

## **Publications**



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

### Journals

M. Neves, A. Kling and A. Oliveira, Radionuclides used for Therapy and Suggestion for New Candidates, *J. Nucl. Radioanalyt. Chem.* 266 (2005) 377-384.

F. Giuliani, T.A. Girard, J.I. Collar, D. Limagne, H.S. Miley, T. Morlat, G. Waysand, M. Aug.e, D. Boyer, A. Cavaillou, 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.R. Ramos, F. Giuliani, T.A. Girard, C. Oliveira, J.G. Marques, D. Limagne, T. Morlat, G. Waysand, Neutron spectrometry with large volume, heavily-loaded superheated droplet detectors: a SIMPLE spin-off, *Rad. Prot. Dosim.* 115 (2005) 398-402.

F.J. Franco, Yi Zong, J.A. Agapito, J.G. Marques, A.C. Fernandes, J. Casas-Cubillos and M.A. Rodriguez-Ruiz, Radiation Tolerant D/A Converters for the LHC Cryogenic System, *Nucl. Instr. and Meth. A* 553 (2005) 604-612.

### Conference Proceedings

T.A. Girard, F. Giuliani, J.I. Collar, T. Morlat, D. Limagne, G. Waysand, M. Aug.e, D. Boyer, A. Cavaillou, H.S. Miley, M. da Costa, R.C. Martins, J.G. Marques, A.R. Ramos, A.C. Fernandes, J. Puibasset, C. Oliveira, Recent Results from the Simple Dark Matter Search., *5th Int. Workshop on Identification of Dark Matter*, Eds: N.J.C. Spooner and V. Kudriavtsev (World Scientific Ltd, Singapore, 2005) pp. 230-235.

Y. Zong, F.J. Franco, A.H. Cachero, J. Casas-Cubillos, M.A. Rodriguez-Ruiz, A.C. Fernandes, J.G. Marques and J.A. Agapito, Radiation-Tolerant Supervisory Circuits, *Spanish Conference on Electron Devices*, Tarragona, 2005 (IEEE Catalog N°: 05EX965C; ISBN: 0-7803-8811-9) pp. 69-72.

J.G. Marques, N.P. Barradas, A.P. Fernandes, I.C. Gonçalves and A.J.G. Ramalho, A Fast Neutron Irradiation Facility at the Portuguese Research Reactor, *Int. Conf. on Research Reactor Utilization, Safety, Decommissioning, Fuel and Waste Management*, Santiago, Chile, 2003, IAEA (Vienna, 2005) IAEA-CN-100/112P, pp. 191-196.

J.G. Marques, A.P. Fernandes, I.C. Gonçalves and A.J.G. Ramalho, New Facility at the Portuguese Research Reactor for Irradiations with Fast Neutrons, In Recent Advances in Multidisciplinary Applied Physics, *1<sup>st</sup> Int. Meeting on Applied Physics*, Badajoz,

Spain, 2003, Ed. A. Méndez-Vilas (Elsevier, 2005, ISBN: 0-08-044648-5) pp. 71-76.

Y. Zong, F.J. Franco, A.H. Cachero, J.A. Agapito, A.C. Fernandes, J.G. Marques, M.A. Rodriguez-Ruiz and J. Casas-Cubillos, Supervisory Circuits in a Mixed Neutron and Gamma Radiation Environment, *2005 IEEE Radiation Effects Data Workshop*, July 2005, IEEE, pp. 132-137.

J.G. Marques, F.M. Cardeira and A.J.G. Ramalho, Training of Operators in the Portuguese Research Reactor, *Int. Conf. on Research Reactor Utilization, Safety, Decommissioning, Fuel and Waste Management*, Santiago, Chile, 2003, IAEA (Vienna, 2005) IAEA-CN-100/113P, pp. 77-80.

### Theses

#### MSc

P.C. Marques, Projecto, Desenho, Construção e Instalação de uma Câmara de Detecção de Reacções (n, $\alpha$ ) a Ser Instalada no Reactor Português de Investigação. MSc in Physical Engineering, FCUL, July 2005. Supervisors: M. Ribeiro da Silva and J. C. Soares.

### Internal Reports

A. Kling, Radiological Control at the Portuguese Research Reactor (RPI) Report Jan. 1 – Dec. 31, 2004, ITN/RPI-R-05-88.

A. Kling, Radiological Control at the Portuguese Research Reactor (RPI) Report Jan. 1 – June 30, 2005, ITN/RPI-R-05-89.

### Communications

T.A. Girard, F. Giuliani, J.I. Collar, D. Limagne, H.S. Miley, T. Morlat, G. Waysand, M. Aug.e, D. Boyer, A. Cavaillou, 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, *TAUP 2005, 9<sup>th</sup> Int. Conf. on Topics in Astroparticle and Underground Physics*, 10-14 Sep., Zaragoza, Spain, oral.

M. Felizardo, R.C. Martins, A.R. Ramos, T. Morlat, J.G. Marques, D. Limagne, G. Waysand, A.C. Fernandes, T.A. Girard, F. Alegria, Signal discrimination in superheated droplet detectors, *IMTC 2005, 2005 IEEE Instrumentation and Measurement Technology Conf.*, 17-19 May, Ottawa, Ontário, Canada, Poster.

M. Felizardo, A.R. Ramos, D. Limagne, T.A. Girard and R.C. Martins, Identification and Measurement of Bubble Nucleation in Superheated Emulsion Detectors (SED), *5<sup>a</sup> Conf. Nac. de Telecomunicações*, April 2005, Tomar, Portugal, Poster.

J.G. Marques, N.P. Barradas, A.R. Ramos, J.G. Stevens, E.E. Feldman, J.A. Stillman, J.E. Matos, Core Conversion of the Portuguese Research Reactor: First Results, *2005 Int. Meeting on Reduced Enrichment for Research Reactors*, 6-10 Nov, Boston, Massachusetts, USA, Invited Talk.

N.P. Barradas, J.G. Marques, A Física na Segurança Nuclear, *1<sup>as</sup> Jornadas Luso Brasileiras de Protecção*

*Contra Radiações e 11<sup>as</sup> Jornadas Portuguesas de Protecção Contra Radiações*, 24-26 Nov., Lisbon, Portugal, Invited Talk.

N.P. Barradas, Quantum dots simulation in RBS, *Workshop on Nanomaterials for Applications in Devices*, 18 April, ITN, Lisboa, Invited Talk.

A. C. Fernandes, L. Santos, V. Cardoso, J. Marques, E. Novák and V. Rýpar, Neutron and photon dosimetry at the LR-0 using paired detectors, *12<sup>th</sup> Int. Symp. on Reactor Dosimetry*, Gatlinburg, USA 8-13, May, Poster

## Applied Dynamics

### Publications

#### Journals

F.O. Marques, R. Taborda, J. Antunes, Influence of a low-viscosity layer between rigid inclusion and viscous matrix on inclusion rotation and matrix flow: a numerical study, *Tectonophysics* 407 (2005), 101-115.

F.O. Marques, R. Taborda, S. Bose, J. Antunes, Effects of confinement on matrix flow around a rigid inclusion in viscous simple shear: insights from analogue and numerical modelling, *J. of Structural Geology* 27 (2005), 379-396.

F.O. Marques, R. Taborda, J. Antunes, 2-D rotation of rigid inclusions in confined bulk simple shear flow: a numerical study, *J. of Structural Geology* 27 (2005), 2171-2180.

#### Conference Proceedings

O. Inácio, J. Antunes, Simulation methods for the nonlinear string/body coupled dynamics of bowed musical instruments: A comparative analysis, *Forum Acusticum*, Budapest, Aug. , 2005

L. Henrique, O. Inácio, J. Paulino, J. Antunes, Optimization of vibratory and acoustical components of percussion instruments: Theoretical and

experimental results, *Forum Acusticum*, Budapest, Aug. , 2005.

O. Inácio, L. Henrique, J. Antunes, Optimized bass-trapping resonators for control rooms: A preliminary study, *Internoise.*, Rio de Janeiro, Brasil, Aug. 7-10, 2005.

O. Inácio, J. Antunes, Dynamical regimes of bowed-string instruments with body-coupling, *12<sup>th</sup> Int. Congress on Sound and Vibration*, Lisboa, July 11-14, 2005.

L. Henrique, J. Antunes, O. Inácio, J. Paulino, Application of optimization techniques for acoustical resonators, *12<sup>th</sup> Int. Congress on Sound and Vibration*, Lisboa, July 11-14, 2005.

#### Communications

J. Antunes, J. Soeiro de Carvalho, L. Henrique, L'Orgue au Portugal: Un parcours historique et géographique, *Symp. Des Tuyaux et des Orgues of the French Society of Acoustics, Festival of Toulouse-les-Orgues*, Oct. 7-8, poster.

J. Antunes, O. Inácio, The physics of musical instruments, *Conference series on the Int. Year of Physics*, FEUP, Porto, Nov. 23, poster.

## Environmental Radioactivity

### Books and Book Chapters

F.P. Carvalho, J.M. Oliveira, M.J. Madruga, I. Lopes, A. Libânio, L. Machado, Contamination of Hydrographic Bassins Mining Areas of Portugal. *Uranium in the Environment, Mining Aspects and Consequences*, B.J. Merkel and A. Hasche-Berger Ed. Springer-Verlag Berlin Heidelberg (2005) 691-702.

### Journals

A. Baeza, E. Garcia, C. Miró, A. Rodriguez, M.M. Sequeira. Behaviour of Tritium in the Waters of the River Tagus. *Fusion Science and Technology*, Vol 48, Nº 1 (2005) 488-491.

F.P. Carvalho. Uso de Pórticos de Detecção de Materiais Radioactivos em Sucatas e Lixos. *Indústria e Ambiente*, 39 (2005) 36-39.

F.P. Carvalho. Transporte de Materiais Radioactivos: sinalização de acordo com as normas internacionais. *Segurança*, 169 (2005) 51-54.

### Conference Proceedings

F.P. Carvalho. Environmental Impact of Radioactive Ore Mining and Milling Activities and Radiological Protection of the Population. *1st Int. Congress of Energy and Environment Engineering and Management* Portalegre, Portugal, 18-20 May 2005 (ISBN: 84-934089-9-9) (CD-ROM).

F.P. Carvalho. Residues of persistent organic pollutants in coastal environments - a review *1st Int. Conf. on Coastal Conservation and Management in the Atlantic and Mediterranean (ICCCM'05)*, Tavira, Portugal, 17-20 April, pp. 423-431. F.V.Gomes, F. T. Pinto, L. Neves, A. Sena and O.Ferreira (eds), FEUP, Universidade do Porto (ISBN: 972-752-083-9).

F.P. Carvalho, J.M. Oliveira, A. Libânio, I. Lopes, G. Ferrador, M.J. Madruga. Radioactivity in Public Water Supplies in the Uranium Mining Regions of Portugal. *Int. Workshop on Environmental Contamination from Uranium Production Facilities and their Remediation*, IAEA Proc. Series, ISBN 92-0-104305-8 (2005) pp 41-51.

F.P. Carvalho, M.J. Madruga, M.C. Reis, J.G. Alves, J.M. Oliveira, J. Gouveia, L. Silva. Radioactive Survey in Former Uranium Mining Areas in Portugal. *Int. Workshop on Environmental Contamination from Uranium Production Facilities and their Remediation*, IAEA Proc. Series, ISBN 92-0-104305-8 (2005) pp 29-40.

F.P. Carvalho, M.J. Madruga, M.C. Reis, J.G. Alves, J.M. Oliveira, J. Gouveia, L. Silva. Radioactive

Contamination around Old Uranium Mining Areas in Portugal, *2nd Int. Conf. on Radioactivity in the Environment*, P. Strand, P. Borretzen, T. Jolle Editors. Norwegian Radiation Protection Authority, Osteras, Norway ISBN: 82-90362-21-8. (2005) 35-38.

F.P. Carvalho, M.J. Madruga, A. Brogueira, M.C. Reis, J.G. Alves, J.M. Oliveira, R. Trindade, L. Portugal, C. Pires. Depleted Uranium and Environmental Radioactivity in Kosovo after the Balkan's War. *2nd Int. Conf. on Radioactivity in the Environment*, P. Strand, P. Borretzen, T. Jolle Editors. Norwegian Radiation Protection Authority, Osteras, Norway ISBN: 82-90362-21-8. (2005) 95-98.

I. Lopes, M.J. Madruga, F.P. Carvalho. Application of Liquid Scintillation Counting Techniques to Gross Alpha, Gross Beta, Radon and Radium Measurements in Portuguese Waters. *Int. Conf. NORM IV, Naturally Occurring Radioactive Materials*, IAEA-TECDOC-1472 (2005) 357-367.

I. Lopes, F. P. Carvalho, J.M. Oliveira, M.J. Madruga, G. Ferrador, M.M. Sequeira. Estudo sobre a Radioactividade de Algumas Águas de Consumo. *1st Int. Congress Energy and Environment Engineering and Management*, Portalegre, Portugal, May 2005, (ISBN: 84-934089-9-9) (CD-ROM).

J.M. Oliveira, A. Libânio, F.P. Carvalho. Radioactive Contamination of the North-Atlantic Monitored along the Portuguese Coast with Bio-indicators. *1st Int. Conf. on Coastal Conservation and Management in the Atlantic and Mediterranean (ICCCM'05)*, Tavira, Portugal, 17-20 Apr. 2005, pp. 399-405. F.V.Gomes, F.T. Pinto, L. Neves, A. Sena and O. Ferreira (Eds: FEUP, Universidade do Porto, (ISBN 972-752-083-9).

M.J. Madruga, I. Faria. The Comparative Uptake by Shrubs of  $^{226}\text{Ra}$ ,  $^{210}\text{Pb}$  and Essential Elements at Uranium Mill Tailings. *2nd Int. Conf. on Radioactivity in the Environment*, P. Strand, P. Borretzen, T. Jolle Editors. Norwegian Radiation Protection Authority, Osteras, Norway ISBN: 82-90362-21-8. (2005) 278-281.

P. Duarte, L. Machado, M.J. Reis, Radon Survey in Old Uranium Mines in the Region of Sabugal, Portugal. *Int. Workshop on Environmental Contamination from Uranium Production Facilities and their Remediation*, IAEA Proc. Series, ISBN 92-0-104305-8 (2005) 71-79.

### Communications

A.R. Gomes, F. Rodrigues, L. Machado, M.M. Sequeira, M.J. Madruga. Aplicação da Técnica de Cromatografia de Troca Iónica à Determinação de

## PUBLICATIONS

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Actividade Beta Residual em Amostras de Águas de Superfície. *4º Encontro Nac. de Cromatografia*, Évora, 12-14 Dec., oral.

C. Faisca. O DPRSN/ITN e o Gás Radão Programa da União Europeia sobre o Radão: ERRICCA 2, *3<sup>th</sup> Nat. Journeys about Radon and Natural Radioactivity*, Nisa, Portugal, Feb., oral.

F.P. Carvalho. Nuclear and Radiological Emergencies. *Seminar of Nato Defence Group on Proliferation.*, Lisboa, 16-17 June, oral.

M.J. Madruga, M.M. Sequeira, I. Lopes, L. Silva. Radioactividade nos Rios Tejo e Zêzere. *I Jornadas Luso Brasileiras de Protecção Contra Radiações e XI Jornadas Portuguesas de Protecção Contra Radiações*, Lisboa, 23-25 Nov., oral.

M.J. Reis. A Radioactividade no Ambiente – Radioactividade Natural e Artificial, *3<sup>th</sup> Nat. Journeys on Radon and Natural Radioactivity*, Nisa, Feb., oral.

M.J. Reis. A Radioactividade no Ambiente, *Conf. A Física e a Vida*, Coimbra, 1 Oct., oral.

M.J. Reis, H. Fonseca. Activity Size Distributions of Natural Radioactive Aerosols in Outdoor Air. *I Jornadas Luso Brasileiras de Protecção Contra*

*Radiações e XI Jornadas Portuguesas de Protecção Contra Radiações*, Lisboa, 23-25 Nov., oral.

P. Duarte. Cartografia do Radão em Portugal. Técnicas de Redução dos Níveis de Radão. Radão no Interior de Habitações do Concelho de Nisa, *3<sup>th</sup> Nat. Journeys about Radon and Natural Radioactivity*, Nisa, Feb., oral.

### Internal Reports

M.J. Madruga, M.M. Sequeira, G. Ferrador, M.A. Gameiro, M. Reis, I. Lopes, L. Silva, J. Gouveia, L. Ramos, L. Machado, M.A. Pereira, M.A. Tavares, F.P. Carvalho, J.M. Oliveira, A. Libânio. Vigilância Radiológica a Nível Nac. (Ano 2004). *DPRSN, Série A, nº29/2005*, ISBN 972-8660-30-8, Depósito Legal 194022/03.

J.M. Falcão, F.P. Carvalho, M. Leite, M. Alarcão, E. Cordeiro, J. Ribeiro, *et al.*. MinUrar- Minas de Urânio e seus Resíduos: Efeitos na Saúde da População. Relatório Científico I, July 2005, Publ. INSA, INETI, ITN.

G. Ferrador, M.M. Sequeira, I. Lopes, M.A. Tavares, M.A. Pereira, L. Ramos, M.J. Madruga, E. Oliveira, J.M. Oliveira, Water radioactivity measurement in public and mineral water suppliers (3).

## Measurement Unit

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### Communications

L. Machado, R. Melo, J. Branco, N. R. Pinhão and M. L. Botelho, Aplicação da Cromatografia Iónica no estudo do impacto da radiação gama em lamas provenientes de águas residuais de uma indústria de tratamento de carne, *4º Encontro Nac. de Cromatografia*, Évora, 12-14 December 2005, poster.

