



Publications

Reactors and Nuclear Safety Unit

Operation and Exploitation of the Reactor, Dosimetry (RPI) and Reactor Calculations

Books

Data analysis software for ion beam analysis; N.P. Barradas and E. Rauhala, in Handbook of Modern Ion Beam Analysis, 2nd Edition, eds. Yongqiang Wang and Michael Nastasi, Materials Research Society, Warrendale 2010, pp 305-345.

Pitfalls in ion beam analysis; C. Jeynes and N.P. Barradas, in Handbook of Modern Ion Beam Analysis, 2nd Edition, eds. Yongqiang Wang and Michael Nastasi, Materials Research Society, Warrendale 2010, pp 347-383.

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A.C. Fernandes, J.P. Santos, J.G. Marques, A. Kling, A. Ramos Wahl. N.P. Barradas, Validation of the Monte Carlo model supporting core conversion of the Portuguese Research Reactor (RPI) for neutron fluence rate determinations, *Ann. Nucl. Energy* 37 (2010) 1139-1145.

M. Felizardo, T. Morlat, A.C. Fernandes, TA Girard, J.G. Marques, A.R. Ramos, M. Auguste, D. Boyer, A. Cavaillou, C. Sudre, J. Poupene, R.F. Payne, H.S. Miley, and J. Puibasset, First Results of the Phase II SIMPLE Dark Matter Search, *Phys. Rev. Lett.* 105 (2010) 211301.

A.C. Fernandes, M. Felizardo, A. Kling, T. Morlat, A.R. Ramos, J.G. Marques, Studies on the Efficiency of the Neutron Shielding for the SIMPLE Dark Matter Search, *Nucl. Instr. Meth. A* 623 (2010) 960-967.

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Characterization of the Fast Neutron Irradiation Facility of the Portuguese Research Reactor after Core Conversion, J.G. Marques, *6th Workshop on*

European Collaboration for Higher Education and Research in Nuclear Engineering and Radiological Protection, Coimbra, June 2010.

Conversion of the Portuguese Research Reactor from HEU to LEU fuel, J.G. Marques, *Technical Meeting on Safety Aspects of Research Reactor Core Management and Conversion from HEU to LEU*, IAEA, Vienna, September 2010.

Portuguese Research Reactor: Activities and Perspectives for Collaborations, J.G. Marques, *Technical Meeting on Safety Aspects of Research Reactor Core Management and Conversion from HEU to LEU*, IAEA, Vienna, September 2010.

Progress and Status of European Research Reactor Conversions, J.G. Marques, *32nd International Meeting on Reduced Enrichment for Research and Test Reactors*, Lisbon, October 2010 (invited).

Utilização do Reactor Português de Investigação (RPI/ITN) em Tomografia com neutrões, M. A. Stanojev Pereira, CFNUL, 2010.

Reactores nucleares de cisão: presente e futuro, N. P. Barradas, *Colóquios do Centro de Física da Universidade do Minho*, March 2010, Braga (invited).

Data analysis software for ion beam analysis, *CAARI 2010 - 21st International Conference on the Application of Accelerators in Research and Industry*, August 2010, Fort Worth, USA (invited).

Integration of SIMS into a general purpose IBA data analysis code, *CAARI 2010 - 21st International Conference on the Application of Accelerators in Research and Industry*, August 2010, Fort Worth, USA (invited).

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F. Axisa, “Flow conditions at the inlet of aspirating pipes: Part 1 – Theory”. Paper FEDSM-ICNMM2010-

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O. Inácio, V. Debut, L. Henrique, “Music acoustics as a support for instrument building”, *IV Encontro Nacional de Luthiers*, 27 November 2010, Paços Brandão, Portugal.

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V. Debut, “Identification à distance de la force non-linéaire d’excitation pour une corde frottée”, *Institut de Recherche de Mathématiques de Rennes (IRMAR, UMR 6625, UFR Math – Rennes)*, 27 January 2010, Rennes, France.

