

Neutron Metrology Group, NPL

Recent publications

1. David J. Thomas and Peter Kolkowski, *Thermal fluence and dose equivalent standards at NPL*, NPL Report DQL-RN 008, March 2005.
2. N. P. Hawkes, *Pulse Shape Discrimination in Hydrogen Proportional Counters by Digital Methods*, DQL-RN 007, 2005.
3. Neil J Roberts and Lawrence N Jones, *Investigation of the implications of ^{250}Cf and ^{248}Cm in ^{252}Cf neutron sources*, NPL Report DQL-RN 005, November 2004.
4. Neil J Roberts, Hamid Tagziria, David J Thomas, *Determination of the effective centres of the NPL long counters*, NPL Report DQL-RN 004, November 2004.
5. R.J. Tanner, D.T. Bartlett, L.G. Hager, L.N. Jones, C. Molinos, N.J. Roberts, G.C. Taylor, and D.J. Thomas, *Practical implications of neutron survey instrument performance*, *Radiat. Prot. Dosim.* 110 (1-4) 763-767 2004.
6. H. Tagziria, R.J. Tanner, D.T. Bartlett, and D.J. Thomas, *Evaluation and Monte Carlo modelling of the response function of the Leake neutron area survey instrument*, *Nucl. Instrum. & Meths in Physics Research A* 531 596–606 2004.
7. G.C. Taylor, D.J. Thomas and A. Bennett, *A Realistic field facility to simulate reactor spectra*, *Radiat. Prot. Dosim.* 110(1-4) 111-115 2004.
8. D.J. Thomas, *Neutron spectrometry for radiation protection*, *Radiat. Prot. Dosim.* 110 (1-4) 141-149 2004.
9. N.J. Roberts, D.T. Bartlett, L.G. Hager, L.N. Jones, C. Molinos, R.J. Tanner, G.C. Taylor and D.J. Thomas, *Angle dependence of response characteristics of neutron survey instruments*, *Radiat. Prot. Dosim.* 110 (1-4) 187-193 2004.
10. G.C. Taylor, R.D. Bentley, N.A. Horwood, R. Hunter, R.H. Isles, J.B.L. Jones, D. Powell, and D.J. Thomas, *TEPC Measurements in Commercial Aircraft*, *Radiat. Prot. Dosim.* 110 (1-4) 381-386 2004.
11. V. Gressier, V. Lacoste, L. Lebreton, H. Muller, G. Pelcot, M. Bakali, F. Fernandez, M. Tomás, N.J. Roberts, D.J. Thomas, M. Reginato, B. Wiegel, and J. Wittstock, *Characterisation of the IRSN CANEL/T400 facility producing realistic neutron fields for calibration and test purposes*, *Radiat. Prot. Dosim.* 110 (1-4) 523-527 2004.
12. Hamid Tagziria, Neil J. Roberts, and David J. Thomas, *Measurement of the $^{241}\text{Am-Li}$ radionuclide neutron source spectrum*, *Nucl. Instrum. and Meths. in Phys. Research A* 510, 346-356, 2003.
13. V Lewis, *3rd IRMF comparison of calibrations of neutron area survey monitors, 2001-2002*, NPL report CIRM 57, July 2003.
14. P McClelland, V Lewis, *Measurement Good Practice Guide No.34*, July 2003
15. D.J. Thomas and H. Klein, *Introduction, Section 1 of Neutron and photon spectrometry techniques for radiation protection*, *Radiat. Prot. Dosim.* 107 (1-3) 13-21 2003.
16. D.T. Bartlett, J-L. Chartier, M. Matzke, A. Rimpler and D.J. Thomas, *Concepts and quantities in spectrometry and radiation protection, Section 2 of Neutron and photon spectrometry techniques for radiation protection*, *Radiat. Prot. Dosim.* 107 (1-3) 23-35 2003.
17. A.V. Alevra and D.J. Thomas, *Neutron Spectrometry in mixed fields: multisphere spectrometers, Section 3 of Neutron and photon spectrometry techniques for radiation protection*, *Radiat. Prot. Dosim.* 107 (1-3) 37-72 2003.