ML Botelho, J Branco, R Melo, L Machado, M A Castelo Branco, M R Menino, Slaughterhouse Sludge

Treatment Using Ionizing Radiation - Studies on Sludge as Agriculture Fertilizers, *PACIFICHEM 2005*, Honolulu, USA, poster.

### Internal reports

N. R. Pinhão Measurement and Data Treatment, ITN 2005

L. Silva, J. Cardoso, Detection and Measurement of Ionizing Radiations, ITN 2005.

## Metrological Laboratory of Ionising Radiation

---

### Communications

J. Cardoso, A. F. Carvalho, C. Oliveira. Simulation Studies on a Prototype Ionization Chamber for Measurement of Personal Dose Equivalent,  $H_p(10)$ . *IM2005*, Vienna, April 2005, poster.

J. Cardoso, Quantities and units in Radiation Protection. MSc. in Technological Physics Engineering, Security and Radiation Protection. Instituto Superior Técnico, April 2005, Lisbon.

J. Cardoso. Ionization Chambers. MSc. in Technological Physics Engineering, Security and Radiation Protection. Instituto Superior Técnico, July 2005, Lisbon.

## Radiological Protection and Radioactive Waste Management

### Books

R. Trindade, I. Paiva, L. Portugal, Manual de Procedimentos para a Gestão de Resíduos Radioactivos. Recomendações Gerais (DGIES-ITN/DPRSN), *Cadernos DGIES n° 5*, Mar 2005.

### Journals

I. Paiva, C. Oliveira, L. Portugal, R. Trindade, Interim storage of spent and disused sealed source: optimization of external dose distribution in waste grids, using MCNPX code, *Rad. Prot. Dosim.* 116: (2005) 417-422,

### Conference Proceedings

R. Trindade, I. Paiva, L. Portugal, Radioactive Waste Management in Portugal, *Int. Symp. on Disposal of Low Activity Radioactive Waste*, IAEA, 2005

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

C.Oliveira, A.N.Falcão, R.Trindade, M.C.Lopes, M.C. De Sousa, P. Rosário, Formação e Treino dos Peritos em Protecção Radiológica Situação presente e um projecto para o futuro, *I Jornadas Luso Brasileiras de Protecção contra Radiações e XI Jorn. Portuguesas contra Radiações*, IST, Nov 2005.

### Communications

R.Trindade, Radioprotecção, *VIII Jornadas Nacionais de Química Industrial*, Covilhã, 12 Mar., oral.

R.Trindade, Protecção Radiológica, *Semana das Ciências Experimentais da Escola Secundária de Monserrate*, Viana do Castelo, Abril, oral.

M.I.F. Paiva, R. Trindade, L. Portugal, Environmental risks associated to the radioactivity in scrap metal overview of the Portuguese situation. *2<sup>nd</sup> Int. Conf. on Radioactivity in the Environment and 6<sup>th</sup> Int. Conf. on Environmental Radioactivity in the Artic & Antarctic*, Nice, France, 2-6 Oct., oral and poster.

F.P. Carvalho M. J. Madruga, A. Brogueira, M. Reis, J. G. Alves, J.M. Oliveira, R. Trindade, L. Portugal, C. Pires, Depleted uranium and environmental radioactivity in Kosovo after the Balkan's war; *2<sup>nd</sup> Int. Conf. on Radioactivity in the Environment and 6<sup>th</sup> Int. Conf. on Environmental Radioactivity in the Artic & Antarctic*, Nice, France 2-6 Oct., oral and poster.

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; *3<sup>rd</sup> Int. Conf. on Education and Training in Radiological Protection*, ETRAP; Bruxelles, 23-25 Nov., oral.

C.Oliveira, A.N.Falcão, R.Trindade, M.C.Lopes, M.C. De Sousa, P. Rosário, Formação e Treino dos Peritos em Protecção Radiológica. Situação presente e um projecto para o futuro, *I Jornadas Luso Brasileiras de Protecção contra Radiações e XI Jorn. Portuguesas contra Radiações*, IST, Lisboa, Nov., oral.

### Internal Reports

R. Trindade, I. Paiva, L. Portugal, P. Duarte, J. Venâncio, L. Brás, F. Gomes, L. Silva, J. Sebastião, L. Madureira, M.Reis, R. Trincheira, Discharges from nuclear medicine (2); Nuclear vessels (3); Scrap metal (11); Transport of radioactive materials (2); Medical and industrial radiological facilities (6).

## Dose Assessment and Dose Registry

### Communications

V. Kamenopoulou et al., Aspects of Harmonization of Individual Monitoring for External Radiation in Europe: Conclusions of a EURADOS Action, *EURADOS Annual Meeting*, Krakow, Poland, 19-21 January 2005, poster.

M.B. Martins, J.G. Alves, J.N. Abrantes, A.R. Roda, Occupational Exposure in Nuclear Medicine in Portugal in the 1999-2003 Period, *IM2005 European Workshop on Individual Monitoring of Ionising Radiation*, Vienna, Austria 11-15 April 2005, poster.

J.G. Alves, J. Mairós, In-Flight Dose Estimates for Aircrew and Pregnant Female Crew Members in Military Transport Missions, *IM2005 European Workshop on Individual Monitoring of Ionising Radiation*, Vienna, Austria 11-15 April 2005, poster.

J.G. Alves, J.N. Abrantes, S. Rangel, L. Santos, A Database for the Storage of Quality Control Parameters, *IM2005 European Workshop on Individual Monitoring of Ionising Radiation*, Vienna, Austria, 11-15 April 2005, poster.

## Radiological Risk and Safety Assessment

### Journals

A.D. Oliveira, Photon track evolution, *Rad. Prot. Dosim.* 115 (2005) 600-605.

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

M. Neves, A. Kling and A. D. Oliveira, Radionuclides used for therapy and suggestion for new candidates, *J. Radioanalytical & Nucl. Chem.*, 266 (2005) 377-384.

A.S. Rodrigues, N.G. Oliveira, O. M. Gil, A. Leonard, J. Rueff, Use of cytogenetic indicators in radiobiology, *Rad. Prot. Dosim.* 115 (2005) 455-460.

S.N. Silva, O. M. Gil, V.C. Oliveira, M.N. Cabral, A.P. Azevedo, A. Faber, I. Manita, T.C. Ferreira, F. Limbert, J.E. Pina, J. Rueff, J. Gaspar, Association of polymorphisms in *ERCC2* gene with non-familial thyroid cancer risk, *Cancer Epidemiol Biomarkers Prev* 14 (2005) 2407-2412.

U. Abbondanno et al., The data acquisition system of the neutron time of flight facility n\_TOF at CERN, *Nucl. Instr. Meth. A* 538 (2005), 692.

### Conference Proceedings

R. Terlizzi et al., Measurement of the  $^{139}\text{La}(n,\gamma)$  cross section, *Int. Conf. Capture  $\gamma$ -ray Spectroscopy and Related Topics*, Notre Dame, USA, 5-9 Sep., 2005.

C. Domingo-Pardo et al., Measurement of the resonance capture cross section of Pb-204 and Pb-206 and the termination of the s-process, *Int. Conf. Capture  $\gamma$ -ray Spectroscopy and Related Topics*, Notre Dame, IN, USA, 5-9 Sep., 2005.

P.F. Mastinu, et al., Neutron cross section measurements at n\_TOF for ADS related studies, *Eur. Physical Society, 19<sup>th</sup> Nuclear Physics Divisional Conf. New Trends in Nuclear Physics Applications and Technology* Pavia, Italy, Sep. 5-9, 2005.

A. Carrillo de Albornoz, L. Marques, I.F. Gonçalves, P. Vaz, Characterization of a Neutron Beam Available at the RPI Using a Set of Bonner Spheres, *Rad. Prot. Dosim.* 115 (2005), ICRS-10/RPS 2004.

I.F. Gonçalves, J. Salgado, L.M.N. Távora, P. Vaz, Towards The Enhancement of The Photon/Neutron Discrimination of  $\text{C}_6\text{D}_6$  Detectors In the Range From 1 MeV To 10 MeV Using Liquid Scintillator Materials Doped With High-Z Elements, *Rad. Prot. Dosim.* 116 (2005), ICRS-10/RPS 2004.

### Communications

F.C. Teixeira, I.F.A. Pereira, M.J.M. Curto and M. Neves, Synthesis and characterization of new indazolebisphosphonates Sm-153 complexes, *VI<sup>a</sup> Conf. de Química Inorgânica*, Funchal, Madeira, Portugal, March 31-April 2, poster.

A. Carrillo, L. Marques, A.D. Oliveira, I.F. Gonçalves, P. Vaz and D. Marques, Dose assessment in a 650 keV electron irradiator for industrial applications, *MC2005, The Monte Carlo Method: Versatility Unbounded In A Dynamic Computing World*. Chattanooga, USA, 17-21 April, poster.

C. Carrapiço, I.F. Gonçalves, J. Manteigas, A.D. Oliveira, P. Vaz, Radiological risk assessment of a storage facility for radioactive sources, *MC2005*, Chattanooga, 17-21 April, Chattanooga, USA, oral.

Wagener J.M., Zeevaart J.R., Neves M., Costa M.C., Rodrigues C., Dithube M.K., Knoesen, Louw W.K.  $^{99\text{m}}\text{Tc}$ -Labelled biguanide derivatives: chemical speciation modelling and evaluation in vervets, *16<sup>th</sup> Int. Symp. on Radiopharmaceutical Chemistry*, University of Iowa, USA, June 24-28, poster.

S. Torres, J.P. André, J.A. Martins, M. Isabel Prata, A.C. Santos, M. Neves, T.B. Rodrigues, P. López-Larrubia, S. Cerdán, C.F.G.C. Geraldes, Assessment of Gd(III)-EPTA-C16, a new self-assembling Gd(III)-chelate: biodistribution and gamma imaging of the  $^{153}\text{Sm}$ (III)-labelled ligand and MR imaging studies of the Gd(III)-chelate in a rat model. *COST D21 workshop* Cologne, Germany, Sep., oral.

M. Neves, A. Kling, A. D. Oliveira, Radionuclide Therapy: Dose Rate, Cell Cluster and Radionuclide Selection. *XX ALASBIMN American-Latin Association of Biology and Nuclear Medicine*, Punta del Este, Uruguay, 4-7 Dec., oral.

S.N. Silva, O. Monteiro Gil, V.C. Oliveira, M. N. Cabral, A.P. Azevedo, A. Faber, I. Manita, T.C. Ferreira, E. Limbert, J.E. Pina, J. Rueff, J. Gaspar, Association of ERCC2 polymorphisms with non-familial thyroid cancer. *Keystone Symposia Genome Instability & Repair*, New México, USA, Mar., poster.

O.M. Gil, S. Silva, N. Oliveira, A. Rodrigues, A. Laires, T. Ferreira, E. Limbert, J. Rueff, J. Gaspar, ERCC2 polymorphisms and micronuclei levels in thyroid cancer patients after treatment with  $^{131}\text{I}$ . *35<sup>th</sup> Annual Meeting Eur. Environmental Mutagen Society- Environmental and human genetic disease – Causes, mechanism & effects*, Kos Island, Greece July, poster.

M. J. Silva, O. M. Gil, P. Costa, A. C. Sousa, P. Cardoso, L. Pedro, A. Dias, P. Nogueira, J. Marinho-Falcão, M. Boavida, Chromosome aberrations in residents exposed to uranium mines waste, *35<sup>th</sup> Annual Meeting European Environmental Mutagen Society*, Kos Island, Greece July, poster.

### Internal Reports

A.D. Oliveira, P. Vaz, M.A. Costa, Radiation Safety Reports on: Veterinary, Medicine, Industry and Research (151); Radionuclides Laboratories (4); Linear Accelerators (3); Mössbauer Spectroscopy (2); Brachytherapy (1); Nuclear Medicine (1); Industrial Accelerators (1).



## New Materials and Compounds

### Advanced Materials Research Group

#### Books and Book Chapters

A. Kling, Channelling, in: 'Encyclopedia of Physics, 3<sup>rd</sup> Edition', R.G. Lerner, G.L. Trigg (Eds:), Wiley-VCH, Weinheim, Germany, 2005, ISBN 3-527-40554-2, pp. 268-272.

#### Journals

A. Fonseca, E. Alves, J.P. Leitão, N.A. Sobolev, M.C. Carmo, A.I. Nikiforov, Optical and structural study of Ge/Si quantum dots on Si(1 0 0) surface covered with a thin silicon oxide layer, *Mat. Sci. and Eng.: B*, 124-125 (2005) 462-465,

A. Fonseca, N. Franco, E. Alves, N. P. Barradas, J.P. Leitão, N.A. Sobolev, D.F. Banhart, H. Presting, V.V. Ulyanov, A.I. Nikiforov, High resolution backscattering studies of nanostructured magnetic and semiconducting materials, *Nucl. Instr. Meth. B241* (1-4): 454-458, Dec 2005.

A. Kling, J.C. Soares, C. Prieto, J. Jimenez, A. Rodríguez, J. Sangrador, T. Rodríguez, Ion Beam Analysis of the Dry Thermal Oxidation of Thin Polycrystalline SiGe Films, *Nucl. Instr. Meth. B240* (2005) 405-408.

A. Mitric, V. Corregidor, L.C. Alves, A. Amariei, C. Díaz-Guerra, J. Piqueras, Synthesis and characterisation of GaSb and GaInSb feed materials, *J. Crystal Growth*, 275, 1-2 (2005) e601-e607.

A. Paúl, E. Alves, L.C. Alves, C. Marques, R. Lindau, J.A. Odriozola, Microstructural characterization of Eurofer-ODS RAFM steel in the normalized and tempered condition and after thermal aging in simulated fusion conditions, *Fusion Engineering and Design*, 75-79: 1061-1065, Nov 2005.

A. Paúl, E. Alves, L.C. Alves, C. Marques, R. Lindau, J.A. Odriozola, Microstructural characterization of Eurofer-ODS RAFM steel in the normalized and tempered condition and after thermal aging in simulated fusion conditions, *Fusion Engineering and Design*, 75-79: 1061-1065, Nov 2005.

A.L. Stepanov, C. Marques, E. Alves, R.C. Da Silva, M.R. Silva, R.A. Ganeev, A.I. Rysanyansky, T. Usmanov, Nonlinear optical properties of gold nanoparticles synthesized by ion implantation in sapphire matrix, *Tech. Phys. Lett.* 31 (8) :702-705, 2005

A.R. Ganeev, A.I. Rysanyansky, A.L. Stepanov, C. Marques, R.C. Da Silva, E. Alves, Application of RZ-scan technique for investigation of nonlinear refraction of sapphire doped with Ag, Cu, and Au

nanoparticles, *Optics Communications* 253 (1-3): 205-213, Sep 2005

A.R. Ramos, C. Marques, E. Alves, A.C. Marques, R.M. Almeida, Stability of erbium and silver implanted in silica-titania sol-gel films, *Nucl. Instr. Meth. B240* (1-2): 415-419 Oct 2005.

C. Marques, A. Wemans, M.J.P. Maneira, A. Kozanecki, R.C. Da Silva, E. Alves, Site location and optical properties of Eu implanted sapphire, *Nucl. Instr. Meth. B240* (1-2): 409-414 Oct 2005.

C. Pascual-Izarra, N. P. Barradas, G. García, A. Climent-Font, Experimental stopping forces for He, C, O, Al and Si ions in aluminum oxide in the energy range of 40 to 1250 keV/nucleon, *Nucl. Instr. Meth. B239* (2005) 135-146.

C. Stelian, T. Duffar, A. Mitric, V. Corregidor, L.C. Alves, N.P. Barradas, Growth of concentrated GaInSb alloys with improved chemical homogeneity at low and variable pulling rates, *J. Crystal Growth* 283 (2005) 124-133.

E. Alves, L.C. Alves, N. Franco, M.R. Da Silva, A. Paúl, J.B. Hegeman, F. Druyts, Characterization and stability studies of titanium beryllides, *Fusion Engineering and Design*, 75-79: 759-763, Nov 2005.

F. Vaz, J. Ferreira, E. Ribeiro, L. Rebouta, S. Lanceros-Mendez, J. A. Mendes, E. Alves, P. Goudeau, J.P. Riviere, F. Ribeiro, I. Moutinho, K. Pischow, J. De Rijk, Influence of nitrogen content on the structural, mechanical and electrical properties of TiN thin films, *Surf. Coat. Tech.* 191 (2-3): 317-323, Feb 2005

G. Abrasonis, J.P. Rivière, C. Templier, L. Pranevicius, N.P. Barradas, Flux effect on the ion beam nitriding of austenitic stainless-steel AISI 304L, *J. Appl. Phys.* 97 (2005) 124906 1-15.

H.F.R. Pinho, A. Vieira, N.R. Nené, N.P. Barradas, Artificial neural network analysis of multiple IBA spectra, *Nucl. Instr. Meth. B228* (2005) 383-387.

J. Olivares, G. García, F. Agulló-López, F. Agulló-Rueda, A. Kling, J.C. Soares, Generation of Amorphous Surface Layers in LiNbO<sub>3</sub> by Ion Beam-Irradiation: Thresholding and Boundary Propagation, *Appl. Phys.* A81 (2005) 1465-1469.

