

ITN/IST Publications list as at March 2013

**Laboratório de Metrologia das Radiações Ionizantes
Instituto Tecnológico e Nuclear, Instituto Superior Técnico,
Portugal**

Radiotherapy

Chaves, A., Lopes, M. C., Alves, C. C., Oliveira, C., Peralta, L., Rodrigues, P. and Trindade, A., Basic dosimetry of radiosurgery narrow beams using Monte Carlo simulations: A detailed study of depth of maximum dose, *Med. Phys.* 30 (2003), 2904-2911.

Oliveira, C. and Yoriyaz, H., Endovascular radiotherapy problem, *Quados - Quality Assurance of Computational Tools in Radiation Dosimetry* Intercomparison on the usage of computational Codes in Radiation Dosimetry, 14-16 May 2003, Bologna, Italy.

Chaves, A., Lopes, M.C., Oliveira, C. and Peralta, L., A Radiosurgery Monte Carlo Based Treatment Planning. 23th Estro Annual Meeting, Oct. 2004. Amsterdam, Netherlands, *Rad. Onc.* Vol. 783.

Chaves, A., Lopes, M. C., Alves, C. C., Oliveira, C., Peralta, L., Rodrigues, P. and Trindade, A., A Monte Carlo multiple source model applied to radiosurgery narrow photon beams, *Med. Phys.* 33: (2004), 2192-2204.

C. Oliveira, J. Cardoso e Luis Santos. Experience of the National Laboratory of Metrology of Ionizing Radiations (LMRI): The TRS N° 398: experimental conditions at LMRI. Traceability and intercomparison results."Workshop- IAEA supported national TPS audit". Coimbra. Portugal. 24 Setembro. 2011.

Filtered neutron beams and superheated droplet detectors

F. Giuliani, F. C. Oliveira, C., J.I. Collar, J.J., TA Girard, TA, Morlat, T., Limagne, D., Marques, J.G and Waysand, G., Response of SIMPLE SDDs to Monochromatic Neutron Irradiations, *Nucl. Inst. Meth. A.* (2004), 348-358.

Oliveira, C., Giuliani, F., Girard, T.A., Marques, J.G., Salgado, J., Collar, J.J., Morlat, T., Limagne, D. and Waysand, G., MCNP Optimization of filtered neutron beams for calibrations of the SIMPLE detector. *Nucl. Inst. Meth. B.* 213 172-176 (2004).

T.A. Girard, P. Valko, M. R. Gomes, C. Oliveira, Status of the Lisbon experiment on neutrino mass determination, *Nucl. Inst. Meth. A.* 520 (2004), 138-141.

R. Ramos, F. Giuliani, T.A. Girard, C. Oliveira, J.G. Marques, D. Limagne, T. Morlat and G. Waysand., Neutron Spectrometry with Large Volume, Heavy-

Loaded Superheated Droplet Detectors: A simple Spin-Off, Radiation Protection Dosimetry. 115 398-402 (2005).

F. Giuliani, T.A. Girard, J.J. Collar, D. Limage, H.S. Miley, T. Morlat, G. Waysand, M. Auge, D. Boyer, A. Cavallou, J.G. Marques, C. Oliveira, J. Puibasset, M. da Costa, A.C. Fernandes, A.R. Ramos, R.C. Martins, SIMPLE Dark Matter Search Results, Phys. Lett. B 621 (2005), 233-238.

A.C. Fernandes, T. Morlat, M. da Costa, J.I. Collar, J. Puibasset, G. Waysand, H.S. Miley, A.R. Ramos, T.A. Girard, F. Giuliani, D. Limage, J.G. Marques, C. Oliveira, The SIMPLE SDD, Radiation Protection Dosimetry. 120, 503-508 (2006).

T.A. Girard, F. Giuliani, J.I. Collar, D. Limage, H.S. Miley, T. Morlat, G. Waysand, M. Auge, D. Boyer, A. Cavallou, J.G. Marques, C. Oliveira, J. Puibasset, M. da Costa, A.C. Fernandes, A.R. Ramos, R.C. Martins, Simple Limits on Spin-dependent WIMP Interactions, Proc. 9th Int. Conf. On Topics in Astroparticles and Underground Physics, J. Physics: Conf. Series 39 (2006), pp. 114-116.