V. Debut, “La physique des instruments de musique et sa modélisation”, *Seminar for students of the Master in Mechanics and Modelling, Université de Rennes*, 29 January 2010, Rennes, France.

J. Antunes, “Carillon bells and their tuning”, *Palácio Nacional de Mafra*, 19 April 2010, Mafra, Portugal.

Neutron Activation in Environment, Nutrition and Epidemiology

Books

T.G. Verburg, S.M. Sarmiento, H.T. Wolterbeek (2010): Statistical Approaches in Environmental Epidemiology. In: Advanced Trace Analysis (S. Lahiri, Ed.; Narosa Publishing House, New Delhi, India.

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H.M. Anawar, M.C. Freitas, N. Canha, Contamination and phytoremediation of arsenic and other heavy metals and evaluation of different drying process to determine metals in plant species grown in a mining impacted area. In: *Ž. Bargańska, A. Beyer, K. Klimaszewska, J. Namieśnik, M. Tobiszewski, I. Rutkiewicz (Eds.) ISBN: 978-83-928986-5-8, Proceedings of 15th International Conference on Heavy Metals in the Environment (ICHMET)*, Gdańsk, Poland, 19-23 September, pp. 483-485.

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S.M. Almeida, N. Canha, M.C. Freitas, A. Silva, P. Pegas, C. Alves, M. Evtugina, C.A. Pio, Children Exposure to Air Particulate Matter in the Indoor of Lisbon Primary Schools. *2010 AAAR Air Pollution and Health*, San Diego, USA, 22-26 March.

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S.M. Almeida, Indoor Air Quality in the Heating, Ventilation and Air Conditioning Project. HVAC Project, ISQ, Lisbon, Portugal, 20-24 November.

S.M. Almeida, Qualidade do Ar Interior em Escolas, Custos e Oportunidades, *Gestão de Edifícios Escolares, Consumo Energético, Qualidade do Ar Interior. Custos e Oportunidades*. Ordem dos Engenheiros, 30 November.

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- Nuno Canha, M. C. Freitas, Casimiro A. Pio, I. Dionísio, Ho Dung, Air pollution at an urban tunnel built for Western commuter entrance in Lisbon. Portugal: a Need for ventilation improvement. *Seminar of Activation Analysis and Gamma Spectroscopy (SAAGAS)*, Dresden-Rossendorf, Germany, 6-8 September.
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- C. Galinha, M. C. Freitas, A.M.G. Pacheco. Transfer Coefficients and Enrichment Factors from Soil to Rye Plants by INAA, *16th Radiochemical Conference 2010 (RadChem2010)*, Marianske Lazne, Czech Republic, 18-23 April.
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A. Silva, S.M. Almeida, M.C. Freitas, A.M. Marques, A.I. Silva, C.A. Ramos, T. Pinheiro, INAA and PIXE characterization of heavy metals and rare earth elements emissions from phosphorite handling in harbours. *4th International Symposium on Nuclear Analytical Chemistry (NAC-IV)*, Mumbai, November 15-19, 2010.

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Ana Isabel Rodrigues da Silva, Avaliação da exposição de crianças a material particulado em suspensão, MSc, ISEL, 30 December, 2010.

Marcos Ribeiro, Fungi, bacteria and pollens at basic schools of Lisbon, BSc in Saúde Ambiental, ESTeSL, Lisboa, Junho 2010.

Marina Almeida Silva, Passive filters at basic schools of Lisbon; Statistical methods, BSc in Saúde Ambiental, ESTeSL, Lisboa, Junho 2010.

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A.M. Marques, Impacte de descargas de materiais em actividades portuárias, BSc in Saúde Ambiental, ESTeSL, Lisboa, Junho 2010.

Timóteo Sitoé, Práticas laboratoriais, Diploma Profissional de Técnico de análise laboratorial, Escola Secundária Dr. António de Carvalho Figueiredo, Loures, Junho 2010.