J.P. Leitão, A. Fonseca, N.A. Sobolev, M.C. Carmo, N. Franco, A.D. Sequeira, T.M. Burdaev, V.A. Kurbatov, M.M. Rzaev, A.O. Pogosov, N.N. Sibeldin, V.A. Tsvetkov, H. Lichtenberger, F. Schaffler, Low-temperature molecular beam epitaxy of Ge on Si, *Mat.*



- Sci. in Semiconductor Processing* 8 (1-3): 35-39, Feb-Jun 2005.
- J. Vincent, V. Bermudez, E. Dieguez, L.C. Alves, V. Corregidor, N.P. Barradas, Comparison between vertical Bridgman and feeding techniques for GaInSb alloy growths, *J. Crystal Growth*, 275 (1-2): e537-e542, Feb 2005.
- J.V. Pinto, M.M. Cruz, R.C. Da Silva, E. Alves, M. Godinho, Magnetic properties of TiO<sub>2</sub> rutile implanted with Ni and Co, *J. Magn. and Magn. Mat.*, 294 (2): e73-e76, Jul 2005.
- J.V. Pinto, M.M. Cruz, R.C. Da Silva, E. Alves, R. Gonzalez, M. Godinho, Magnetic nanoscale aggregates of cobalt and nickel in MgO single crystals, *Eur. Phys. J. B* 45 (3): 331-338, Jun 2005.
- J.Z. Wang, M. Peres, J. Soares, O. Gorochoy, N.P. Barradas, E. Alves, J.E. Lewis, E. Fortunato, A. Neves, T. Monteiro, Annealing properties of ZnO films grown using diethyl zinc and tertiary butanol, *J. Phys. Cond. Matt.* 17 (10): 1719-1724, Mar 2005.
- K. Lorenz, R. Vianden, Anomalous temperature dependence of the EFG in AlN measured with the PAC-probes <sup>111</sup>In and <sup>181</sup>Hf, *Hyperfine Interaction*, 9044-0 (2005).
- K. Lorenz, E. Alves, E. Wendler, O. Bilani, W. Wesch, M. Hayes, Damage formation and annealing at low temperatures in ion implanted ZnO, *Appl. Phys. Lett.* 87 (19): 191904, Nov 2005.
- K. Wang, R.W. Martin, K.P. O'donnell, V. Katchkanov, E. Nogales, K. Lorenz, E. Alves, S. Ruffenach, O. Briot, Selectively excited photoluminescence from Eu-implanted GaN, *Appl. Phys. Lett.* 87 (11): 112107 Sep 2005.
- M. Bianconi, N.P. Barradas, L. Corraera, The stopping cross section of aluminium for He ions, *Nucl. Instr. Meth. B* 239 (2005) 127-134.
- M. Peres, L.C. Costa, A. Neves, M.J. Soares, T. Monteiro, A.C. Esteves, A. Barros-Timmons, T. Trindade, A. Kholkin, E. Alves, A green-emitting CdSe/poly(butylacrylate) nanocomposite, *Nanotechnology* 16 (9): 1969-1973 Sep 2005.
- M. Rickart, A. Guedes, N. Franco, N.P. Barradas, P. Diaz, M. Mackenzie, J.N. Chapman, P.P. Freitas, Exchange bias in ordered antiferromagnets by rapid thermal anneal without magnetic field, *J. Phys. D* 38 (13): 2151-2155, Jul 7, 2005.
- M.A. Reis, P.C. Chaves, V. Corregidor, N.P. Barradas, E. Alves, F. Dimoth, A.W. Bett, Detection angle resolved PIXE and the equivalent depth concept for thin film characterization, *X-Ray Spectrometry* 34 (4): 372-375, Jul-Aug 2005.
- N. Franco, I.V. Yavorovskiy, A. Fonseca, J.A.A. Gouveia, C. Marques, E. Alves, R.A. Ferreira, P.P. Freitas, N.P. Barradas, Rutherford backscattering and X-ray reflectivity analysis of tunnel barriers, *Nucl. Instr. Meth. B* 240 (1-2): 365-370, Oct 2005.
- N. Franco, J.A.A. Gouveia, E. Alves, S. Cardoso, P.P. Freitas, N.P. Barradas, Analysis of nanolayered samples with a <sup>4</sup>He beam, *Nucl. Instr. Meth. B* 241 (1-4): 361-364, Dec 2005.
- N. Franco, N.P. Barradas, E. Alves, A.M. Vallêra, R.J.H. Morris, O.A. Mironov, E.H.C. Parker, XRD analysis of strained Ge-SiGe heterostructures on relaxed SiGe graded buffers grown by hybrid epitaxy on Si(0 0 1) substrates, *Mat. Sci. and Eng. B*, 124-125 (5): 123-126, Dec 2005.
- N.P. Barradas, A. Fonseca, N. Franco, E. Alves, Beyond single scattering off flat samples, *Nucl. Instr. Meth. B* 241 (1-4): 316-320, Dec 2005.
- N.P. Barradas, C. Pascual-Izarra, Double scattering in RBS analysis of PtSi thin films on Si, *Nucl. Instr. Meth. B* 228 (2005) 378-382.
- N.P. Barradas, N. Added, W.M. Arnoldbik, I. Bogdanovi-Radovi, W. Bohne, S. Cardoso, C. Danner, N. Dytlewski, P.P. Freitas, M. Jaksi, C. Jeynes, C. Krug, W. N. Lennard, S. Lindner, C. Linsmeier, Z. Meduni, P. Pelicon, R.P. Pezzi, C. Radtke, J. Röhrich, T. Sajavaara, T.D.M. Salgado, F.C. Stedile, M.H. Tabacniks, I. Vickridge, A round robin characterisation of the thickness and composition of thin to ultra-thin AlNO films, *Nucl. Instr. Meth. B* 227 (2005) 397-419.
- P. Carvalho, F. Vaz, L. Rebouta, L. Cunha, C.J. Tavares, C. Moura, E. Alves, A. Cavaleiro, P. Goudeau, E. Le Bourhis, J.P. Riviere, J.F. Pierson, O. Banakh, Structural, electrical, optical, and mechanical characterizations of decorative ZrOxNy thin films, *J. Appl. Phys.* 98 (2): 023715, Jul 2005.
- P. Carvalho, F. Vaz, L. Rebouta, S. Carvalho, L. Cunha, P. Goudeau, J.P. Riviere, E. Alves, A. Cavaleiro, Structural stability of decorative ZrNxOy thin films, *Surf. Coat. Tech.* 200 (1-4) 748-752, Oct 2005.
- P. Sanguino, O.M.N.D. Teodoro, M. Niehus, C.P. Marques, A.M.C. Moutinho, E. Alves, R. Schwarz, Structural and composition analysis of GaN films deposited by cyclic-PLD at different substrate temperatures, *Sensors and Actuators A-Physical* 121 (1): 131-135, May 2005.
- S. Cardoso, C. Cavaco, R. Ferreira, L. Pereira, M. Rickart, P.P. Freitas, N. Franco, J. Gouveia, N.P. Barradas, Characterization of CoFeB electrodes for tunnel junctions, *J. Appl. Phys.* 97, 10C916 (2005).
- S. Pereira, M.R. Correia, E. Alves, K.P. O'donnell, Comment on Direct evidence of nanocluster-induced luminescence in InGaN epilayers [Appl. Phys. Lett. 86, 021911 (2005)], *Appl. Phys. Lett.* 87 (13): 136101, Sep 2005.
- S. Zhang, L. Raniero, E. Fortunato, X. Liao, Z. Hu, I. Ferreira, H. Aguas, A R. Ramos, E. Alves, R. Martins, Characterization of silicon carbide thin films and their use in colour sensor, *Solar Energy Materials and Solar Cells* 87 (1-4): 343-348, May 2005.

- T. Wojtowicz, P. Ruterana, K. Lorenz, U. Wahl, E. Alves, S. Ruffenach, G. Halambalakis, O. Briot, The atomic structure of defects formed during doping of GaN with rare earth ions, *Phys. Stat. Sol. (c)* 2, 1081 (2005).
- T. Monteiro, A.J. Neves, M.C. Carmo, M.J. Soares, M. Peres, J. Wang, E. Alves, E. Rita, U. Wahl, Near band-edge slow luminescence in nominally undoped bulk ZnO, *J. Appl. Phys.* 98 (1): 013502, Jul 2005.
- T. Monteiro, A.J. Neves, M.J. Soares, M.C. Carmo, M. Peres, E. Alves, E. Rita, Up conversion from visible to ultraviolet in bulk ZnO implanted with Tm ions, *Appl. Phys. Lett.* 87 (19): 192108, Nov 2005.
- U. Wahl, E. Rita, J.G. Correia, A.C. Marques, E. Alves, J.C. Soares, Direct evidence for As as a Zn-site impurity in ZnO, *Phys. Rev. Lett.* 95 (2005) 215503/1-4.
- U. Wahl, J.G. Correia, E. Rita, J.P. Araújo, J.C. Soares, And The Isolde Collaboration, Lattice sites of implanted Fe in Si, *Phys. Rev. B* 72 (2005) 014115/1-8.
- V. Corregidor, E. Alves, L.C. Alves, N. Barradas, T. Duffar, N. Franco, C. Marques, A. Mitric, Compositional and structural characterisation of GaSb and GaInSb, *Nucl. Instr. Meth. B* 240 (1-2): 360-364, Oct 2005.
- V. Corregidor, N.P. Barradas, E. Alves, N. Franco, L.C. Alves, P.C. Chaves, M.A. Reis, Ion beam analysis of GaInAsSb films grown by MOVPE on GaSb, *Nucl. Instr. Meth. B* 241 (1-4): 326-330, 2005.
- V. Volkov, C. Cascales, A. Kling, C. Zaldo, Growth. Structure and Evaluation of Laser Properties of LiYb(MoO<sub>4</sub>)<sub>2</sub> Single Crystal, *Chem. Mat.* 17 (2005) 291-300.
- ### Conference Proceedings
- A.R. Ramos, E. Alves, L. Ranieiro, E. Fortunato, I. Ferreira, R. Martins, Characterization of nanocrystalline silicon carbide films, S. Zhang, L. Pereira, *20<sup>th</sup> European Photovoltaic Solar Energy Conf.*, 6-10 June 2005, Barcelona, Spain.
- C. Prieto, M. Avella, J. Jimenéz, A. Rodríguez, J. Sangrador, T. Rodríguez, A. Kling, Study of the oxidation of polycrystalline SiGe: formation of Ge nanocrystals and their related luminescence, *Mater. Res. Soc. Symp. Proc.* 862 (2005) A8.3.1 – A8.3.6.
- M. Avella, C. Prieto, J. Jimenéz, A. Rodríguez, J. Sangrador, T. Rodríguez, A. Kling, Luminescence in Ge Nanocrystals Formed by Dry and Wet Oxidation of SiGe Films, *Proc. Soc. Photo-opt. Instr. Eng.* 5838 (2005) 276-284.
- ### Communications
- E. Alves, Advances on rare earth doping of wide bandgap semiconductors, *21<sup>st</sup> Int. Conf. on Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep., Invited talk.
- E. Alves, Structural and Optical studies on rare earth doped wide bandgap semiconductors, *2<sup>nd</sup> ASPECT Workshop on Advanced Spectroscopy*, Kazimierz, Polónia, 29 Sep to 2 Oct., invited talk.
- K. Lorenz, N.P. Barradas, E. Alves, D. Jalabert, B. Daudin, RBS/Channelling analysis of GaN quantum dots in AlN Multilayers, *17<sup>th</sup> Int. Conf. on Ion Beam Analysis (IBA 17)*, Seville, Spain, 26Jun–1July, invited talk.
- K. Lorenz, U. Wahl, E. Alves, E. Nogales, S. Dalmasso, R.W. Martin, K.P. O'Donnell, T. Wojtowicz, P. Ruterana, S. Ruffenach, O. Briot, and the RENIBEL NETWORK, High Temperature Annealing of Rare Earth Implanted GaN-Films, Structural and Optical Properties, *Spring Meeting European Materials Research Society (E-MRS)*, Strasbourg, France, May 31 – June 3, invited talk.
- N.P. Barradas, Quantum dots simulation in RBS, *Workshop on Nanomaterials for Applications in Devices*, ITN, Portugal, 18 April, invited talk.
- U. Wahl, High-lights of solid state physics at ISOLDE, *NuPAC - Nuclear Physics and Astrophysics at CERN*, Geneva, Switzerland, 10-12Oct, invited talk
- U. Wahl, Recent emission channelling experiments in GaN and ZnO, *Seminar, University of Göttingen*, Göttingen, Germany, 17 Jun, invited talk.
- U. Wahl, Semiconductor physics with radioactive isotopes at ISOLDE, *2<sup>nd</sup> ASPECT Workshop on Advanced Spectroscopy Applications*, The ASPECT Centre of Excellence at the Institute of Physics, Kazimierz Dolny, Poland, 29 Sep - 2 Oct, invited talk.
- A. Kling, M.I. Ortiz, A.C. Prieto, A. Rodríguez, T. Rodríguez, J. Jiménez, C. Ballesteros, J.C. Soares, Role of the SiO<sub>2</sub> Buffer Layer Thickness in the Formation of Si/SiO<sub>2</sub>/nano-SiGe/SiO<sub>2</sub> Structures by Dry Oxidation, *IBA 17*, Sevilla, Spain, 27Jun–1Jul
- Kling, RBS Analysis of Nanometric SiGe Structures, *Workshop on Nanomaterials for Applications in Devices*, Sacavém, 18 April, oral.
- B. de Vries, A. Vantomme, U. Wahl, E. Rita, J.G. Correia and the ISOLDE Collaboration, Lattice site location of Lu implanted into GaN, *E-MRS 2005 Spring Meet.*, Strasbourg, France, 31 May –3 Jun, oral
- B. de Vries, D. Smeets, V. Matias, U. Wahl, S. Ruffenach, O. Briot, A. Vantomme, Determination of the mosaic tilt and twist of GaN and AlN samples, *Workshop on GaN-based Materials, Leuven-Peking cooperation*, Leuven, Belgium, Feb., oral.
- C. Marques, N. Franco, L.C. Alves, R.C. Da Silva, E. Alves, Optical and structural behaviour of Cu implanted sapphire, *Surface Modification of Materials by Ion Beams*, Istanbul, Turkey, 4 - 9 Sep, oral.
- E. Alves, C. J. Mchargue, L. C. Onoye, C. Marques, Structure and optical properties of sapphire implanted with boron at room temperature and 1000° C, *13<sup>th</sup>*

- Conf. Radiation Effects in Insulators*, Santa Fe USA, 29 Aug – 2 Sep, oral.
- E. Alves, L.C. Alves, N. Franco, M.R. Da Silva, A. Paúl, Structural and oxidation studies of titanium beryllides, *7<sup>th</sup> IEA Int. Workshop on Be Technology for Fusion*, Santa Barbara, USA, 29 Nov–2 Dec, oral.
- E. Nogales, K. Lorenz, K. Wang, I. Roqan, R.W. Martin, V. Katchkanov, U. Wahl, E. Alves, S. Hernández, S. Dalmasso, K.P. O'donnell, S. Ruffenach, O. Briot and the RENIBEL Network, Luminescence and structural properties of rare-earth implanted gallium nitride, *UK Nitrides Consortium Conf.*, Manchester, U.K., 13-14 Jan., oral.
- G. Lavareda, C. Nunes De Carvalho, E. Fortunato, A.R. Ramos, E. Alves, O. Conde, A. Amaral, Transparent thin film transistors based on indium oxide semiconductor, *1<sup>st</sup> Conf. Advances in Optical Materials*, Tucson, USA, 12-15 Oct, oral.
- K. Lorenz, E. Alves, E. Wendler, W. Wesch, Damage Formation and Annealing at Low Temperatures in Ion Implanted ZnO, *E-MRS 2005 Spring Meeting*, Strasbourg, France, May 31–3 Jun, oral.
- K. Lorenz, E. Alves, M. Soares, T. Monteiro, M. Peres, Optical doping of AlN by Er implantation, *MATERIAIS 2005*, Aveiro, Portugal, 20-23 Mar, oral.
- K. Lorenz, N. Franco, E. Alves, I.M. Watson, E. Nogales, R.W. Martin, K.P. O'Donnell, P.J.M. Smulders, Combined RBS/Channelling and HRXRD Study to Access Structural Properties and Lattice Strain of AlInN Epitaxial Layers Grown on GaN, *Fall Meeting of Materials Research Society, Symp. OO: Growth, Modification, and Analysis by Ion Beams at the Nanoscale*, Boston, USA, Nov 28 – 2 Dec, oral.
- K. Lorenz, U. Wahl, E. Alves, T. Wojtowicz, P. Ruterana, S. Dalmasso, E. Nogales, R.W. Martin, K.P. O'Donnell, S. Ruffenach, O. Briot, Rare earth implantation in GaN – an alternative route to develop integrated, all-nitride light-emitting devices, *2005 Spring Meeting of German Physical Society, Symp. HL: Halbleiter*, Berlin, Germany, 4-9 March, oral.
- M. Vilarigues, A.P. Matos, R.C. Da Silva, Potash glass corrosion: from the 15<sup>th</sup> century to the laboratory, *Int. Conf. on Glass Science in Art and Conservation*, Lisbon, Portugal, Sep., oral.
- U. Wahl, E. Alves, J.P. Araújo, J.G. Correia, E. Rita, J.C. Soares, and the ISOLDE Collaboration, Combined studies of the lattice location and magnetic properties of implanted Fe in ZnO, *IBA 17*, Sevilla, Spain, 26 Jun – 1 Jul, oral.
- U. Wahl, E. Rita, J.G. Correia, E. Alves, J.C. Soares and the ISOLDE Collaboration, Substitutional incorporation of implanted Fe in ZnO, *E-MRS 2005 Spring Meet.*, Strasbourg, France, 31 May –3 Jun, oral
- V.S. Amaral, U. Wahl, J.P. Araújo, A.M.L. Lopes, E. Rita, J.G. Correia, Local probe studies on solid state materials, *Materiais 2005*, Aveiro, 20-23 March, oral.
- A. Amaral, G. Lavareda, P.M. Sousa, A.R. Ramos, E. Alves, C. Nunes De Carvalho, On the role of transparent semiconductor films for transparent electronics by In and In<sub>2</sub>O<sub>3</sub> evaporation, *21<sup>st</sup> Int. Conf. Amorphous and Crystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep, poster.
- A.C. Marques, U. Wahl, J.G. Correia, E. Rita, J.C. Soares, and the ISOLDE Collaboration, Lattice location and perturbed angular correlation studies of implanted Ag in SrTiO<sub>3</sub>, *IBA 17*, Sevilla, Spain, 26 Jun – 1 July, poster.
- A. Fonseca, E. Alves, J.P. Leitão, N.A. Sobolev, M.C. Carmo, A.I. Nikiforov, Ion beam analysis of Ge/Si dots grown on ultrathin SiO<sub>2</sub> interlayers, *Materials 2005*, Aveiro, Portugal, 20-23 March, poster.
- A. Fonseca, E. Alves, J.P. Leitão, N.A. Sobolev, M.C. Carmo, A.I. Nikiforov, Structural and optical study of Ge/Si quantum dots on Si(001) surface covered with a thin silicon oxide layer, *E-MRS 2005 Spring Meeting*, Strasbourg, France, May 31 – 3 June, poster.
- A. Fonseca, E. Alves, N.P. Barradas, J.L. Leitão, N.A. Sobolev, M.C. Carmo, A.I. Nikiforov, H. Presting, RBS/Channelling study of buried Ge quantum dots grown in a Si layer, *IBA 17*, Seville, Spain, Jun26–1 Jul, poster.
- A. Fonseca, E. Alves, N.P. Barradas, J.P. Leitão, N.A. Sobolev, M.C. Carmo, A.I. Nikiforov, Structural and Optical Characterization of Ge quantum dots, *2<sup>nd</sup> ASPECT Workshop on Advanced Spectroscopy*, Kazimierz Dolny, Poland, Sep 29–2 Oct, poster.
- Kling, M.I. Ortiz, J. Sangrador, A. Rodríguez, T. Rodríguez, C. Ballesteros, J.C. Soares, Combined RBS and TEM Characterization of Nano-SiGe Layers Embedded in SiO<sub>2</sub>, *IBA 17*, Sevilla, Spain, Jun27–1 Jul, poster.
- A. Manuaba, F. Pászti, A.R. Ramos, N.Q. Khanh, Z. Zolnai, A. Tunyogi, E. Szilágyi, Effect of pre-implanted oxygen in Si on the retention of implanted He, *IBA 17*, Sevilla, Spain, Jun 26 – 1 Jul, poster.
- A. Paúl, L.C. Alves, E. Alves, J.A. Odrizola, Microstructural characterisation of reduced activation EUROFER ODS alloy after long-term annealing, *12<sup>th</sup> Int. Conf. on Fusion Reactor Material*, Santa Barbara, USA, 5-10 Dec, poster.
- A.C. Marques, U. Wahl, J.G. Correia, E. Rita, J.C. Soares, Emission channelling lattice location experiments in SrTiO<sub>3</sub>, *2<sup>nd</sup> ASPECT Workshop on Advanced Spectroscopy Applications*, The ASPECT Centre of Excellence at the Institute of Physics, Kazimierz Dolny, Poland, 29 Sep.–2 Oct, poster.
- A.G. Rolo, P. Caldelas, A. Chahboun, O. Conde, E. Alves, A.R. Ramos, M.I. Vasilevskiy, M.J.M. Gomes, CdS, CdTe and Ge nanocrystals embedded in dielectric matrices by RF-sputtering technique, *Fisica 2005 – Física para o Século XXI*, Porto, Dec, poster.
- B. de Vries, V. Matias, U. Wahl, J.G. Correia, S. Ruffenach, O. Briot, A. Vantomme, Influence of the