Dose distributions

Oliveira, C., Yoriyaz, H., Oliveira, M.C. and Ferreira, L.M., Monte Carlo simulation for dose distribution calculations in a CT based phantom at the Portuguese Gamma Irradiation Facility, Nucl. Inst. Meth B. 213 662-665, (2004).

C. Oliveira, I. Paiva, L. Portugal and R. Trindade, Analysis of the Activity Distribution from an Orphan source in Molten Scrap Metal Using the MCNPX Code, 11th International Congress of the IRPA. May 2004 Madrid. Spain. Proc. Ed. CD-ROM (2004).

L. Portugal, C. Oliveira, R. Trindade I. Paiva, A Contribution to the Analysis of the Activity Distributions of a Radioactive Source Trapped Inside a Cylindrical Volume Using the MCNPX code, Second European IRPA Congress on Radiation Protection, Paris, França. 15-19 May 2006.

I. Paiva, C. Oliveira, L. Portugal and R. Trindade, Interim Storage of Spent and Disused Sealed Sources: Optimization of External Dose Distribution in Waste Grids, Using MCNPX Code, Radiation Protection Dosimetry. 116 417-422 (2006).

Luis Portugal and Carlos Oliveira, "Dosimetric Studies Inside the Irradiation room of the Portuguese ^{60}Co Irradiation Facility", 15th International Meeting on Radiation Processing, London, UK, September 21-25, 2008.

Portugal L., Cardoso J., Oliveira C., Monte Carlo validation of the irradiator parameters of the Portuguese gamma irradiation facility after its replenishment, *Appl. Radiat. Isot.* 68, (2010) 190-195.

D. Broggio, J. Bento, M. Caldeira, E. Cardenas-Mendez, J. Farah, T. Fonseca, C. Konvalinka, L. Liu, B. Perez, K. Capello, P. Cowan, J.-A. Cruzate, L. Freire, J.-M. Gómez-Ros, S. Gossio, B. Heide, J. Huikari, J. Hunt, S. Kinase, G.H. Kramer, O. Kurihara, A. Kyrieleis, A.-L. Lebacqz, D. Leone, C. Li, J. Li, L.-C. Mihailescu, M. Moraleda, J.-F. Navarro, C. Oliveira, N. Puerta, U. Reichelt, C. Simões, D. Sommer, M. Takahashi, P. Teles, F. Vanhavere, T. Vrba, D. Franck, G. Gualdrini, M.-A. Lopez. Monte Carlo modelling for the in vivo lung monitoring of enriched uranium: Results of an international comparison. *Radiation Measurements*. Vol. 47, 7, 492-500. 2012

Nuclear Medicine

A. Geão; V. Veloso; E. Pereira; M. Neves; C. Oliveira; A. Mota¹; P. Delgado; P. Colarinha, "Evaluation and Optimization of the Radiation Doses of the Nuclear Medicine Technicians", Annual Congress of the European Association of Nuclear Medicine, Munich, Germany, October 11-15, 2008

Simões C., Caldeira M and Oliveira C., Comparative study of Curie chamber ionizing chambers using Monte Carlo simulations, *Appl. Radiat. Isot.* 68, (2010) 1121-1127.

Shielding design

A.D. Oliveira and C. Oliveira, Comparison of deterministic and Monte Carlo methods in shielding design. *Radiation Protection Dosimetry*. 115 254-257(2005).

Education and Training

C. Oliveira, A.N. Falcão, R. Trindade, M.C. Lopes, M.C. De Sousa, P. Rosário, Education and Training in Radiation Protection in Portugal: Present Situation and a Project for the Future, 3rd Int. Conf. on Education and Training in Radiological Protection, ETRAP, 23-25 Nov 2005 Bruxelles. Belgium.

C. Oliveira; R. Trindade; A. Oliveira, I. Paiva; M. Reis; P. Vaz, L. Freire; A. Falcão; J.J. Quintela de Brito; P. Rosário; Martin Gieb; J. Martins; A. Rodrigues; J.J. P. Lima; M.C. Lopes; J. Isidoro; M. C. Sousa; A. Pascoal; F. Godinho; N. Teixeira; N. Machado; C. Marcelino, A Portuguese perspective of the role, duties and responsibilities for QE/RPE, QT/RPO, OT/RW on ionizing radiation. Second EUTERP Platform Workshop "Definitions, Qualifications and Requirements for Radiation Protection Experts, Radiation Protection Officers and Radiation Workers" Vilnius, Lithuania, 23 – 25 April 2008.