Frederico André, Práticas laboratoriais, Diploma Profissional de Técnico de análise laboratorial, Escola Secundária Dr. António de Carvalho Figueiredo, Loures, Junho 2010.

Radiological Protection and Safety Unit

Dosimetry and Radiobiology

Books and books chapters

A.D. Oliveira and J.J. Pedroso de Lima, (2010): Dosimetry and biological effects of radiation (Chap 8). In: Nuclear Medicine Physics (Ed: J.J. Pedroso de Lima, ISBN: 978-1-58488-795-9; CRC Press, Taylor & Francis, UK.

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M. Coeck, P. Livolsi, S. Möbius, A. Schmitt-Hannig, E. Fantuzzi, F. Draaisma, M. Marco, J. Stewart; P. De Regge, P. Vaz, P. Zagayvay, M. Ceclan. ENETRAP-II: development of European training schemes for RPE's and RPO's. In: Proceedings of Third European IRPA Congress 14-18 June 2010 Helsinki.

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V. Kamenopoulou, J.G. Alves, P. Ambrosi, D.T. Bartlett, L. Currivan, J.W.E. van Dijk and E. Fantuzzi. *The new European Commission technical recommendations for monitoring individuals occupationally exposed to external radiation.* The European Conference on Individual Monitoring of Ionizing Radiation, IM2010, 8-12 March 2010, Athens, Greece, invited talk.

M.F. Pereira, J.G. Alves, S. Sarmiento, J.A.M. Santos, M.J. Sousa, M. Gouvêa, A.D. Oliveira, J.V. Cardoso, L.M. Santos. *Preliminary assessment of the dose to the interventional radiologist in fluoro-CT guided procedures.* European Conference on Individual Monitoring of Ionizing Radiation, IM2010, 8-12 March 2010, Athens, Greece.

J.G. Alves, P. Ambrosi, D.T. Bartlett, L. Currivan, J.W.E. van Dijk, E. Fantuzzi and V. Kamenopoulou. *Radiation Protection 160.* European Study on Occupational Radiation Exposure, ESOREX-2010, June 2010, Prague, Czech Rep, invited talk.

M.B. Martins, T. Antunes, J.G. Alves. *Portugal-Country Report.*, ESOREX-2010, June 2010, Prague, Czech Rep.

A. Belchior, P. Teles, L. Peralta, P. Almeida, P. Vaz. *Monte-Carlo simulation and microdosimetry analysis of an α -particle source for cell irradiation.* Joint International Conference on Supercomputing in Nuclear Applications and Monte Carlo 2010 (SNA+MC2010), 17-21 October 2010, Hitotsubashi Memorial Hall, Tokyo, Japan.

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P. Vaz. *MELODI - A European Research and Training(R&T) platform - SRA and roadmap.* during the Scientific Seminar organized by the Group of Experts referred to in the Article 31 of the EURATOM Treaty, 23rd November 2010, Luxemburg, invited talk.

M. Coeck, P. Livolsi, S. Möbius, A. Schmitt-Hannig, E. Fantuzzi, F. Draaisma, M. Marco, J. Stewart; P. De Regge, P. Vaz, P. Zagayvai, M. Ceclan. ENETRAP-II: development of European training schemes for RPE's and RPO's. Third European IRPA Congress 14-18 June 2010 Helsinki.