- crystal mosaicity of nitrides on axial channelling, *IBA 17*, Sevilla, Spain, 26 Jun – 1 Jul, poster.
- C. Marques, L.C. Alves, R.C. Da Silva, A. Kozanecki, E. Alves, Ionoluminescence studies of Eu implanted Sapphire, *IBA 17*, Sevilla, Spain, Jun 26 – 1 Jul, poster.
- C. Marques, N. Franco, R.C. Da Silva, A. Wemans, M.J.P. Maneira, E. Alves, Characterization of nickel implanted  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>, *Materials 2005*, Aveiro, Portugal, 20-23 Mar, poster.
- C. Marques, N. Franco, R.C. Da Silva, C. Mchargue, E. Alves, Nanoprecipitates produced by ion implantation of Zn in  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>, *5<sup>th</sup> Iberian Vacuum Meeting*, Guimarães, Portugal, 18-21 Sep, poster.
- E. Alves, C. Marques, T. Monteiro, L.C. Alves, R.C. Da Silva, Optical and structural behaviour of Mn implanted sapphire, *13<sup>th</sup> Conf. Radiation Effects in Insulators*, Santa Fe USA, 29 Aug–2 Sep, poster.
- E. Alves, J.V. Pinto, R.C. Da Silva, M. Peres, M.J. Soares, T. Monteiro, Optical behaviour of Er doped rutile by ion implantation, *13<sup>th</sup> Conf. Radiation Effects in Insulators*, Santa Fe USA, 29 Aug – 2 Sep, poster.
- E. Alves, L. C. Alves, N. Franco, M.R. Da Silva, A. Paúl, Oxidation and stability studies of Beryllium Titanate, *12<sup>th</sup> Int. Conf. Fusion Reactor Material*, Santa Barbara, USA, 5-10 Dec, poster.
- E. Morgado, R. Schwarz, T. Braz, C. Casteleiro, A. Maçarico, M. Vieira, E. Alves, Radiation induced defects in a-Si:H by 1.5 MeV He<sup>4</sup> beam particle studied by photoconductivity and photothermal deflection spectroscopy, *21<sup>st</sup> Int. Conf. Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep, poster.
- E. Nogales, K. Lorenz, K. Wang, I.S. Roqan, R.W. Martin, K.P. O'donnell, E. Alves, S. Ruffenach, O. Briot, Defects in Thin Capping Layers for Protection During High Temperature Annealing of Rare Earth Implanted GaN, *Fall Meeting of Materials Research Society*, Boston, USA, Nov 28–2 Dec, poster.
- G. González Aguilar, A. Wu, M.A. Reis, A.R. Ramos, I. M. Miranda Salvado, E. Alves, M.E.V. Costa, Do SBT seeds act as barriers for Bi diffusion into Platinum in SrBi<sub>2</sub>Ta<sub>2</sub>O<sub>9</sub> thin film synthesis? *Materials 2005*, Aveiro, Portugal, 20-23 Mar, poster.
- I.S. Roqan, C. Trager-Cowan, B. Hourahine, E. Nogales, K.P. O'donnell, R.W. Martin, K. Lorenz, E. Alves, S. Ruffenach, O. Briot, Characterization of the blue emission of Tm/Er co- implanted GaN, *Fall Meeting of Materials Research Society*, Boston, USA, Nov 28-2 Dec, poster.
- J.G. Marques, K. Lorenz, N. Franco, E. Alves, M. Peres, T. Monteiro, M.J. Soares, Defect Production in Neutron Irradiated GaN, *IBA 17*, Seville, Spain, Jun 26 – 1 Jul, poster.
- J.V. Pinto, M.M. Cruz, R.C. Da Silva, E. Alves, R. González, M. Godinho, Stability of Magnetic Co and Ni Nanoprecipitates in MgO, *Materials 2005*, Aveiro, Portugal, 20-23 Mar., poster.
- J.V. Pinto, M.M. Cruz, R.C. Da Silva, M. Godinho, Magnetic Properties of TiO<sub>2</sub> Rutile Implanted with Ni and Co, *Materials 2005*, Aveiro, 20-23 Mar., poster
- J.Z. Wanz, M. Peres, J. Soares, O. Gorochoy, N.P. Barradas, E. Alves, J.E. Lewis, E. Fortunato, R. Maryins, A. Neves, T. Monteiro, Properties of ZnO films grown under different O/Zn ratio in the precursors of diethyl zinc and tertiary butanol, *21<sup>st</sup> Int. Conf. Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep., poster.
- K. Lorenz, E. Alves, E. Wendler, W. Wesch, RBS study of the damage built-up in ZnO during ion implantation at 15 K, *21<sup>st</sup> Int. Conf. Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep., poster.
- K. Lorenz, E. Nogales, R. Nédélec, J. Penner, R. Vianden, E. Alves, R.W. Martin, K.P. O'Donnell, Influence of the Annealing Ambient on Structural and Optical Properties of Rare Earth Implanted GaN, *Fall Meeting of Materials Research Society*, Boston, USA, Nov 28 – 2 Dec., poster.
- L.C. Alves, E. Alves, A. Paúl, M.R. Da Silva, J.A. Odriozola, Ion Beam Characterisation of ODS Steel Samples after Long Term Annealing Conditions, *IBA 17*, Sevilla, Spain, Jun 26 – 1 July, poster.
- M.F. Cerqueira, M. Losurdo, M. Stepikhova, T. Monteiro, E. Alves, O. Conde, Study of the oxygen role in the photoluminescence of erbium doped silicon quantum dots embedded in silicon amorphous matrix, *21<sup>st</sup> Int. Conf. Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep., poster.
- M. Vilarigues, R.C. Da Silva, Characterization of potash-glass corrosion in aqueous solution: a multi-technique approach, *IBA 17*, Sevilla, Spain, Jun 26 – 1 July, poster.
- M.P. Gispert, A.P. Serro, R. Colaço, E. Alves, R.C. Da Silva, B. Saramago, Improvement of the tribological behaviour of the prosthetic pair stainless steel/UHMWPE through TiN coating and chlorine implantation of the metallic counterface, *Materials 2005*, Aveiro, Portugal, 20-23 March, poster.
- N. Franco, E. Alves, M. Rickart, A. Guedes, P.P. Freitas, N.P. Barradas, X-Ray Diffraction Study of Ordered Antiferromagnets for Tunnel Junctions, *Materials 2005*, Aveiro, Portugal, 20-23 Mar., poster.
- N. Franco, E. Alves, N.P. Barradas, Hardware and Software improvements in Hotbird, *Materials 2005*, Aveiro, Portugal, 20-23 March, poster.
- N. Popovici, E. Jimenez, R.C. Da Silva, W.R. Branford, L.F. Cohen, O. Conde, Optical and magnetic properties of Co-doped TiO<sub>2</sub> thin films grown by pulsed laser deposition, *21<sup>st</sup> Int. Conf. on Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep., poster.

- N.R. Nené, A. Vieira, A.C. Marques, R.M. Almeida, A.R. Ramos, E. Alves, N.P. Barradas, Analysis of sol-gel silica-titania films doped with Ag and Er using artificial neural networks, *IBA 17*, Sevilla, Spain, Jun 26 – 1 July, poster.
- P. Caldelas, A.G. Rolo, M.I. Vasilevskiy, E. Alves, A.R. Ramos, M.J.M. Gomes, Raman and XRD studies of Ge nanocrystals in alumina films grown by RF-magnetron sputtering, *5<sup>th</sup> Iberian Vacuum Meeting*, Guimarães, Portugal, 18-21 Sep., poster.
- P. Carvalho, L. Rebouta, F. Vaz, U. Kreissig, N.P. Barradas, A.R. Ramos, E. Alves, Composition and structural dependence on growth conditions of  $ZrO_xN_y$  films, *IBA 17*, Sevilla, Spain, Jun 26 – 1 July, poster.
- R. Schwarz, T. Braz, C. Casteleiro, P. Sanguino, N. Niehus, Y. Vygranenko, M. Vieira, E. Alves, F. Wunsch, M. Kunst, Why are a-Si:H based particle detectors so lousy? *21<sup>st</sup> Int. Conf. on Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep, poster
- S. Decoster, B. De Vries, U. Wahl, A. Vantomme, and the ISOLDE Collaboration, Implantation damage and lattice location of impurities in Ge, *14<sup>th</sup> Int. Summer School on Vacuum, Electron and Ion Technologies*, Sunny Beach, Bulgaria, 12-16 Sep., poster.
- S. Magalhães, A. Fonseca, N. Franco, N. Barradas, N. Sobolev, R. Hey, H. Grahn, E. Alves, Damage behaviour of GaAs/AIAs multilayer structures, *IBA 17*, Seville, Spain, Jun 26 – 1 July, poster.
- S. Pereira, R. Correia, N. Franco, S. Magalhães, N.P. Barradas, E. Alves, Advanced characterization of nanomaterials for electronic and optoelectronic applications by high resolution X-ray Diffraction, *5<sup>th</sup> Iberian Vacuum Meet.*, Guimarães, 18-21 Sep., poster.
- S.A. Filonovich, P. Alpuim, M.F. Cerqueira, E. Alves, Structural and photoluminescence studies of erbium doped nanocrystalline silicon thin films, *21<sup>st</sup> Int. Conf. on Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep., poster.
- T. Monteiro, A.J. Neves, M.C. Carmo, M.J. Soares, M. Peres, E. Alves, E. Rita, U. Wahl, Optical and structural analysis of undoped and re doped by ion implantation bulk ZnO samples, *E-MRS 2005 Spring Meeting*, Strasbourg, France, May 31 – 3 June, poster.
- T. Monteiro, E. Alves, A. Neves, C. Carmo, M. Peres, U. Wahl, M.J. Soares, E. Rita, Optical and structural analysis of bulk ZnO samples undoped and RE doped by ion implantation, *Materiais 2005*, Aveiro, Portugal, 20-23 March, poster.
- T. Monteiro, M.J. Soares, A. Neves, M.C. Carmo, M. Peres, A. Cruz, E. Alves, U. Wahl, And E. Rita, Luminescence and structural properties of defects in ion implanted ZnO, *12<sup>th</sup> Int. Conf. on II-VI Compounds*, Warsaw, Poland, 12-16 Sep., poster.
- T. Monteiro, M.J. Soares, A.J. Neves, M.C. Carmo, S. Pereira, M.R. Correia, M. Peres, E. Alves, E. Rita, U. Wahl, T. Trindade, A. Pereira, Optical active centres in ZnO materials, *21<sup>st</sup> Int. Conf. on Amorphous and Nanocrystalline Semiconductor*, Lisbon, Portugal, 4-9 Sep., poster.
- U. Wahl, E. Rita, J.G. Correia, E. Alves, J.C. Soares, and the ISOLDE Collaboration, Lattice site of implanted Cu and Ag in ZnO, *E-MRS 2005 Spring Meeting*, Strasbourg, France, May 31 – 3 June, poster.

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## Materials Characterization with Radioactive Nuclear Techniques

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### Journals

J.G. Correia, H. Haas, V.S. Amaral, A.M.L. Lopes, J.P. Araújo, S. Le Floch, P. Bordet, E. Rita, J.C. Soares, W. Tröger, and the ISOLDE Collaboration, Atomic ordering of fluorine dopant in the  $HgBa_2CuO_{4+\delta}$  high- $T_c$  superconductor, *Phys. Rev. B* 72 (2005) 144523/1-10.

### Communications

J.G. Correia, Switching ON/OFF after-effects with the e- $\gamma$ ,  $\gamma$ - $\gamma$  PAC techniques, *35<sup>th</sup> Anniversary of*

*Hyperfine Interactions at La Plata*, La Plata, Argentina, 7-10 Nov., invited talk.

J.G. Correia, After-effects in materials measured with the PAC technique, *ISOLDE Seminar CERN*, Geneva, Switzerland, 15 Dec., oral.

J.G. Correia, U. Wahl, J.P.E. Araujo, V. Amaral, E. Alves, J.C. Soares, Material Studies with Radioactive Nuclear Techniques, *5<sup>th</sup> Iberian Vacuum Meeting*, Guimarães, Portugal, 18-21 Sep 2005, oral.

## Nuclear Reactions

### Journals

F. Raiola *et al.*, and the LUNA Collaboration, Electron screening in  $d(d, p)t$  for deuterated metals: temperature effects, *J. Phys. G: Nucl. Part. Phys.*, 31, 11 (2005) 1141-1149.

G. Imbriani *et al.*, S-factor of  $^{14}\text{N}(p,\gamma)^{15}\text{O}$  at astrophysical energies, *Eur. Phys. J. A*, 25, 3 (2005) 455-466.

J. Cruz *Et Al.*, Electron screening in  $^7\text{Li}(p,\alpha)\alpha$  and  $^6\text{Li}(p,^3\text{He})^4\text{He}$  for different environments, *Phys. Lett. B*, 624, 3-4, (2005) 181-185.

D. Bemmerer *Et Al.*, Feasibility of low-energy radiative-capture experiments at the LUNA underground accelerator facility, *Eur. Phys. J. A*, 24, 2 (2005) 313-319.

R. Mateus, A.P. Jesus, J.P. Ribeiro, A code for quantitative analysis of light elements in thick samples by PIGE, *Nucl. Instr. Meth. B229* (2005) 302-308.

R. Mateus, L. C. Alves, A. P. Jesus, A. F. Faria, J. P. Ribeiro, A Milliprobe for PIXE and PIGE Analysis used for the Study of Colour-Zoned Tourmaline, *Physica Scripta T118* (2005) 237-240.

## Condensed Matter Physics

### Journals

L.M. Ferreira, A.N. Falcão, M.H. Gil, Modification of LDPE molecular structure by gamma irradiation for bioapplications, *Nucl. Ins. Meth. B236* (2005) 513-520

L.M. Ferreira, A.N. Falcão, M.H. Gil, New LDPE copolymeric films with enhanced hydrophilic properties prepared by gamma irradiation, *Adv. Mat. Forum III*, 514-516 (2005) 1034-1038.

N. Djourellov, T. Suzuki, M. Misheva, F.M.A. Margaça, I.M. Miranda Salvado, Positron Annihilation Lifetime Study of Organic-inorganic Hybrid Materials Prepared by Irradiation, *J. Non-Cryst. Sol.* 351 (2005) 340-345.

### Conference Proceedings

I.F. Gonçalves, J. Salgado, A.N. Falcão, F.M.A. Margaça, F.G. Carvalho, MCNP simulation to optimize in-pile and shielding parts of the Portuguese SANS instrument, *Rad. Prot. Dosim.* 116 (2005) 562-565, doi:10.1093/rpd/nci 159.