C. Oliveira; A. Falcão; P. Rosário; “The new Portuguese legislative framework for RPE, RPO, RW on ionizing radiation”. Third EUTERP Platform Workshop. Antalya, Turkey, 16 – 18 April 2009.

N. Falcão, C. Oliveira, P. Rosário. Professional Qualification in Radiological Protection: Update on the Portuguese Needs. Proc. of 4th International Conference on Education and Training in Radiological Protection, ETRAP 2009. Lisboa, Portugal. November 2009.

Diagnostic Radiology

P. Limede, C. Oliveira, J. Cardoso, L. Santos. Characterization of Diagnostic Radiation Qualities according to the IEC 61267 at LMRI – ITN. Proc. of IDOS – International Symposium on Standards, Applications and Quality Assurance in Medical Radiation Dosimetry. IAEA. Vienna. Austria. Nov. 9-12. 2010.

Oliveira, C. Cardoso, J. Santos, L., Limede, P., Góis, D., Oliveira, M., , A dosimetria em radiodiagnóstico. Medições e Ensaios (SPMet), Vol 1, nº 3 September 2012.

Uncertainty Assessment

J. Cardoso, C. Oliveira. Photon Irradiation Facility. Proc. Int. Workshop on Uncertainty Assessment in Computational Dosimetry, A Comparison of Approaches. Bologna, Italy. October 2007. ISBN:978-3-9805741-9-8. G. Gualdrini & P. Ferrari Ed.

A. Silva Ribeiro, C. Oliveira, Maurice G. Cox, J. Alves e Sousa, L. Lages Martins, J. Cardoso, P. Limede. Modelling and uncertainty evaluation for the radiation quality parameters used in Metrological management of diagnostic radiology dosimeters. Conference on Advanced Mathematical and Computational Tools in Metrology and Testing. Goteborg (Sweden). 20-22 June 2011.

Silva Ribeiro, A., Oliveira, C., Cox, M. G., Alves e Sousa, J., Lages Martins, L., Cardoso, J., Limede, P., MODELLING AND UNCERTAINTY EVALUATION FOR THE RADIATION QUALITY PARAMETERS USED IN METROLOGICAL MANAGEMENT OF DIAGNOSTIC RADIOLOGY DOSIMETERS, Advanced Mathematical and Computational Tools in Metrology and Testing, vol. 9, pg. 377-384 (editors: F. Pavese, M. Bar, J-R Filtz, AB Forbes, L. Pendrill, H. Shirono). Series on Advances in Mathematics for Applied Sciences, vol. 84. World Scientific. Singapura, 2012.

Studies involving standards

Cardoso, J., Oliveira, C. and Ferro de Carvalho, A., Air kerma backscatter profiles for two ISO photon expanded and aligned fields impinging on the ISO water phantom, Quados-Quality Assurance of Computational Tools in Radiation Dosimetry Intercomparison on the Usage of Computational Codes in Radiation Dosimetry 14-16 May 2003, Bologna, Italy. Proc. of the Intercomparison on the Usage of Computational Codes in Radiation Dosimetry. Ed. ENEA (2004).

C. Oliveira, A. F. Carvalho and J. Cardoso Study of the spatial variation of the air kerma backscatter factor on the standard ISO phantom: experimental and numerical evaluations, 11th International Congress of the IRPA. May 2004 Madrid. Spain. Proc. Ed. CD-ROM. (2004)

J. Cardoso, A.F. Carvalho, C. Oliveira, Simulation Studies on a Prototype Ionisation Chamber for Measurement of Personal Dose Equivalent, Hp(10), Radiation Protection Dosimetry. 125, 175-179 n° 1-4. (2007).

J. Cardoso, L. Santos, C. Oliveira, Air Kerma Primary Standard: Experimental and Simulation Studies on Cs-137. Workshop on "Absorbed Dose and Air Kerma Primary Standards, Paris. France. May 2007.