Poster

D.L. Ramos, J.F. Gaspar, M. Pingarilho, O.M. Gil, J. Rueff, N.G. Oliveira, *Modulation of doxorubicin genotoxicity in human lymphocytes by GSTs polymorphisms: possible role of GSTP1 ILE105 VAL*

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- B.C. Gomes, R. Gouveia, S.N. Silva, H.N. Bastos, S.C. Branco, M. Antão, A. P. Azevedo, O.M. Gil, I. Manita, L.S. Santos, T.C. Ferreira, E. Limbert, J. Rueff, J.F. Gaspar, *Polymorphisms in DNA repair genes and non-familial thyroid cancer risk*. The future of molecular epidemiology: new tools, biomarkers, and opportunities- American Association for Cancer Research. 6-9 June 2010, Miami, USA.
- S. Bandarra, J.F. Gaspar, M. Pingarilho, O.M. Gil, A.S. Fernandes, J. Miranda, C.M. Castro, J. Rueff, N.G. Oliveira, *Glycidamide induced cytotoxic and genotoxic effects in human mammary MCF10A cells*. The European Environmental Mutagen Society-Environmental Mutagenesis in the North and Society for Free Radicals Research –Free radicals and the Environment. 12-18 September 2010, Oslo, Norway.
- A. Louro, S. Soares, L. Peralta, A. Pereira, G. Cunha, A. Belchior, O. Gil, P. Teles, M.J. Silva, H. Louro, S. Rodrigues, *Environmental Radon Exposure and Human Health Risk*. 6th Conference on Protection Against Radon at Home and at Work, 13-17 September 2010, Prague, Czech Rep.
- V. Martins, A.C. Antunes, J. Cardoso, L. Santos, O. M. Gil, *Implementation of a dose-response curve of γ -radiation for Portuguese population using chromosomal aberrations assay*. EPRBioDose 2010-International Conference, 10-14 October 2010, Mandelieu-La-Napoule, France.
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- A.C. Santos, C.M. Matos, S.L. Perestrelo, M.A. Silva, F.J. Borges, L. Gano, M. Neves, B. Oliveiros, *Evaluation of acute non-cardiogenic experimental pulmonary oedema using giant unilamellar liposomes*. International Symposium on Technetium and Other Radiometals in Chemistry and Medicine, 8-11 September 2010, Bressanone, Italy.
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- L.C. Freire, M.F. Pereira, A.M. Calado, L.M. Santos, J.V. Cardoso, J.G. Alves, *Evaluation of the performance of two LiF:Mg,Ti and LiF:Mg,Cu,P dosimeters for extremity monitoring*. European Conference on Individual Monitoring of Ionizing Radiation, IM2010, 8-12 March 2010, Athens, Greece.
- S. Sarmento, M.F. Carrasco, M.J. Sousa, J.A.M. Santos, J. Lencart, M. Gouvêa, M.F. Pereira and J.G. Alves, *The importance of hand monitoring in interventional radiology: a case study*. European Conference on Individual Monitoring of Ionizing Radiation, IM2010, 8-12 March 2010, Athens, Greece.
- M.F. Pereira, A.M. Calado, L.C. Freire, J.V. Cardoso, L.M. Santos, J.G. Alves, *Uncertainty assessment of $H_p(d)$ for the TLD system in use at ITN-UPSR*. European Conference on Individual Monitoring of Ionizing Radiation, IM2010, 8-12 March 2010, Athens, Greece.
- J.G. Alves, M.F. Pereira, A.M. Calado, M.R. Martins, M.M. Saraiva, S.S. Rangel, *Individual Monitoring Service of ITN-UPSR*. European Conference on Individual Monitoring of Ionizing Radiation, IM2010, 8-12 March 2010, Athens, Greece.
- A.D. Oliveira, J. Bento, *BioKinModels. A computational tool to solve and to analyze models of compartments*. European Conference on Individual Monitoring of Ionizing Radiation, IM2010, 8-12 March 2010, Athens, Greece.
- A. Belchior, O. M. Gil, P. Almeida, P. Vaz, *Evaluation of the cytotoxicity and genotoxicity induced by α radiation in A549 cell line*. EPRBioDose 2010- International Conference, 10-14 October 2010, Mandelieu-La-Napoule, France.
- S. Möbius, B. Breustedt, P. Livolski, F. Draaisma, M. Marko, J. Stewart, P. De Regge, P. Vaz, P. Zagyvai, M. Coeck. *Organisation of Pilot Sessions of the European Radiation Protection Training Scheme ERPTS (ENETRAP-II WP8)*. Third European IRPA Congress 14-18 June 2010 Helsinki.
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National Communications**Oral**