### Communications

F.M.A. Margaça, S.R. Gomes, A.N. Falcão, M.

Carrapiço, L.M. Ferreira And I. M. Miranda Salvado, Hybrid materials prepared by irradiation at a  $^{60}\text{Co}$  source, *Materials 2005 - III Int. Materials Symp.*, Aveiro, Portugal, 20-23 March, poster.

L.M. Ferreira, A.N. Falcão, M.H. Gil, New LDPE copolymeric films with enhanced hydrophilic properties prepared by gamma irradiation, *Materials 2005*, Aveiro, Portugal, 20-23 March, poster.

M. Carrapiço, A.N. Falcão, S.R. Gomes, L.M. Ferreira, F.M.A. Margaça And F. G. Carvalho, Neutron absorbing material to be used in a variable geometry neutron multichannel collimator, *Materials 2005*, Aveiro, Portugal, 20-23 March, poster.

M.H. Casimiro, L.M. Ferreira, J.P. Leal, A.N. Falcão, M.H. Gil, Novos materiais poliméricos para aplicações biomédicas obtidos por irradiação gama, *FiTS 2005 - Conf. Física, Tecnologia e Saúde*, Lisboa, Portugal, 12-13 May, poster.

### Internal Reports

L.M. Ferreira, M.H. Casimiro, Dosimetry and gamma irradiation tests of insulator materials – 2<sup>nd</sup> load of samples, *Technical Report*, CERN collaboration, 2005

## Solid State

### Books and Book Chapters

V. Gama, M. T. Duarte, in Joel S. Miller and Marc Drillon (eds), *Metallocenium Salts of Radical Anion Bis-(dichalcogenate) Metalates*, *Magnetism: Molecules to Materials V*, Wiley-VCH, Weinheim, p 1-40 (2005).

### Journals

D. Belo, M. J. Figueira, J. Mendonça, I. C. Santos, M. Almeida, R. T. Henriques, M. T. Duarte, C. Rovira, J. Veciana, Copper, Cobalt and Platinum Complexes

with dithiothiophene based ligands, *Eur. J. Inorg. Chem.* 3337-3345 (2005).

D. Belo, M. J. Figueira, I. C. Santos, V. Gama, L. C. Pereira, R. T. Henriques, M. Almeida, Synthesis and Characterization of Copper Complexes with the 5,6-dicyano-2,3-dithiopyrazine Ligand; Magnetic Properties of a Ferrocenium Salt, *Polyhedron*, 24, 2035-2042 (2005).

J. S. Brooks, D. Graf, E. S. Choi, M. Almeida, J. C. Dias, R. T. Henriques, M. Matos, Magnetic Field Dependent Behavior of the CDW ground state in

- Per<sub>2</sub>M[mnt]<sub>2</sub> (M = Au, Pt), *Curr. Appl. Phys.* (2005), cond-mat/0501735.
- E. Coronado, J.R. Galán-Mascarós, C.J. Gómez-García, E. Martínez-Ferrero, M. Almeida, J.C. Waerenborgh, Oxalate-based 3D chiral magnets: the series [ZII(bpy)<sub>3</sub>][ClO<sub>4</sub>][MIIIFeIII(ox)<sub>3</sub>] (ZII = Fe, Ru; MII = Mn, Fe; bpy = 2,2'-bipyridine; ox = oxalate dianion), *Eur. J. Inorg. Chem.*, 2064-2070 (2005).
- J.C. Dias, X. Ribas, J. Morgado, J. Seica, E. B. Lopes, I.C. Santos, R.T. Henriques, M. Almeida, K. Wurst, P. Foury-Leylekian, E. Canadell, J. Vidal-Gancedo, J. Veciana, C. Rovira, Multistability in a family of DT-TTF organic radical based compounds (DT-TTF)<sub>4</sub>[M(L)<sub>2</sub>]<sub>3</sub> (M=Au, Cu; L=pds, pdt, bdt), *J. Mat. Chem.*, 15, 3187-3199 (2005).
- A. Dionísio, M. Rodrigues, M. A. Sequeira Braga, H. André, J. C. Waerenborgh, D. P. Rojas, M. J. Basto, M. J. Matias, L. Aires-Barros, Study of heat induced colour modifications in limestones used in monuments, *Bauinstandsetzen und Baudenkmalpflege (Restoration of Buildings and Monuments)*, 11, 199-210 (2005).
- A.P. Gonçalves, M. Almeida, C. Cardoso, T. Gasche, M. Godinho, P. Boulet, E. Colineau, F. Wastin, J. Rebizant, Magnetic properties of stoichiometric NpFe<sub>4</sub>Al<sub>8</sub>, *J. Phys., Cond. Matt.*, 17, 909-922 (2005).
- A.P. Gonçalves, H. Noël, Isothermal section at 850°C of the U-Fe-Al ternary system, *Intermetallics*, 13, 580 (2005).
- A.P. Gonçalves, L. Havela, Crystal structure of a new UGa<sub>2</sub> phase, *J. Alloys Comp.*, 394, L1 (2005).
- D. Graf, E.S. Choi, J.S. Brooks, J.C. Dias, R.T. Henriques, M. Almeida, M. Matos D. Rickel, Charge Density Wave to Mixed Density Wave Phase Transition at High Magnetic Fields in (Per)<sub>2</sub>M(mnt)<sub>2</sub> (M = Au, Pt), *Synthetic Metals*, 153, 361-364 (2005).
- V. V. Kharton, J. C. Waerenborgh, D. P. Rojas, A. A. Yaremchenko, A. A. Valente, A. L. Shaula, M. V. Patrakeev, F. M. B. Marques, J. Rocha, Mössbauer spectra and catalytic behavior of perovskite-like SrFe<sub>0.7</sub>Al<sub>0.3</sub>O<sub>3-δ</sub>, *Catal. Lett.*, 99, 249-255(2005).
- V.V. Kharton, M.V. Patrakeev, J.C. Waerenborgh, V.A. Sobyenin, S.A. Veniaminov, A.A. Yaremchenko, P. Gaczyński, V.D. Belyaev, G.L. Semin, J.R. Frade, Methane oxidation over perovskite-related ferrites: Effects of oxygen nonstoichiometry *Sol. St. Sci.*, 7, 1344-1352 (2005).
- S. Lacerda, M.P. Campello, I.C. Santos, I. Santos, R. Delgado, A N,N'- diacetate benzodioxotetraazamacrocyclic and its transition metal complexes, *Polyhedron*, 24, 451-461 (2005).
- N. Mitsu, K. Yamaya, M. Almeida, R. T. Henriques, Pressure effect on Charge Density Wave in Per<sub>2</sub>M(mnt)<sub>2</sub> (M=Pt, Au), *J. Phys. Chem. Sol.*, 66, 1567-1570 (2005).
- K.S. Murray, E. Coronado, J.R. Galán-Mascarós, E. Martínez-Ferrero, C. Ruiz-Pérez, M. Almeida, J.C. Waerenborgh, Hybrid Materials Containing Organometallic Cations and 3-D Anionic Metal Dicyanamide Networks of Type [Cp<sup>\*</sup><sub>2</sub>M][M'(dca)<sub>3</sub>], *J. Chem. Soc., Dalton Transactions*, 285-290 (2005).
- L.C.J. Pereira, D.P. Rojas, J.C. Waerenborgh, Structural and magnetic characterization of DyFe<sub>x</sub>Sn<sub>2</sub> (0 ≤ x ≤ 0.3) intermetallics, *Intermetallics*, 13, 61(2005).
- L.C.J. Pereira, D.P. Rojas, J.C. Waerenborgh, Isothermal section of the Dy-Fe-Sn phase diagram at 800°C, *J. Alloys Comp.*, 396, 108-113 (2005).
- X. Ribas, M. Mas-Torrent, A. Pérez-Benítez, J. C. Dias, H. Alves, E. B. Lopes, R. T. Henriques, E. Molins, I. C. Santos, K. Wurst, P. Foury-Leylekian, M. Almeida, J. Veciana, C. Rovira, Organic spin-ladders from TTF derivatives, *Adv. Funct. Mat.*, 15, 1023-1035 (2005).
- X. Ribas, A. Sironi, N. Masciocchi, E. B Lopes, M. Almeida, J. Veciana, C. Rovira, Structural, Magnetic and Electrical Characterization of New Crystalline Phases of Nickel and Platinum-Doped [(DT-TTF)<sub>n</sub>][Au(mnt)<sub>2</sub>] (n=1, 2), *Inorg. Chem.*, 44, 2358-2366 (2005).
- D.P. Rojas, L.C.J Pereira, P. Salamakha, E.B. Lopes, J.C. Waerenborgh, L.M Da Silva, F.G. Gandra, Evidences for intermediate valence behavior in CeNi<sub>5</sub>In, *J. Alloys Comp.*, 391, L5-L7 (2005).
- P. S. Salamakha, C. Rizzoli, L. P. Salamakha, O. L. Sologub, A. Gonçalves, M. Almeida, On the crystal structure of Sc<sub>2</sub>MB<sub>6</sub> (M = Rh, Ir) compounds, *J. Alloys Comp.*, 396, 240-242 (2005).
- I.C. Santos, D. Belo, J. Mendonça, M. J. Figueira, M. Almeida, C. Rovira, 5,6-dihydrothieno,[2,3-d] 1,3-dithiol-2- one, *Acta Crystallographica, E* 61, m2161-m2163 (2005).
- L. Shaula, V. V. Kharton, J. C. Waerenborgh, D. P. Rojas, F. M. B. Marques, Oxygen ionic and electronic transport in apatite ceramics *J. Eur. Ceram. Soc.*, 25, 2583-2586 (2005).
- M. Silva, M. A. Antunes, M. Dias, A. Domingos, I. C. Santos, J. Marçalo And N. Marques, The uranium-nitrogen bond in U(IV) complexes supported by the Hydrotris(3,5-dimethylpyrazolyl)borate ligand, *J. Chem Soc. Dalton Transactions*, 3353-3358 (2005).
- P.M. Van Der Werff, E. Martinez-Ferrero, S.R Batten, P. Jensen, C. Ruiz-Pérez, M. Almeida, J.C. Waerenborgh, J.D. Cashion, B. Moubaraki, J.R. Galán-Mascarós, J.M. Martinez-Agudo, E. Coronado, K.S. Murray, Hybrid Materials Containing Organometallic Cations and 3-D Anionic Metal Dicyanamide Networks of Type [Cp<sup>\*</sup><sub>2</sub>M][M'(dca)<sub>3</sub>], *Dalton Trans.*, 285-290 (2005).
- J. C. Waerenborgh, L. C. J. Pereira, A. P. Gonçalves, H. Noël, Crystal structure, 57Fe Mössbauer



spectroscopy and magnetization study of  $U_xFe_6Sn_6$  ( $0 \leq x \leq 0.6$ ), *Intermetallics*, 13, 490–496 (2005).

J.C. Waerenborgh, D.P. Rojas, A.L. Shaula, G.C. Mather, M.V. Patrakeev, V.V. Kharton, J.R. Frade, Phase formation and iron oxidation state in  $SrFe(Al)O_{3-\delta}$  perovskites, *Mat. Lett.*, 59, 1644-1648 (2005)

J.C. Waerenborgh, L.C.J. Pereira, D.P. Rojas, P. Gaczyński Dependence of the Fe anisotropy on the Dy concentration in the  $Dy_xFe_6Sn_6$  ( $0.3 < x < 1$ ) compounds, *J. Alloys Comp.*, 398, 1-7 (2005).

M. Nishida, N. Mitsu, T. Tanda, K. Yamaya, R.T. Henriques, M. Almeida, Negative differential resistance in CDW non-linear transport in Quasi-one-dimensional conductors  $Per_2M(mnt)_2$ , *J. Physique IV*, 131, 129-130 (2005).

### Conference Proceedings

R.T. Henriques, M. Almeida, Condutores Moleculares, *Boletim Soc. Port. Química*, 97, 61-72 (2005).

### Communications

M. Almeida, J. C. Dias, D. Belo, M. J. Figueira, E. B. Lopes, I. C. Santos, J. Morgado, R. T. Henriques, X. Ribas, E. Canadell, J. Vidal-Gancedo, J. Veciana, C. Rovira, K. Wurst, P. Foury-Leylekian, Salts based on DT-TTF and metal bisdichalcogenene complexes; multistability in  $(DT-TTF)_4[M(L)_2]_3$  ( $M=Au,Cu$ ;  $L=pds, pdt, bdt$ ), *VI Int. Symp. on Crystalline Organic Metals; Superconductors and Ferromagnets - ISCOM'2005*, Key West, Florida, USA, 11-16 Sep., invited talk.

D. Belo, M.J. Figueira, E. B. Lopes, I. C. Santos, C. Rovira, M. Almeida, Charge transfer salts based on  $M(dcdmb)_2$  anions and TTF type donors, *Workshop on Molecular Materials 2005 Research frontiers in molecular materials science*, ITN-Sacavém, Portugal, October, oral.

D. Berthebaud, O. Tougait, A.P. Gonçalves, H. Noël, Preliminary study of the isothermal section of the U-Fe-Si ternary system at 900°C, *35<sup>èmes</sup> Journées des Actinides*, Baden, Áustria, 23-26 April, oral.

J.C. Dias, J. Morgado, J. Seïça, E. B. Lopes, I.C. Santos, R.T. Henriques, M. Almeida, X. Ribas, J. Vidal-Gancedo, J. Veciana, C. Rovira, K. Wurst, P. Foury-Leylekian, Multistability and structural interrelation in the charge-transfer salts  $(DT-TTF)_4[M(L)_2]_3$  ( $M=Au,Cu$ ;  $L= pds, pdt, bdt$ ), *VI Conf. de Química Inorgânica (SPQ)*, Funchal, Portugal, 31 March.-2 April, oral.

J.C. Dias, E.B. Lopes, I.C. Santos, R.T. Henriques, M. Almeida, X. Ribas, M. Mas-Torrent, C. Rovira, J. Veciana, Searching for new ladder-like structure compounds, *Workshop on Molecular Materials 2005*, ITN-Sacavém, Portugal, October, oral.

M. Dias, P.A. Carvalho, A.P. Dias, O. Sologub, O. Tougait, H. Noel, A.P. Gonçalves, The Fe-rich region of the U-Fe-B system: crystallization and microstructure, *Microscopy in Motion: XL<sup>th</sup> Meeting SPME-BC*, Lisboa, Portugal, 8-10 Dec., oral.

A.P. Gonçalves, J.C. Waerenborgh, S. Sério, J.A. Paixão, M. Godinho, M. Almeida, Crystal structure and magnetic properties of  $UFe_6Ga_6$ , *35<sup>èmes</sup> Journées des Actinides*, Baden, Áustria, 23-26 April, oral.

D. Graf, E. S. Choi, J. S. Brooks, M. Almeida, Pressure induced Quantum Limit in a Q1D system in high magnetic fields, *ISCOM'2005*, Key West, Florida, USA, 11-16 Sep., oral.

L. Havela, A.P. Gonçalves, L.C.J. Pereira, K. Miliyanchuk, J. Pesicka, E.B. Lopes,  $UFe_2$  prepared by splat cooling: Magnetic properties, *35<sup>èmes</sup> Journées des Actinides*, Schloss Weikersdorf, Baden, Austria, 23-26 April, oral.

L. Havela, K. Miliyanchuk, D. Rafaja, T. Gouder, A.P. Gonçalves, L.C.J. Pereira, Uranium nanocrystalline systems: structure and magnetism, *IX Int. Conf. on Crystal Chemistry of Intermetallic Compounds*, Lviv, Ukraine, 20-24 Sep., oral.

E. B. Lopes, A. Casaca, N. Arvarvari, C. Réthoré, M. Formigue, M. Almeida, Electrical transport properties of chiral molecular conductors; Thermopower and magnetochiral anisotropy effects in Tetrathiafulvalene-Oxazoline based conductors, *Workshop on Molecular Materials 2005*, ITN, Sacavém, October, oral.

R. Meira, C. Xavier, L. C. J. Pereira, I. C. Santos, V. Gama, Structural and magnetic characterization of  $[M(Cp^*)_2][DR-DCNQI]_x$ ,  $M=Fe$  and  $Co$ ,  $R=tBu$  and  $MeO$ ,  $x=1, 2$ , *Workshop on Molecular Materials 2005*, ITN-Sacavém, October, oral.

M. Nishida, N. Mitsu, S. Tanda, K. Yamaya, R.T. Henriques, M. Almeida, Negative Differential Resistance in CDW Nonlinear Transport of Quasi-One Dimensional Conductor  $(Per)_2M(mnt)_2$  [ $M=Au, Pt$ ], *Int. Workshop on Electronic Crystals, ECRYS-2005*, Cargèse, France, Aug. 21 -27, 2005, oral.

S. Rabaça, I.C. Santos; M. Fourmigué, M. Almeida, New divalent thio-azo ligands, *Workshop on Molecular Materials 2005*, ITN-Sacavém, Oct., oral.

D. Simão, M. Almeida, Towards of New Highly Extended Donors and Acceptors Based on Cyanobenzene dithiolates for Charge Transfer Salts, *Workshop on Molecular Materials 2005*, ITN-Sacavém, Oct., oral.

L. Valade, J. Fraxedas, D. De Caro, J.-P. Savy, I. Malfant, C. Faulmann, M. Almeida, An approach to the origin of transport properties in a series of molecular conductors, based on XPS and spectroscopic studies, *ISCOM'2005*, Key West, Florida, USA, 11-16 Sep., oral.