Maurizio Bovi, João Cardoso, Guilhem Douysset, Frantisek Gabris, Jan Erik Grindborg, Antonio Stefano Guerra, Antti Kosunen, Carlos Oliveira, Maria Pimpinella, Thorsten Sander, Hans-Joachim Selbach, Vladimir Sochor, Jaroslav Solc, Maria Pia Toni, Jacco de Potter, Eduard van Dijk, "Increasing Cancer Treatment Efficacy Using 3D Brachytherapy ", 1st Regional Metrology Organisations Symposium – RMO 2008; 20th International Metrology Symposium, Cavtat-Dubrovnik, Croatia, November 12-15, 2008.

Kessler C., Allisy-Roberts P., Burns D.T., Cardoso J., Oliveira C., Comparison of the standards for air kerma of the ITN (Portugal) and the BIPM for ^{137}Cs γ -rays, Metrologia, 46, Tech. Suppl., 06012. (2009).

C. Oliveira, M. Rodrigues, J. Cardoso, L. Portugal, J. Corisco. Utilizacion del código de Monte Carlo MCNPX en el Cálculo de parâmetros dosimétricos: modelo 6733 – fuente de I-125. XVII Congreso Nacional de SEFM – XII Congreso Nacional de SEPR. Alicante, Spain. 2-5 Junho 2009.

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european metrology research programme, proceedings of the XIV Congrès International de Metrologie, Paris. France. June 2009 - Collège Français De Metrologie

Toni M P, Aubineau-Lanièce I, Bovi M, Cardoso J M, Cutarella D, Gabris F, Grindborg J E, Guerra A S, Jarvinen H, Oliveira C, Pimpinella M, Plagnard J, Sander T H, Selbach H J, Sochor V, Solc J, de Pooter J, and van Dijk E, A Joint Research Project to improve the accuracy in dosimetry of brachytherapy treatments, in the framework of the European Metrology Research Programme, Presented at the World Congress 2009 Medical Physics and Biomedical Engineering, Munich, Germany, 7-12 September 2009, published in the conference proceedings: IFMBE Proceedings (paperback), Vol. 25, 2009, ISBN: 978-3-642-03897-6.

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C. Oliveira, H. Silva, João Cardoso. Comparative study of three ionizing chambers for measurement of Hp(10) and a methodology for its optimization. IM2010.European Conference on Individual Monitoring of Ionizing Radiation, March 8-12 (2010) Atenas. Greece.

Silva H., Cardoso J., Oliveira C., Development of a new ionisation chamber for Hp(10) measurement, using Monte-Carlo Simulation and experimental methods, Radiation Protection Dosimetry (2011) vol. 144, n^o. 1-4, pp 168-172.

Vladimír Sochor, Jaroslav Šolc, Hans-Joachim Selbach, Isabelle Aubineau-Laniece, Valerie Lourenco, Frantisek Gabris, Jan-Erik Grindborg, Antti Kosunen⁶, Teemu Siiskonen, Hannu Jarvinen, Petri Sipila, Clare Gouldstone, Thorsten Sander, Peter Sharpe, Jozef Zeman, Carlos Oliveira, Luis Portugal, Milton Rodrigues, Pas Aviles Lucas and Åsa Carlsson Tedgren. Comparison of measurements and Monte Carlo simulations of 3D distributions of dose-to-water by brachytherapy sources. PTB report "Advanced Metrology for Cancer Therapy – Proceedings of an International Conference, Braunschweig, Germany. November 2011", p. 34, PTB-Dos-56, ISSN 0172-7095

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Braunschweig, Germany. November 2011”, p. 42, PTB-Dos-56, ISSN 0172-7095.

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Other topics

Oliveira, C. Cardoso, J. Santos, L., A metrologia das radiações ionizantes. Medições e Ensaios (SPMet), Vol 1, nº 2 Maio 2012.

Diana D. Duarte, João Cardoso, Luís Santos, Carlos Oliveira, Lina Vieira, Estudo da resposta de um dosímetro electrónico individual. Saúde & Tecnologia. Nº. 7. May 2012.

Diana D. Duarte, João Cardoso, Luís Santos, Carlos Oliveira, Lina Vieira, Estudo da eficiência de detecção de um monitor portátil de contaminação de superfícies em função da distância e do débito de emissão da fonte. Saúde & Tecnologia. Nº. 8. November 2012.