A. Louro, L. Peralta, S. Soares, A.J.S.C. Pereira, G. Cunha, A. Belchior, P. Teles, O.M. Gil, M.J. Silva, A.S. Rodrigues. *Risco para a saúde humana da exposição ao radão habitacional: um caso de estudo na região da Guarda*. Décimas quartas Jornadas Portuguesas de Protecção contra Radiações, 17-19 November 2010, Lisboa, Portugal.

A.C. Santos, C.M. Matos, B. Oliveiros, T. Almeida, L. Gano, M. Neves, N. Ferreira. *Thermolabile giant unilamellar liposomes to evaluate acute pulmonary oedema – comparison with MRI studies*. II Annual Meeting of IBILI, 10-11 December, 2010, Coimbra, Portugal.

J.G. Alves. *Dosimetria Individual da Radiação Externa*. Instituto Português de Oncologia de Lisboa de Francisco Gentil, 25th March 2010, Lisboa, Portugal, invited talk.

J.G. Alves. *Novas recomendações na monitorização individual da radiação externa (EU-Trimer, EURADOS)*. XI Curso de Divulgação de Medicina Nuclear, Instituto Português de Oncologia de Lisboa de Francisco Gentil, 12-13 November 2010, Lisboa, Portugal, invited talk.

A.D. Oliveira. *BioKinModels (v2.0). Um software para resolver e analisar modelos de compartimentos*. VI Jornadas de Medicina Nuclear do Hospital Garcia de Orta, 2010, Sesimbra, Portugal.

P. Vaz. *Science and Values in Radiological Protection - A case study: Medical Exposures in Radiology*. Congresso Nacional de Radiologia, 14th May 2010, Vilamoura, Portugal, invited talk.

P. Vaz. *Segurança e Riscos Tecnológicos (Radiológicos e Nucleares)*. Conferência Internacional

de Protecção Civil – Risco Tecnológico e Nuclear, 2nd October 2010, Castelo Branco, Portugal, invited talk.

P. Vaz. *Protecção Radiológica (radiações ionizantes) - O Estado da Nação - Uma perspectiva*. Panel discussion during the Congresso da Sociedade Portuguesa de Protecção Contra Radiações, 17th November 2010, Lisbon, Portugal, invited talk.

Poster

A. Louro, A. Belchior, G. Cunha, O. Gil, L. Peralta, A. Pereira, S. Rodrigues, M.J. Silva, S. Soares, P. Teles, *Risco decorrente da exposição ao radão habitacional para a saúde humana*. Portuguese Physics for Health Summer School, 26-28 July 2010, Covilhã, Portugal.

Thesis**M.Sc.**

Catarina Duarte Sousa Figueira, *Medição e cálculo, utilizando simulações Monte Carlo, das doses em exames de Tomografia Computorizada*. Masters in Biomedical Engineering, Faculty of Sciences and Technology, New University of Lisbon. December 2010. Supervisor: P. Vaz and P. Madeira (Hospital S. José – CHLC).

Internal Reports

M.B. Martins, J.G. Alves. *Exposição Ocupacional em Portugal (2000 a 2006)*. Relatório UPSR Série A, n. 34/2010, ISBN 978-989-96542-2-8 (2010).

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

International Conference Proceedings

P. Limede, C. Oliveira, J. Cardoso, L. Santos. Characterization of Diagnostic Radiation Qualities according to the IEC 61267 at LMRI – ITN. In: Proceedings of IDOS – International Symposium on Standards, Applications and Quality Assurance in Medical Radiation Dosimetry. CN-182-128. IAEA-CN-182, 9-12 November 2010, Vienna, Áustria.