L. Valade, D. De Caro, J.-P. Savy, I. Malfant, C. Faulmann, M. Almeida, J. Fraxedas, J. Brooks, Thin films of molecular materials grown on silicon

- substrates by chemical vapor deposition and electrodeposition, *ISCOM'2005*, Key West, Florida, USA, 11-16 Sep., oral.
- M. A. Antunes, M. Dias, B. Monteiro, A. Carvalho, J. P. Leal, A. Domingos, I. C. Santos, N. Marques, Estudo da Reactividade dos Complexos [U{(SiMe<sub>2</sub>NPh)<sub>3</sub>-tacn}NR<sub>2</sub>], *VI Conf. de Química Inorgânica*, Funchal, Portugal, 31 Mar.-2 Apr., poster.
- D. Belo, L.C.J. Pereira, M. Almeida, C. Rovira, J. Veciana, I.C. Santos, R.T. Henriques, V. Gama, M. Figueira, Magnetic Behaviour of [Ni(alpha-tpdt)<sub>2</sub>]-Salts with Benzopyrazine Cations, *III Int. Materials Symp.*, *Materiais 2005*, Aveiro, 20-23 Mar., poster.
- D. Belo, I.C. Santos, E.B. Lopes, L.C.J. Pereira, M. Almeida, The Cu(dcmpd)<sub>2</sub> unit as building block in molecular materials, *VI Conf. de Química Inorgânica*, Funchal, Madeira, Portugal, 31 Mar. -2 Apr., poster.
- P.A. Carvalho, J.T.M. De Hosson, I. Fonseca, A.P. Gonçalves, R. Vilar, Magnetic domain configuration in the Y-Fe-Mo and Y-Fe-Ti splat-quenched alloys, Microscopy in Motion: *XL Meeting SPME-BC*, Lisboa, Portugal, 8-10 Dec., poster.
- J.C. Dias, M. Almeida, C. Rovira, X. Ribas, P. Foury-Leylekian, K. Wurst, E. Molins, J. Veciana, A. Pérez-Benítez, M. Mas-Torrent, E.B. Lopes, I.C. Santos, R.T. Henriques, A series of isostructural organic spin ladders based on TTF derivatives, *Materiais 2005*, Aveiro, Portugal, 20-23 Mar., poster.
- J.C. Dias, J. Morgado, I.C. Santos, E.B. Lopes, M. Almeida, X. Ribas, J. Veciana, C. Rovira, K. Wurst, Síntese e Caracterização de novos bis(bis-1,2-dicalcogenolatos)metalatos de Cu(III) e Ni(III) com estrutura ajustável através de coordenação lateral com o ião sódio, *VI Conf. de Química Inorgânica (SPQ)*, Funchal, Madeira, Portugal, 31 Mar. -2 Apr., poster.
- M. Dias, M. A. Antunes, A. Cruz, A. I. C. Santos, N. Marques, Reacções de Oxidação do Complexo de Urânio(III) [U{(SiMe<sub>2</sub>NPh)<sub>3</sub>-tacn}] (tacn = triazaciclono-nano), *VI Conf. de Química Inorgânica*, Funchal, Madeira, Portugal, 31 Mar. -2 Apr., poster.
- M.J. Figueira, D. Belo, R. T. Henriques, M. Almeida, C. Rovira, J. Veciana, Preparation of Dithiolene Ligands Based on Extended TTF - A Basis for New Single-Component Molecular Metal, *VI Conf. de Química Inorgânica*, Funchal, Portugal, 31 Mar. -2 Apr., poster.
- M.J. Figueira, D. Belo, R.T. Henriques, M. Almeida, C. Rovira, J. Veciana, Preparation of Dithiolene Ligands Based on Extended TTF: A Basis for New Single-Component Molecular Metal, *COST D14 Molecular Functional Materials Final Meeting*, San Feliu, Espanha, 9-12 June, poster.
- A.P. Gonçalves, M. Almeida, F. Wastin, E. Colineau, P. Boulet, J.C. Griveau, P. Javorsky, J. Rebizant, Synthesis and characterization of PuFe<sub>4</sub>Al<sub>8</sub>, oral presentation, *35èmes Journées des Actinides*, Baden, Áustria, 23-26 April, poster.
- A.P. Gonçalves, A.S. Cascais, P.A. Carvalho, M. Dias, L. Alves, O. Tougait, H. Noël, Synthesis and characterization of ternary borides: the U-Fe-B system, *35èmes Journées des Actinides*, Baden, Áustria, 23-26 April, poster.
- A.P. Gonçalves, A.S. Cascais, P.A. Carvalho, O. Tougait, H. Noël, Study of the U-Fe-B ternary system, *Materiais 2005*, Aveiro, Portugal, 20-23 Mar., poster.
- A.P. Gonçalves, M. Almeida, O. Tougait, H. Noel, 850°C isothermal section of the U-Fe-Al ternary system, *Materiais 2005*, Aveiro, 20-23 March, poster.
- R.T. Henriques, I. Sousa, J. C. Dias, M. Almeida, M. Matos, Growth of high quality (Per)<sub>2</sub>M(mnt)<sub>2</sub> single crystals M=Au, Pt, Pd, Ni, Cu, Fe, Co, *ISCOM'2005*, Key West, Florida, USA, 11-16 Sep., poster.
- R. Meira, L.C.J. Pereira, I.C. Santos, V. Gama, Structural and Magnetic Characterization of [M(Cp\*)<sub>2</sub>][DR-DCNQI]<sub>x</sub>, M = Fe and Co, R = Me, tBu and MeO, x=1, 2, *Materiais 2005*, Aveiro, 20-23 March, poster.
- R. Meira, L.C.J. Pereira, V. Gama, Structural and Magnetic Characterization of [Fe(Cp\*)<sub>2</sub>][DR-DCNQI]<sub>x</sub>, R = tBu and MeO, x=1, 2, *VI Conf. de Química Inorgânica*, Funchal, 31 Mar.-2 Apr., poster.
- K. Miliyanchuk, L. Havela, A.V. Kolomiets, L.C.J. Pereira, A.P. Gonçalves, New U<sub>2</sub>T<sub>2</sub>X Hydrides, *35èmes Journées des Actinides*, Schloss Weikersdorf, Baden, Austria, 23-26 April, poster.
- K. Miliyanchuk, L. Havela, S. Daniš, A.V. Kolomiets, L.C.J. Pereira, A.P. Gonçalves, New Family of Intermetallic Hydrides: U<sub>2</sub>T<sub>2</sub>InH<sub>x</sub> and U<sub>2</sub>T<sub>2</sub>SnH<sub>x</sub>, *Actinides 2005*, Manchester, U. K., 4-8 July, poster.
- K. Miliyanchuk, L. Havela, A.V. Kolomiets, L.C.J. Pereira, A.P. Gonçalves, Magnetism in hydrogen-doped U<sub>2</sub>T<sub>2</sub>X compounds, *SCES' 05*, Vienna, Austria, 26-30 July, poster.
- L.C.J. Pereira, J.C. Waerenborgh D.P. Rojas, Dy-Fe-Sn phase diagram at 800°C. Structural and magnetic characterization of the ternary phases, *Materiais 2005*, Aveiro, Portugal, 20-23 March, poster.
- P. Salamakha, E.B. Lopes, A.P. Gonçalves, O. Sologub, M. Almeida, Electrical transport properties of the Ln(Os,Ru)<sub>2</sub>Si<sub>2</sub> (Ln=Ce, Pr) family, *SCES'05*, Vienna, Austria, July 26-30, poster.
- I.C. Santos, D. Belo, E.B. Lopes, M.T. Duarte, M. Almeida, The role of cation on the crystal packing of the Compounds Based on Ni(dcdmp)<sub>2</sub>, *XX Congress Int. Union of Crystallography*, Florence, Italy, Aug. 23-31, poster.

## Theses

### PhD

J.C. Dias, À Procura de Compostos com Estrutura em Escada, PhD in Chemistry, Instituto Superior Técnico, December 2005. Supervisors: Prof. M. Almeida (ITN) and Prof. R. T. Henriques (IST).

## Atmospheric Elemental Dispersion

### Journals

S.M. Almeida, C.A. Pio, M.C. Freitas, M.A. Reis, M.A. Trancoso, Source apportionment of fine and coarse particulate matter in a sub-urban area at the western European coast, *Atmospheric Environment* 39(17) (2005) 3127-3138.

M.C. Freitas, M.M. Farinha, M.G. Ventura, S.M. Almeida, M.A. Reis, A.M.G. Pacheco, Atmospheric selenium in an industrialised area of Portugal, *J. Radioanalytical Nucl. Chem.* 263(3) (2005) 711-719.

M.C. Freitas, M.M. Farinha, M.G. Ventura, S.M. Almeida, M.A. Reis, A.M.G. Pacheco, Gravimetric and chemical features of airborne PM<sub>10</sub> and PM<sub>2.5</sub> in mainland Portugal, *Environmental Monitoring and Assessment* 109 (2005) 81-95.

M.G. Ventura, M.C. Freitas, A.M.G. Pacheco, Selenium levels in mainland Portugal, *Water, Air and Soil Pollution* 166(1-4) (2005) 167-179.

A.P. Marques, M.C. Freitas, H.Th. Wolterbeek, O.M. Steinebach, T. Verburg, J.J.M. de Goeij, Cell-membrane damage and element leaching in transplanted *Parmelia sulcata* lichen related to ambient SO<sub>2</sub>, temperature, and precipitation, *Environmental Sci. Tech.* 39 (2005) 2624-2630.

R. Jayasekera, M.C. Freitas, Concentration levels of major and trace elements in rice from Sri Lanka as determined by the k<sub>0</sub>-standardization method, *Biol. Tr. Elem. Res.* 103(1) (2005) 83-96.

### Conference Proceedings

M.C. Freitas, M.A. Reis, A.M.G. Pacheco INAA and PIXE methods applied to environmental studies. *Int. Conf. Applications of High Precision Atomic & Nuclear Methods --HIPAN '02* (Neptun, 2-6 Sep. 2002; A. Olariu, K. Stenström, R. Hellborg, Eds., ISBN: 973-27-1181-7). Editura Academiei Române, Bucureşti, Romania, pp. 22-25 (2005).

A.M.G. Pacheco, M.C. Freitas, M.G. Ventura Relative enrichment of trace elements in atmospheric biomonitors – INAA results on tree bark and lichen thalli. *HIPAN '02* (Neptun, 2-6 Sep. 2002; A. Olariu, K. Stenström, R. Hellborg, Eds., ISBN: 973-27-1181-7). Editura Academiei Române, Bucureşti, Romania, pp. 37-46 (2005).

### Communications

M.C. Freitas, B.J. Vieira, A.F. Rodrigues, A.M.G. Pacheco, P.M. Soares, Identification of sources in Terceira and Santa Maria Islands (Azores, Portugal) through epiphytic lichens, *1<sup>st</sup> Int. Nuclear Chemistry*

*Congress (1<sup>st</sup>-INCC)*, Kusadas, Turkey, 22-29 May, poster.

S.M. Almeida, C.A. Pio, M.C. Freitas, M.A. Reis, Identification of anthropogenic sources based on weekdays/weekend differences, *European Aerosol Conf. 2005*, Ghent, Belgium, 28 Aug.-2 Sep., poster.

P. Fialho, M.C. Freitas, F. Barata, B. Vieira, A.D.A. Hansen, R.E. Honrath, The Aethalometer calibration and determination of iron concentration in dust aerosols, *Eur. Aerosol Conf. 2005*, Ghent, Belgium, 28 Aug.-2 Sep., poster.

A.M.G. Pacheco, M.C. Freitas, A. Machado, S. Sarmento, M.S. Baptista, M.T.S.D. Vasconcelos, J.P. Cabral, Vanadium accumulation in tree bark and epiphytic lichens at three sectors of Portugal, *51<sup>st</sup> Ann. Radiobioassay & Radiochemical Measurements Conf.*, Stateline, Nevada, USA, 24-28 Oct., poster.

S.M. Almeida, M.C. Freitas, M.A. Reis, C.A. Pio, M.A. Trancoso, Combined application of multielement analysis – k<sub>0</sub>-INAA and PIXE – and classical techniques for source apportionment in aerosol studies, *4<sup>th</sup> Int. k<sub>0</sub>-users Workshop*, Funchal, Portugal, 11-14 Sep., poster.

M.C. Freitas, A.M.G. Pacheco, E. Ferreira, Trace elements in Portuguese honey, *8<sup>th</sup> Int. Conf. on Nuclear Analytical Methods in the Life Sciences*, Rio de Janeiro, Brazil, 17-22 April, poster.

B. Vieira, M.C. Freitas, S. Landsberger, D. O'Kelly, Determination of atmospheric trace elements with high sodium and chlorine concentrations in Lisbon Portugal, *8<sup>th</sup> Int. Conf. Nucl. Analyt. Meth. in the Life Sciences*, Rio de Janeiro, Brazil, 17-22 April, poster.

B.J. Vieira, M.C. Freitas, A.M.G. Pacheco, A.F. Rodrigues, P.M. Soares, Neutron-activation analysis of atmospheric biomonitors from the Azores – A comparative study of lower and higher plants, *8<sup>th</sup> Int. Conf. Nuclear Analytical Methods in the Life Sciences*, Rio de Janeiro, Brazil, 17-22 April, poster.

A. Machado, M.C. Freitas, A.M.G. Pacheco, I. Dionísio, Neutron-activation analysis of atmospheric (bio)monitors from an industrial-urban environment with strong marine influence, *1<sup>st</sup>-INCC*, Kusadas, Turkey, 22-29 May, poster.

M.S. Baptista, M.T.S.D. Vasconcelos, J.P. Cabral, M.C. Freitas, A.M.G. Pacheco, Comparing the ability of biological and organic synthetic materials to accumulate atmospheric copper, lead, nickel and strontium, *5<sup>th</sup> Int. Symp. Modern Principles of Air Monitoring (including biomonitoring)*, Loen, Norway, June 12-16, poster.

A.M.G. Pacheco, M.C. Freitas, A. Machado, S. Sarmento, M.S. Baptista, M.T.S.D. Vasconcelos, J.P. Cabral, Vanadium accumulation in tree bark and epiphytic lichens at three sectors of Portugal, *51<sup>st</sup> Ann. Radiobioassay & Radiochemical Measurements Conf.*, Stateline, Nevada, EUA, 24-28 October, poster.

A.M.G. Pacheco, M.C. Freitas, M.G. Ventura, I. Dionísio, E. Ermakova, Trace-element contents of raw vegetables consumed in mainland Portugal,

determined by  $k_0$ -INAA, *4<sup>th</sup> Int.  $k_0$ -users Workshop*, Funchal, Portugal, 11-14 Sep., poster.

M.C. Freitas, A.M.G. Pacheco, A. Machado, I. Dionísio, S. Sarmento, M.S. Baptista, M.T.S.D. Vasconcelos, J.P. Cabral, Multianalytical determination of trace elements in atmospheric biomonitors by INAA, ICP/MS and AAS, *4<sup>th</sup> Int.  $k_0$ -users Workshop*, Funchal, Portugal, 11-14 Sep., poster.

## Elemental Characterization and Speciation Group

### Journals

M.A. Reis, P.C. Chaves, J.C. Soares, Particle Induced X-ray Emission – Relative Yield Ion Energy Dependence, an IBA chemical speciation method, *Nucl. Instr. Meth. B* 229 (2005) 413-424.

M.A. Reis, P.C. Chaves, V. Corregidor, N.P. Barradas, E. Alves, F. Dimroth, A.W. BETT, Detection angle resolved PIXE and the equivalent depth concept for thin films characterization, *X-ray Spectrometry* 34 (2005) 372-375.

M.C. Freitas, M.M. Farinha, M.G. Ventura, S.M. Almeida, M.A. Reis, M.G. Pacheco, Gravimetric and chemical features of airborne PM10 and PM2.5 in mainland Portugal, *Environmental Monitoring and Assessment* 109 (2005) 81-95.

S. Almeida, C.A. Pio, M.C. Freitas, M.A. Reis, M.A. Trancoso, Source apportionment of fine and coarse particulate matter in a sub-urban area at the

Western European Coast, *Atmospheric Environment* 39 (2005) 3127-3138.

### Internal Reports

A. Quaresma, Aerossol atmosférico, formação, evolução e impacto, ITN/LFI-02/2005.

M.A. Reis, L.C. Alves, P.C. Chaves, N. Franco, R. Pinheiro, Níveis anormalmente elevados de cloro em amostras de PM2,5, ITN/LFI-01/2005.

### Theses

#### Graduation

N. Aleixo, Determinação de Metais Pesados em Produtos Piscícolas pela Técnica de PIXE. Escola Superior Agrária de Santarém, May 2005.

S. Aleixo, Determinação de Metais Pesados em Produtos de Origem Agrícola pela Técnica de PIXE. Escola Superior Agrária de Santarém, May 2005.

## Environmental Analytical Chemistry

### Books and Book Chapters

P.M. Carreira, M.F. Araújo, D. Nunes, Isotopic composition of rain and water vapour samples from Lisbon region: characterization of monthly and daily events. *Isotopic composition of precipitation in the Mediterranean Basin in relation to air circulate patterns and climate*. IAEA-TECDOC-1453 141-156 (2005).

A.M.M. Soares, A metalurgia de Vila Nova de São Pedro. Algumas reflexões in *Construindo a memória. As coleções do Museu Arqueológico do Carmo*. Associação dos Arqueólogos Portugueses, Lisboa 179-188 (2005).

### Journals

M.F. Araújo, P. Valério, Análise por espectrometria de fluorescência de raios X dispersiva de energias dos materiais do Moinho de Valadares 1, Mercado, Monte do Tosco 1 e Cerros Verdes 3, As comunidades

agro pastoris na margem esquerda do Guadiana, *ERA*, Bloco 5 256-257 (2005).

P.M. Carreira, J.M. Marques, F.A. Monteiro Santos, M. Andrade, H. Matias, R. Luzio, D. Nunes, Role of geophysics, geochemistry and environmental isotopes in the assessment of Caldas de Monção low-temperature geothermal system (Portugal), *GRC Transactions*, 29 209-213 (2005).