18. H. Klein and D.J. Thomas, Quality assurance, Section 10 of Neutron and photon spectrometry techniques for radiation protection, *Radiat. Prot. Dosim.* 107 (1-3) 37-72 2003.
19. David Thomas et al., Recent Developments in Neutron Metrology at the National Physical Laboratory, CCRI(III)/03-08.
20. V. Lewis, M.J. Woods, P. Burgess, S. Green, J. Simpson and J. Wardle, The assessment of uncertainty in radiological calibration and testing, Measurement Good Practice Guide No. 49, March 2003.
21. V Lewis and D McClure, Fourth IRMF comparison of portable gamma-ray dose-rate monitors, 2001-2002, NPL Report CIRM 55, December 2002
22. D. J. Thomas and A.V. Alevra, *Bonner Sphere Spectrometers - A Critical Review*, *Nucl. Instrum. & Meths in Physics Research A476*, Nos 1-2, 12-20, 2002 .
23. D.J. Thomas, A.G. Bardell, and E.M. Macaulay, *Characterisation of a gold foil based Bonner Sphere set and measurements of neutron spectra at a medical accelerator*, *Nucl. Instrum. & Meths in Physics research A476*, Nos. 1-2, 31-35, 2002.
24. R.J. Tanner, D.J. Thomas, D.T. Bartlett, L. Hager, and N.A. Horwood, *The influence of the energy distribution of workplace fields on neutron personal dosimeter reading*, *Nuclear Instruments and Methods in Physics Research A476*, Nos 1-2, 405-410, 2002 .
25. G.C. Taylor, R.D. Bentley, T.J. Conroy, R. Hunter, J.B.L. Jones, A. Pond and D.J. Thomas, *The Evaluation and Use of a Portable TEPC System For Measuring In-Flight Exposure to Cosmic Radiation*, *Radiat. Prot. Dosim.* 99 (1-4), 435-438, 2002.

Publications from January 1999 to April 2002

- [1] David J. Thomas, Neil J. Roberts, Andrew Bennett and Peter Kolkowski, The NPL contribution to a CCRI international comparison of fast neutron fluence measurements performed at the PTB in March 2001, NPL report CIRM 51, April 2002.
- [2] N.J. Roberts, MCNP Calculations of Correction Factors for Radionuclide Neutron Source Emission Rate Measurements using the Manganese Bath, NPL Report CIRM 45, May 2001
- [3] Thomas, D J. NPL contribution to an international comparison of 24 keV neutron fluence measurements, NPL Report CIRM 46, June 2001.
- [4] Roberts, N J. MCNP calculations of correction factors for radionuclide neutron source emission rate measurements using the manganese bath, NPL Report CIRM 45, May 2001.
- [5] Tagziria H. et al. Review of Monte Carlo and deterministic codes in radiation protection and dosimetry NPL special publication – ISBN: 0947654 322.
- [6] Lewis, V E. Second IRMF intercomparison of calibrations of neutron area survey monitors, 1998-1999. NPL Report CIRM 34, March 2000.
- [7] Tagziria, H. and Thomas, D J. Calibration and Monte Carlo modelling of neutron long counters, *Nucl. Instrum. and Methods Phys. Res. A, Accel. Spectrom. Detec. Assoc. Equip.* 452, (3), 470-83, 2000.

- [8] Kolkowski, P. and Thomas, D J. Measurement of the fast neutron component in the beam of the NPL Thermal Neutron Column using a Bonner sphere spectrometer. NPL Report CIRM 28, May 1999.
- [9] Thomas, D J. Radiation Spectrometry in mixed neutron-photon fields. Published in European Radiation Protection Research Newsletter - EULEP, EURADOS, UIR Newsletter. May 1999.
- [10] Thomas, D J, Horwood, N, and Taylor, G C. Neutron dosimeter responses in workplace fields and the implications of using realistic neutron calibration fields. NPL Report CIRM 27, March 1999.
- [11] Taylor, G C. Neutron response characteristics of the NPL tissue-equivalent proportional counter. NPL Report CIRM 26, March 1999.
- [12] Bartlett, D T, Tanner, R J, and Thomas, D J. Active neutron personal dosimeters - a review of current status. *Radiat. Prot. Dosim.*, 86, (2), 107-122 1999.
- [13] Tanner, R J, Thomas, D J, Bartlett, D T, and Horwood, N. Systematic errors in the readings of track etch neutron dosimeters caused by the energy dependence of response. *Radiat. Meas.*, 31, (1-6), 483-6 1999.
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