International Communications**Oral**

J. Cardoso, H. Silva, C. Oliveira. *Development of a new ionizing chamber for Hp(10) measurement using Monte Carlo simulation and experimental methods*. IM2010. European Conference on Individual Monitoring of Ionizing Radiation, IM2010, 8-12 March 2010, Athens, Greece.

Poster

C. Oliveira, H. Silva, J. 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, 8-12 March 2010, Athens, Greece.

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National Communications**Oral**

C. Oliveira, M. Rodrigues, J. Cardoso, L. Portugal. Estudos de Sensibilidade de fontes usadas em braquiterapia usando o método de Monte Carlo CONFMET2010, Medições na Ciência e na Tecnologia. 4-5 Nov. Lisboa.

Poster

C. Oliveira, J. Cardoso, L. Santos, *A metrologia das*

radiações ionizantes. CONFMET2010, Medições na Ciência e na Tecnologia. 4-5 November 2010, Lisbon, Portugal.

Thesis**M.Sc.**

Patrícia Isabel Medeiros Limeira, *Caracterização das qualidades de Radiação X de Diagnóstico, segundo a Norma Internacional IEC 61267*. Faculdade Ciências e Tecnologia da Universidade Nova de Lisboa. 2010. Supervisor: C. Oliveira and J. Cardoso.

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C. Gonçalves, C. Alves, M. Evtyugina, F. Mirante, C. Pio, A. Caseiro, C. Schmidl, H. Bauer, F.P. Carvalho. Characterization of PM10 emissions from woodstove combustion of common woods grown in Portugal. *Atmospheric Environment* 44 (35), (2010) 4474 – 4480.

E. Andrade, M.J. Madruga, I. Bobos, M.I. Paiva, F. Maia, A. Mateus, R. Trindade, M.C. Freitas, M.A. Gonçalves. Characterization of portuguese geomaterials, the clay component of ranãs, as potential liners for low and intermediate radioactive disposal sites. *J Radioanal Nucl Chem* 286, (2010) 777-783.

F.P. Carvalho. Environmental remediation and the legacy of uranium mining waste in Portugal and Europe-Lessons to retain. *Advanced Materials Research* 107, (2010) 157-161.

F.P. Carvalho, J.M. Oliveira. Uranium isotopes in the Balkan's environment and foods following the use of depleted uranium in the war. *Environment International* 36, (2010) 352-360.

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I. Lopes, M.J. Madruga, A. Mourato, J. Abrantes, M. Reis. Determination of ^{90}Sr in portuguese foodstuffs. *J Radioanal Nucl Chem*, 286 (2010) 335-340.

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F.P. Carvalho. A água e os radionuclídeos das famílias radioactivas naturais. CAPTAR 2 (2) (2010) 17-25. (available on the Web: <http://captar.web.ua.pt/>).

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F.P. Carvalho, J.M. Oliveira, M. Malta (2010). Polonium and lead in human hair as indicators of internal contamination. In: 12th Congress of the International Radiation Protection Association

(IRPA12): Strengthening Radiation Protection Worldwide — Highlights, Global Perspective, and Future Trends. Paper TS I.1.2, FP2581. IAEA STI/PUB/1460 (COMPANION CD). ISBN 978-92-0-105410-4. (2010) International Atomic Energy Agency, Vienna, Austria.

F.P. Carvalho, J.M. Oliveira, M. Malta. Radioecological surveillance around an old mining and milling site during environmental remediation works. In: 12th Congress of the International Radiation Protection Association (IRPA12): Strengthening Radiation Protection Worldwide—Highlights, Global Perspective, and Future Trends. Paper TS III 4.1 FP2580. IAEA STI/PUB/1460 (COMPANION CD). ISBN 978-92-0-105410-4. (2010) International Atomic Energy Agency, Vienna, Austria.

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