C. Corredeira, M.F. Araújo, A. Gouveia, J.M. Jouanneau, Geochemical characterisation of sediment cores of the Minho/Galicia coastal zone and continental shelf, *Ciencias Marinas*, 31/1B 319-325 (2005).

E. Díaz-Martínez, A.M.M. Soares, P. Kresten, L. Glazovskaya, Evidence for wall vitrification at the Late Bronze Age settlement of Passo Alto (Vila Verde de Ficalho, Serpa, Portugal), *Revista Portuguesa de Arqueologia*, 8/1 151-161 (2005).

A. Machado, F. Rocha, M.F. Araújo, F. Vitali, C. Gomes, J.A. Dias, Geochemical characterisation of

- surficial sediments from the Southwestern Iberian Continental Shelf, *Ciencias Mariñas*, 31/1B 161-177 (2005).
- A. Machado, F. Rocha, C. Gomes, J.A. Dias, M.F. Araújo, A. Gouveia, Mineralogical and geochemical characterisation of surficial sediments of the Southwestern Iberian Continental Shelf, *Thalassas*, 21/1 67-76 (2005).
- J.M. Marques, F.A. Monteiro Santos, M. Andrade, P.M. Carreira, A.A. Afonso, A. Dupis, R.C. Graça, L.A. Aires-Barros, L.A. Mendes-Victor, Conceptual modeling of the nature of complex thermomineral systems / CO<sub>2</sub>-rich waters (N-Portugal): a review on the geochemical and geophysical approaches, *GRC Transactions*, 29 277-281 (2005).
- A.M.M. Soares, Os povoados do Bronze Final do Sudoeste na margem esquerda portuguesa do Guadiana: novos dados sobre a cerâmica de ornatos brunidos, *Revista Portuguesa de Arqueologia*, 8/1 111-145 (2005).
- A.M.M. Soares, P. Valério, M.F. Araújo, Um novo vestígio da prática da metalurgia no Castelo Velho de Safara (Moura), *Revista Portuguesa de Arqueologia*, 8/2 215-224 (2005).
- ### Conference Proceedings
- M.J. Afonso, J.E. Marques, J.M. Marques, P.M. Carreira, Hydrogeology of hard-rocks in the Portuguese Iberian Massif: Porto urban area and Serra da Estrela mountain region, *Fourth Inter-Celtic Colloquium on Hydrology and Management of Water Resources*, Guimarães, 11-14 July (2005) CDROM.
- M.F. Araújo, A. Lobato, A. Cruces, T. Drago, Paleoenvironmental geochemical patterns, The holocenec evolution of minho estuary, *Iberian Coastal Holocene Paleoenvironmental Evolution*, Lisbon, 24-29 July, 8-10 (2005).
- M. Bahir, M.O. Silva, J. Mendonça, P.M. Carreira, P.G. Fernandes, M. Benbibba, M. Elmeraji, Isotopes et resources en eau, exemple du bassin Synclinal d'essaouira (Maroc Occidental), *Fourth Inter-Celtic Colloquium on Hydrology and Management of Water Resources*, Guimarães, 11-14 July (2005) CDROM.
- D. Burdloff, M.F. Araújo, J.M. Jouanneau, A.M.M. Soares, Organic carbon sources to the Northern and Southwestern Portuguese shelf sediments, *6<sup>th</sup> Int. Symp. on Applied Isotope Geochemistry*, Prague, Czech Republic, 11-16 Sep., 35-36 (2005).
- D. Burdloff, M.F. Araújo, J.M. Jouanneau, A.M.M. Soares, Tracing organic matter sources on the shelf off the Douro, Tagus and Guadiana estuaries, N. and S.W. Portugal, *VIII Congresso de Geoquímica dos Países de Língua Portuguesa/XIV Semana de Geoquímica*, Aveiro, 11-16 July, 2 627-630 (2005).
- P.M. Carreira, M.F. Araújo, D. Nunes, Isotopic features in atmospheric water vapour and precipitation events of Lisbon region, *VIII Congresso de Geoquímica dos Países de Língua Portuguesa/XIV Semana de Geoquímica*, Aveiro, 11-16 July, 1 365-368 (2005).
- P.M. Carreira, J.M. Marques, M. Andrade, D. Nunes, Geoquímica isotópica na caracterização do sistema termomineral de Caldas de Monção (NW-Portugal), *VIII Congresso de Geoquímica dos Países de Língua Portuguesa/XIV Semana de Geoquímica*, Aveiro, 11-16 July, 1, 369-372 (2005).
- P.M. Carreira, J.M. Marques, R.C. Graça, L. Aires-Barros, Radiocarbon application in dating complex thermomineral water systems: Northern/central Portugal, *6<sup>th</sup> Int. Symp. on Applied Isotope Geochemistry*, Prague, Czech Republic, 11-16 Sep., 40-41 (2005).
- C. Corredeira, M.F. Araújo, Elemental distribution in sediment cores from Guadiana adjacent continental shelf (SW Iberia), *VIII Congresso de Geoquímica dos Países de Língua Portuguesa/XIV Semana de Geoquímica*, Aveiro, 11-16 July, 2, 599-602 (2005).
- C. Corredeira, M.F. Araújo, A. Gouveia, J.-M. Jouanneau, Anthropogenic and lithogenic continental evidences on the composition of shelf sediment cores from SW Iberia, *Iberian Coastal Holocene Paleoenvironmental Evolution*, Lisbon, 24-29 July (2005) 34.
- P.G. Fernandes, P.M. Carreira, M. Oliveira da Silva, Abordagem estatística aplicada ao recinhecimento de fontes antropogénicas. Caso estudo – Bacia de Sines sistema aquífero da Bacia de Sines, *VIII Congresso de Geoquímica dos Países de Língua Portuguesa/XIV Semana de Geoquímica*, Aveiro, 11-16 July, 1 361-364 (2005).
- P.G. Fernandes, P.M. Carreira, M. Oliveira da Silva, Isotope signatures of palaeowaters in Sado coastal aquifer (SW Portugal), *6<sup>th</sup> Int. Symp. on Applied Isotope Geochemistry*, Prague, Czech Republic, 11-16 Sep., 81-82 (2005).
- M. Ferraz, E. Silva, A. Cruces, M.C. Freitas, M. Cachão, C. Andrade, M.F. Araújo, Environmental characterization of the Albufeira lagoon (Portugal) at micro timescale using a multidisciplinary approach, *Iberian Coastal Holocene Paleoenvironmental Evolution*, Lisbon, 24-29 July, 54-57 (2005).
- T. Ferreira, A. Cruces, M.C. Freitas, C. Andrade, M.F. Araújo, R. Bao, Microscale characterization of Lagoa da Sancha - an acidic dune slack in the Portuguese SW coast, *Iberian Coastal Holocene Paleoenvironmental Evolution*, Lisbon, 24-29 July, 58-61 (2005).
- E. Figueiredo, M.F. Araújo, A.A. Melo, EDXRF studies of prehistoric metal artefacts from Castro de Pragança (Estremadura, Portugal), *Metallurgy – a Touchstone for Cross-Cultural Interaction*, London, England, 28-30 April, 77 (2005).
- E. Figueiredo, M.F. Araújo, The Influence of the corrosion layers of buried prehistoric metal artefacts in

EDXRF analysis  $\sphericalangle$  *The European Corrosion Congress*, Lisbon, 4-8 Sep., 481-484 (2005).

V.S. Gonçalves, P. Valério, M.F. Araújo, The copper archaeometallurgy at Monte Novo dos Albardeiros (Reguengos de Monsaraz Évora, Portugal), *Metallurgy – a Touchstone for Cross-Cultural Interaction*, London, England, 28-30 April, 84 (2005).

J.M. Marques, P.M. Carreira, J.E. Marques, H.I. Chaminé, P.E. Fonseca, J.M. Carvalho, V. Cavaleiro, Pattern and spatial extent of thermal water flow in a high mountain area (Serra da Estrela, Central Portugal): an isotope approach  $\sphericalangle$  *6<sup>th</sup> Int. Symp. on Applied Isotope Geochemistry*, Prague, Czech Republic, 11-16 Sep., 152-153 (2005).

A.A. de Melo, P. Valério, L. DE Barros, M.F. Araújo, Práticas metalúrgicas na Quinta do Almaraz (Cacilhas, Portugal): vestígios orientalizantes  $\sphericalangle$  *VII<sup>th</sup> Int. Congress of Phoenician and Punic Studies*, Lisbon, 26 September - 1 October, 72-73 (2005).

F. Moreno, M.F. Araújo, J. Moreno, F. Fatela, T. Drago, Caracterização geoquímica de sedimentos superficiais do estuário do rio Minho e do sapal de Caminha (NW de Portugal) – estimativa do potencial de stress biológico  $\sphericalangle$  *VIII Congresso de Geoquímica dos Países de Língua Portuguesa/XIV Semana de Geoquímica*, Aveiro, 11-16 July, 2, 675-678 (2005).

F. Moreno, M.F. Araújo, P. Valério, J. Moreno, F. Fatela, Weathering and transport on Minho River basin (NW Portugal): some inferences from bedload geochemistry, *Iberian Coastal Holocene Paleoenvironmental Evolution*, Lisbon, 24-29 July, 91-93 (2005).

F. Moreno, J. Moreno, F. Fatela, T. Valente, L. Guise, M.F. Araújo, T. Drago, Geoquímica de sedimentos em ambientes típicos de sapal – o exemplo do sapal de Caminha (NW de Portugal)  $\sphericalangle$  *VIII Congresso de Geoquímica dos Países de Língua Portuguesa/XIV Semana de Geoquímica*, Aveiro, 11-16 July, 2, 661-664 (2005).

R. Ramos, A. Cruces, M.C. Freitas, C. Andrade, M.F. Araújo, J.M. Jouanneau, The last 200 years of sedimentation in Santo André lagoon (SW Portuguese coast)- results from sedimentological and geochemical proxies  $\sphericalangle$  *Iberian Coastal Holocene Paleoenvironmental Evolution*, Lisbon, 24-29 July, 106-109 (2005).

A.M.M. Soares, L. Barros, Cronologia absoluta para a ocupação sidérica da Quinta do Almaraz (Almada, Portugal)  $\sphericalangle$  *VII<sup>th</sup> Int. Congress of Phoenician and Punic Studies* Lisbon, 26 September - 1 October, 110 (2005).

A.M.M. Soares, J.M.A. Dias, Evidence for temporal fluctuations in Ocean Reservoir Effect off Portugal during the Holocene, *Iberian Coastal Holocene Paleoenvironmental Evolution*, Lisbon, 24-29 July, 89-90 (2005).

P. Valério, M.F. Araújo, J.C. Senna-Martinez, J.L.I. Vaz, Non-invasive EDXRF analysis of artefacts from

Baiões/Santa Luzia Late Bronze Age metallurgy, *Metallurgy – a Touchstone for Cross-Cultural Interaction*, London, U.K., 28-30 April, 124 (2005).

## Communications

M.A. Gouveia, C. Corredeira, M.F. Araújo, J.-M. Jouanneau, Sources of REE in fine sediments of the Portuguese shelf: origin and dispersal pathways, *15<sup>th</sup> Annual V.M. Goldschmidt Conference*, Moscow, Idaho, USA, May 2005, poster.

## Thesis

### PhD

P.G. Fernandes, *PhD* in Geologia, especialidade Hidrogeologia, Estudo hidrogeológico dos sistemas aquíferos Sado – Sines: evolução hidrogeoquímica e isotópica, Faculdade de Ciências da Universidade de Lisboa, February 2005.

A.M.M. Soares, *PhD* in Ciências do Mar (Oceanografia), Variabilidade do upwelling costeiro durante o Holocénico nas Margens Atlânticas Ocidental e Meridional da Península Ibérica. Universidade do Algarve, November 2005.

### MSc

P. Valério, *MSc* in Química aplicada ao Património Cultural, Caracterização química de artefactos metálicos do Castro da Senhora da Guia de Baiões (Bronze Final), Faculdade de Ciências da Universidade de Lisboa, December 2005.

### Graduation

M. Felisberto, Graduation in Technological Chemistry, Espectrometria de massa de isótopos leves (<sup>18</sup>O e <sup>2</sup>H): aplicações na caracterização dos mecanismos de interacção águas superficiais – águas subterrâneas na Bacia Hidrográfica do Sado, Faculdade de Ciências da Universidade de Lisboa, November 2005.

M. Ferraz, Graduation in Environmental and Applied Geology, Caracterização geoambiental da Lagoa de Albufeira a micro e mesoescala temporal, Faculdade de Ciências da Universidade de Lisboa, October 2005.

A. Lobato, Graduation in Chemistry, A espectrometria de fluorescência de raios X na caracterização química de sedimentos da zona estuarina do rio Minho, Universidade de Évora, December 2005.

M. Piedade Graduation in Environmental and Applied Geology, Caracterização geoambiental da bacia hidrográfica da Lagoa de Santo André, Faculdade de Ciências da Universidade de Lisboa, Mar. 2005.

R. Ramos, Graduation in Environmental and Applied Geology, Caracterização geoambiental da Lagoa de Santo André a mesoescala temporal, Faculdade de Ciências da Universidade de Lisboa, October 2005.

# Environmental and Health Sciences

## Biomedical Studies

### Journals

P. Aguer, L.C. Alves, Ph. Barberet, E. Gontier, S. Incerti, C. Michelet-Habchi, Zs. Kertesz, A.Z. Kiss, P. Moretto, J. Pallon, T. Pinheiro, J.E. Surleve-Bazeille, Z. Szikszai, A. Verissimo, M.D. Ynsa, Skin morphology and layer identification using different STIM geometries, *Nucl. Instr. Meth. B* 231 (2005) 292-299.

P. Napoleão, C. Sousa Reis, L.C. Alves, T. Pinheiro, Morphologic characterisation and elemental distribution of *Octopus vulgaris* Cuvier, 1797 vestigial shell, *Nucl. Instr. Meth. B* 231 (2005) 345-349.

P. Napoleão, T. Pinheiro, C. SOUSA REIS, Elemental characterisation of tissues of *Octopus vulgaris* along the Portuguese coast, *Sc. Total Env.* 345 (2005) 41-49.

### Communications

A. Verissimo, M.C. Santos, A.M. Viegas-Crespo, P. Monteiro, A. Bugalho De Almeida, T. Pinheiro, Trace element content and redox biomarkers in COPD, *TEMA 12 – Trace Elements in Man and Animals*, Colereine, Northern Ireland, 19-23 Jun 2005, poster.

Batista, R. Fleming, R. Silva, P. Filipe, J. N. Silva, A. Verissimo, L.C. Alves, T. Pinheiro, Using skin to assess iron accumulation in human metabolic

disorders, *17<sup>th</sup> Ion Beam Analysis Conference*, Seville, Spain, 26 Jul – 1 Aug 2005, poster.

P. Napoleão, P.A. Lopes, M.C. Santos, J.-P. Steghens, A.M. Viegas-Crespo, T. Pinheiro, Redox Balance and Blood Elemental Levels in Atherosclerosis, *17<sup>th</sup> Ion Beam Analysis Conf.*, Seville, Spain, 26 Jul – 1 Aug 2005, poster.

P.A. Lopes, P. Napoleão, T. Pinheiro, M.C. Santos, F. Ceia, M.L. Pavão, J. Nêve, A.M. Viegas-Crespo, Evaluation of blood elemental levels and genetic apo E in high risk and atherosclerotic subjects, *TEMA 12 – Trace Elements in Man and Animals*, Colereine, Northern Ireland, 19-23 Jun 2005, poster.

T. Pinheiro, M.A. Barreiros, C. Ralheta, A. Verissimo, P. Napoleão, Uncertainty evaluation in the analysis of Ni and Se in human blood, *17<sup>th</sup> Ion Beam Analysis Conf.*, Seville, Spain, 26 Jul – 1 Aug 2005, poster.

### Theses

#### Graduation

I. Batista, graduation in A pele como indicador dos depósitos de ferro na hemocromatose humana. Univ. Lisboa, 2005



# Inorganic Chemistry, Radiochemistry and Radiopharmacy

## Inorganic and Organometallic Chemistry

### Journals

M.A. Antunes, A. Domingos, I. Cordeiro dos Santos, N. Marques, J. Takats, Synthesis and Characterization of Uranium(III) Compounds Supported by the Hydrotris(3,5-dimethyl-pyrazolyl)borate Ligand. Crystal Structures of  $[U(Tp^{Me_2})_2(X)]$  Complexes ( $X = OC_6H_2-2,4,6-Me_3$ , dmpz, Cl), *Polyhedron* 24 (2005) 3038-3045.

M. Silva, M.A. Antunes, M. Dias, A. Domingos, I. Cordeiro dos Santos, J. Marçalo, N. Marques, The Uranium-Nitrogen Bond in U(IV) Complexes Supported by the Hydrotris(3,5-dimethylpyrazolyl) borate Ligand, *Dalton Trans.* (2005) 3353-3358.

J.K. Gibson, R.G. Haire, M. Santos, J. Marçalo, A. Pires de Matos, Oxidation Studies of Dipositive Actinide Ions,  $An^{2+}$  ( $An = Th, U, Np, Pu, Am$ ) in the Gas Phase: Synthesis and Characterization of the Isolated Uranyl, Neptunyl, and Plutonyl Ions  $UO_2^{2+}(g)$ ,  $NpO_2^{2+}(g)$ , and  $PuO_2^{2+}(g)$ , *J. Phys. Chem. A* 109 (2005) 2768-2781.

J.K. Gibson, R.G. Haire, J. Marçalo, M. Santos, A. Pires de Matos, J.P. Leal, Determination of the Ionization Energy of  $NpO_2$  and Comparative Ionization Energies of Actinide Oxides, *J. Nucl. Mat.* 344 (2005) 24-29.

