M. Dasgupta, I.I. Gontchar, D.J. Hinde, C.R. Morton and J.O. Newton,
*Proceedings of the Fourth Italy-Japan Symposium on Heavy-Ion Physics, Tokyo,
Japan* (World Scientific, Singapore, 2002), p 87-93.
144. *“Fusion and breakup in the reactions of ^6Li and ^7Li nuclei with ^{209}Bi ”.*
M. Dasgupta, D.J. Hinde, K. Hagino, S.B. Moraes, R.M. Anjos, R.D. Butt, A.C.
Berriman, N. Carlin, C.R. Morton, J.O. Newton and A. Szanto de Toledo, Phys. Rev.
C **66** (2002) 041602 1-4 (R).
145. *“Surface diffuseness of nuclear potential from heavy-ion fusion reactions”.*
I.I. Gontchar, D.J. Hinde, M. Dasgupta and J.O. Newton, Nucl. Phys. A **722** (2002)
479c-483c.
146. *“Double folding nucleus-nucleus potential applied to heavy-ion fusion reactions”.*
I.I. Gontchar, M. Dasgupta, D.J. Hinde and J.O. Newton, Phys. Rev. C **69** (2004)
024610 1-14.

147. *"Systematics of precise nuclear fusion cross sections: the need for a new dynamical treatment of fusion"*.
J.O. Newton, R.D. Butt, M. Dasgupta, D.J. Hinde, I.I. Gontchar, C.R. Morton and K. Hagino, Phys. Lett. **B 586** (2004) 219-224.
- *148. *"Systematic failure of the Woods-Saxon nuclear potential to describe both fusion and elastic scattering, suggesting the need for a new dynamical approach to fusion"*.
J.O. Newton, R.D. Butt, M. Dasgupta, D.J. Hinde, I.I. Gontchar, C.R. Morton and K. Hagino, Phys. Rev. **C 70** (2004) 024605 1-15.
149. *"Effect of breakup on the fusion of ^6Li , ^7Li and ^9Be with heavy nuclei"*.
M. Dasgupta, P.R.S. Gomes, D.J.Hinde, S.B. Moraes, R.M. Anjos, A.C. Berriman, R.D. Butt, N. Carlin, J. Lubian, C.R. Morton, J.O. Newton and A. Szanto de Toledo, Phys. Rev. **C 70** (2004) 024606 1-20.
150. *"The nuclear potential in heavy-ion fusion"*.
M. Dasgupta, D.J. Hinde, J.O. Newton and K. Hagino, Prog.Theor.Phys.Supp. **154** (2004) 209-216.
151. *"Fusion dynamics around the Coulomb barrier"*.
K. Hagino, N. Rowley, T. Ohtsuki, M. Dasgupta, J.O. Newton and D.J. Hinde, AIP Conf.Proc.Tours Symp. on Nuc. Phys. **704** (2004) 82-91.
152. *"Semi-microscopic calculations of the fusion barrier distributions for reactions involving deformed nuclei"*.
I.I. Gonchar, D.J. Hinde, M. Dasgupta, C.R. Morton and J.O. Newton, Phys. Rev. **C 73** (2006) 034610 1-14.
153. *"Isomer ratio measurements as a probe of the dynamics of breakup and incomplete fusion"*.
L.R. Gasques, M. Dasgupta, D.J. Hinde, T. Peatey, A. Diaz-Torres and J.O. Newton, Phys. Rev. **C 74** (2006) 064615 1-10
154. *"New challenges in understanding heavy ion fusion"*.
M. Dasgupta, D.J. Hinde, A. Mukherjee and J.O. Newton, Nucl. Phys. **A 787** (2007) 144c-149c
155. *"Failure of the Woods-Saxon potential to simultaneously reproduce precise fusion and elastic scattering measurements"*.
A. Mukherjee, D.J. Hinde, M. Dasgupta, K.Hagino, J.O. Newton and R.D. Butt, Phys. Rev. **C 75** (2007) 044608 1-7
156. *"Isotope dependence of fusion barrier energies in reactions forming heavy elements"*.
D.J. Hinde, M. Dasgupta, N. Herrald, R.G. Neilson, J.O. Newton and M.A. Lane, Phys. Rev. **C 75** (2007) 054603
157. *"Beyond the Coherent Coupled Channels Description of Nuclear Fusion"*.
M. Dasgupta, D.J. Hinde, A. Diaz-Torres, B. Bouriquet, Catherine I. Lowe, C.J. Milbure and J.O. Newton, Phys. Rev. Lett. **99** (2007) 192701 1-4

Biographical Memoir

Ernest William Titterton (1916-1990)

J.O. Newton, *Historical Records of Australian Science* 9(2) (1992) 167-187.