M.H. Casimiro, M.L. Botelho, J.P. Leal, M.H. Gil, Study on Chemical, UV and Gamma Radiation Induced Grafting of 2-Hydroxyethyl Methacrylate onto Chitosan, *Rad. Phys. Chem.* 72 (2005) 731-735.

M.H. Casimiro, J.P. Leal, M.H. Gil, Characterization of Gamma Irradiated Chitosan/pHEMA Membranes for Biomedical Purposes, *Nucl. Instr. Meth. Phys. Res., Sect. B*, 2005, 236, 482-487.

C. Hipólito, J. P. Leal, Standard Molar Enthalpies of Formation of Li, Na, K, Rb and Cs Methylphenoxides, *Thermochim. Acta* 429 (2005) 125-131.

### Conference Proceedings

J. Branco, J.P. Leal, N.R. Pinhão, A. Pires de Matos, Sistema de Tratamento de Resíduos Plásticos em Leito de Metal Fundido, *1<sup>st</sup> Int. Congress of Energy and Environment Engineering and Management*, Portalegre, Portugal, May 2005, Ed. CD ROM.

### Other Publications

M.H. Casimiro, J.P. Leal, M.H. Gil, C.A. Nieto de Castro, Análise Calorimétrica Aplicada a Polímeros Biológicos. Parte I: Fundamentos Teóricos, *Química -*

*Boletim da Sociedade Portuguesa de Química* 98 (2005) 29-35.

M. Pinheiro, J.P. Leal, Testes e Exercícios - Química - 12.º ano, *Química - Boletim da Sociedade Portuguesa de Química* 99 (2005) 15.

### Reports

A. Pires de Matos, J. Branco, J.P. Leal, J. Marçalo, N. Pinhão, Tratamento e Valorização de Resíduos Plásticos, 2 - Obtenção do Metanol a partir do Gás de Síntese, *ITN Internal Report QUI-01-2005*.

L.M. Ferreira, M.H. Casimiro, Dosimetry and Gamma Irradiation Tests of Insulator Materials – 2<sup>nd</sup> Load of Samples, *CERN Collaboration Report* (2005).

M.L. Botelho, J. Branco, S. Cabo Verde, R. Melo, L. Alves, Impact of Electron Beam and Gamma Radiation on Treatment of Waste Water and Drinking Water: Comparative Studies, *IAEA Report (Contract n° 12017)*, Nov. 2005, pp 1-52.

### Patents

A. Pires de Matos, J.P. Leal, J. Branco, N. Pinhão, Sistema de Tratamento de Resíduos Plásticos em Leito de Metal Fundido, *Portuguese Patent* PT 103302.

### Communications

J.K. Gibson, R.G. Haire, J. Marçalo, M. Santos, A. Pires de Matos, Bonding in Actinide Complexes - Actinide Ion Chemistry in the Gas Phase, *Actinides 2005*, Manchester, England, July, invited talk.

J.K. Gibson, R.G. Haire, J. Marçalo, M. Santos, A. Pires de Matos, Reactions of Actinide Ions in the Gas Phase: New Issues in Molecular Actinide Chemistry, Honolulu, Hawaii, USA, Dec., invited talk.

J.P. Leal, C. Hipólito, Phenoxide Energetics. Alkaline, Alkaline-earth and Lanthanide Compounds, *Transmediterranean Symp. on Organometallic Chemistry and Catalysis, RENACOM 2005*, Marrakech, Marrocos, May, oral.

M.L. Botelho, R. Melo, J. Branco, Slaughterhouse Sewage Treatment Using Gamma Radiation - Economical Feasibility Study; *Int. Nuclear Atlantic Conference (INAC)*, S. Paulo, Brasil, Aug. 28, oral.

O. Schalm, K. Janssens, C. Carvalho, J. Pereira, A. Pires de Matos, Chemical Analysis of Archaeological Glass Fragments, Excavated at the Former Royal Glass Factory of Marinha Grande, Portugal, *Glass*

- Science in Art and Conservation*, Lisboa – Marinha Grande, Portugal, Sep., oral.
- M.A. Antunes, M. Dias, B. Monteiro, A. Carvalho, J.P. Leal, I. Cordeiro dos Santos, A. Domingos, N. Marques, Estudo da Reactividade dos Complexos [U{(SiMe<sub>2</sub>NPh)<sub>3</sub>-tacn}NR<sub>2</sub>], *VI Conf. Química Inorgânica (SPQ)*, Funchal, Madeira, March, poster.
- M.A. Antunes, M. Dias, B. Monteiro, A. Carvalho, J.P. Leal, I. Cordeiro dos Santos, A. Domingos, N. Marques, Reações de Oxidação do Complexo de Urânio(III), [U{(SiMe<sub>2</sub>NPh)<sub>3</sub>-tacn}] (tacn = triazaciclononano), *VI Conf. Química Inorgânica (SPQ)*, Funchal, Madeira, March, poster.
- J. Carretas, J. Branco, J. Marçalo, A. Domingos, A. Pires de Matos, X-Ray Characterization of a Mixed-Valence Compound of Europium with Alkoxo and Siloxo Ligands, *VI Conf. Química Inorgânica da Sociedade Portuguesa de Química*, Funchal, Madeira, March-April 2005, poster.
- J. Branco, J. Carretas, A. Pires de Matos, Síntese e Caracterização de Alcóxidos e Arilóxidos Heterometálicos de Lantanídeos como Precursores Catalíticos, *VI Conf. Química Inorgânica (SPQ)*, Funchal, Madeira, March, poster.
- M. Santos, J. Marçalo, A. Pires de Matos, J.K. Gibson, R.G. Haire, Gas-Phase Reactions of Protactinium Cations with Small Alkanes and Alkenes, *Actinides 2005*, Manchester, England, July, poster.
- P. Madeira, M.T. Fernandez, J.P. Leal, Acidez de Dimetoxifenóis na Fase Gasosa, *7º Encontro Nac. Química-Física - SPQ*, Porto, Portugal, May, poster.
- M.H. Casimiro, L.M. Ferreira, J. P. Leal, A. N. Falcão, M. H. Gil, Novos Materiais Poliméricos para Aplicações Biomédicas obtidos por Irradiação Gama, *Física, Tecnologia e Saúde (FiTS)*, ESTeSL, Lisboa, Portugal, May, poster.
- M.A. Reis, P.C. Chaves, J.P. Leal, M.G. Cabeçadas, A.F. Rodrigues, M. Juliano, H. TH. Wolterbeek, PIXE Capabilities for Biogeochemical Cycles Studies in the Northeastern Atlantic, *17th Int. Conf. on Ion Beam Analysis (IBA2005)*, Sevilla, Spain, June, poster.
- M.H. Casimiro, J.P. Leal, M.H. Gil,  $\gamma$  Irradiated Chitosan/pHEMA Membranes for Drug Release Systems, *3rd Iberian Carbohydrate Meeting*, Coimbra, Portugal, Sep., poster.
- T. Almeida Gasche, A.S. Correia, J. Branco, J. Carretas, A. Pires de Matos, Lanthanide Aryloxides: Reactivity with POSS, *The Physics and Chemistry of Matrix Isolated Species*, Funchal, Portugal, Jul, poster.
- L. Machado, R. Melo, J. Branco, N. Pinhão, M.L. Botelho, Aplicação da Cromatografia Iónica no Estudo do Impacto da Radiação Gama em Lamas Provenientes de Águas Residuais de uma Indústria de Tratamento de Carne, *4º Encontro Nac. Cromatografia (SPQ)*, Évora, Portugal, Dec., poster.
- M.L. Botelho, R. Melo, J. Branco, Slaughterhouse Sludge Treatment using Ionizing Radiation - Studies on Sludge as Agriculture Fertilizers, *Int. Chemical Congress of Pacific Basin Societies*, Honolulu, Hawaii, December 15, 2005, poster.

## Inorganic and Radiopharmaceutical Chemistry

### Journals

- S. Alves, J. D. G. Correia, A. Paulo, L. Gano, J. Smith, I. Santos, Pyrazolyl Containing Ligands as Bifunctional Chelators for Labelling Biomolecules with the *fac*-[M(CO)<sub>3</sub>]<sup>+</sup> Moiety (M=<sup>99m</sup>Tc, Re): Synthesis, Characterization and Biological Behaviour, *Bioconjugate Chem.* 16 (2005) 438-449.
- C. Fernandes, J. D. G. Correia, L. Gano, I. Santos, S. Seifert, R. Syhre, R. Bergmann, H. Spies, Dramatic Effect of the Tridentate Ligand on the Stability of <sup>99m</sup>Tc 3+1 Oxocomplexes Bearing Arylpiperazine Derivatives, *Bioconjugate Chem.* 16 (2005) 660-668.
- R. Garcia, A. Paulo, A. Domingos, I. Santos, H.-J. Pietzsch, Disruption of Unprecedented B-H...M Agostic Interactions: An Alternative Approach for Labeling Bioactive Molecules, *Synthesis and Reactivity in Inorganic, Metal-Organic and Nano-Metal Chemistry*, 35 (2005) 35-42.
- R. Garcia, C. Xavier, A. Paulo, I. Santos, T. Kniess, R. Bergmann, F. Wüst, Synthesis and Biological of S-[<sup>11</sup>C]Methylated Mercaptoimidazole Piperazinyl Derivatives as Potential Radioligands for Imaging 5-HT<sub>1A</sub> Receptors by Positron Emission Tomography (PET), *J. Labelled Cpd. Radiophr.* 48 (2005) 301-315.
- S. Lacerda, M. P. Campello, I. C. Santos, I. Santos, R. Delgado, A N,N'-Diacetate Benzodioxotetraazamacrocycle and its Transition Metal Complexes, *Polyhedron* 24 (2005) 451-461.
- F. Marques, A. Paulo, M. P. Campello, S. Lacerda, R. Vitor, L. Gano, R. Delgado, I. Santos, Radiopharmaceuticals for Targeted Radiotherapy, *Rad. Prot. Dos.* 116 (2005) 601-604.
- M. A. Santos, M. Gil, S. Marques, L. Gano And S. Chaves, N-Arylamine derivatives of 3-hydroxy-4-pyridinones: Solution studies and Bioevaluation in view of Al-detoxification roles, *Anal Bioanal. Chem.* 381 (2005) 413 - 419.
- M. A. Santos, M. Gil, L. Gano, S. Chaves, Bifunctional 3-Hydroxy-4-Pyridinone Derivatives as Potential Pharmaceuticals: Synthesis, Complexation

with Fe(III), Al(III) and Ga(III) and *in vivo* Evaluation with  $^{67}\text{Ga}$ , *J Biol Inorg Chem*, 10 (2005) 564 - 580.

M. A. Santos, S. Gama, L. Gano, E. Farkas, A Bis-(3-hydroxy-4-pyridinone)-EDTA derivative as a Potential Therapeutic Al-Chelating Agent. Synthesis, Metal-Complexation and Biological Assays, *J. Inorg Biochem*, 99, (2005) 1845 - 1852.

### Conference Proceedings

I. Santos, C. Fernandes, Synthesis of Quinazoline Derivatives: Coupling to Different Chelators, Labelling with Different  $^{99\text{m}}\text{Tc}$  Cores and *in vitro* and *in vivo* Evaluation, *2<sup>nd</sup> Research Co-ordination Meeting (RCM) on Development of  $^{99\text{m}}\text{Tc}$  Based Small Biomolecules Using Novel  $^{99\text{m}}\text{Tc}$  Cores*, IAEA (2005) 120-124.

S. Alves, J. D. G. Correia, I. Santos, C. Decristoforo, R. Alberto, C. J. Smith, *In vitro* and *in vivo* Evaluation of [ $^{99\text{m}}\text{Tc}(\text{CO})_3$ -Cyclo[Arg-Gly-Asp-D-Tyr-Lys(pz1)]], *2<sup>nd</sup> RCM Development of  $^{99\text{m}}\text{Tc}$  Based Small Biomolecules Using Novel  $^{99\text{m}}\text{Tc}$  Cores* IAEA (2005) 125-138.

### Patents

I. Santos, A. Paulo, L. Maria, European Patent: 05077977.6

### Communications

P. Campello, L. Gano, F. Marques, S. Lacerda, J. Costa, L. M. P. Lima, R. Delgado, I. Santos, 13 to 14-membered macrocyclic ligands containing methylcarboxylate or methylphosphonate pendant arms: biological evaluation of their  $^{153}\text{Sm}$  and  $^{166}\text{Ho}$  complexes as potential agents for therapy or bone pain palliation, *COST Action D18, Lanthanides Chemistry for Diagnosis and Therapy*, Annual Workshop, Cologne, Germany, 7-10 Sep., oral.

C. Fernandes, Biocomplexos de  $^{99\text{m}}\text{Tc}$  para Imagiologia Molecular de Receptores 5-HT<sub>1A</sub> e EGFR; Fac. Farmácia, Univ. Lisboa, Sep., invited talk

L. Gano, Good Radiopharmacy Practice, Short-course on the Use of Radioactive Compounds, *IBILI*, Coimbra, Dec., invited talk.

I. Santos, Phase 1: National Coordinator Report, *CETRAD Meeting*, London, UK, January, oral

I. Santos, *CETRAD* final report, Prague, Czech Republic, 9-10 March

I. Santos, Building Blocks Containing the Metal Fragments  $[\text{M}=\text{O}]^{3+}$  and  $[\text{M}(\text{CO})_3]^+$  for Labelling Biomolecules, *Conf. Radiotracers for in vivo Assessment of Biological Functions, New Directions*, Warsaw, Poland, Cost Action B12, 22-23 April, oral.

I. Santos, On going Projects at ITN, *Mallinckrodt Meeting*, Petten, Netherlands, Sep., oral.

C. Fernandes, L. Gano, J. D. G. Correia, S. Seifert, S. Spies, I. Santos, Novos complexos de  $^{99\text{m}}\text{Tc}$  com Elevada Afinidade para os Receptores 5-HT<sub>1A</sub>, *IV Jornadas do Serviço de Medicina Nuclear do Hospital*

*Garcia de Orta: Medicina Nuclear nas Neurociências*, Costa da Caparica, 14-15 January, poster.

R. Garcia, L. Maria, C. Xavier, L. Gano, A. Paulo, I. Santos, T. Kniess, F. Wüst, R. Bergmann, Derivados de Mercaptoimidazolos para a Visualização por SPECT e PET de Receptores 5-HT<sub>1A</sub>, *IV Jorn. Serv. Med. Nucl. Hosp. Garcia de Orta*. Costa da Caparica, 14-15 Jan., poster.

J.D.G. Correia, C. Fernandes, E. Palma, I. Santos, L. Gano, S. Seifert, R. Syhre, R. Bergmann, H. Spies, R. Alberto, Phosphorus Containing Chelators for Labelling 5-HT<sub>1A</sub> Receptor-Binding Ligands with the  $[\text{M}=\text{O}]^{3+}$  and  $[\text{M}(\text{CO})_3]^+$  Cores, *Conf. Radiotracers for in vivo Assessment of Biological Functions, New Directions*, Warsaw, Poland, Cost Action B12, 22-23 April, poster.

C. Fernandes, I. Santos, Novel Nuclear Imaging Agents for Targeting Epidermal Growth Factor Receptors (EGFR), *XIV Porto Cancer Meeting, Hormonal and TK Receptors in Breast Cancer*, Porto, Portugal, 14-15 April, poster.

M.C. Oliveira, C. Fernandes, I. Santos, Radioiodination of New EGFR Inhibitors as Potential SPECT Agents for Molecular Imaging of Breast Cancer in *XIV Porto Cancer Meeting*, Porto, Portugal, 14-15 April, poster.

C. J. Smith, S. Alves, I. Santos, G.L; Sieckman, T. J Hoffman, T. Rold, Technetium-I Pyrazolyl Bombesin Conjugates: A Concise *In Vitro/In Vivo* Study, *16<sup>th</sup> Int. Symp. on Radiopharmaceutical Chemistry*, June 2005, Iowa City, USA, poster.

M. P. Campello, F. Marques, L. Gano, S. Lacerda, R. Delgado, I. Santos, J. Costa, L. M. P. Lima, R. Delgado, Biological Evaluation of Radiolanthanide Complexes with Tetraazamacrocycles for Potencial Bone Pain Palliation *XXX Int. Symp. Macrocyclic Chemistry*, Dresden, Germany, 17-21 July, poster.

A. Paulo, R. Garcia, L. Maria, C. Xavier, I. Santos, T. Kniess, F. Wüst, R. Bergmann, Mercaptoimidazole Derivatives Labelled with  $^{11}\text{C}/^{99\text{m}}\text{Tc}$  for the Targeting of 5-HT<sub>1A</sub> Receptors, *4<sup>th</sup> Ann. Meeting of Society for Molecular Imaging*, Cologne, Germany, Sep., poster.

R.F. Vitor, A. Paulo, I. Santos, I. Correia, J. C. Pessoa, Design of Fluorescent and radioactive Probes Based on Rhenium and Technetium-99m Complexes Anchored by Pyrazole Containing Chelators, *4<sup>th</sup> Ann. Meeting of Society for Molecular Imaging*, Cologne, Germany, Sep., poster.

F. Marques, L. Gano, M P Campello, S. Lacerda, J. Costa, R. Delgado, I. Santos, Biological evaluation of  $^{153}\text{Sm}$  and  $^{166}\text{Ho}$  complexes with macrocyclic ligands containing acetate pendant arms as potential agents for therapy, *Int. Symp. Trends in Radiopharmaceuticals (ISTR-2005)*, Viena, Austria, 14-18 Nov., poster.

S. Gama, M. Gil, L. Gano, E. Farkas, M. A. Santos, New Aryl-piperazine-Bis(3-Hydroxy-4-Pyridinonate)-IDA in Coadjuvation with a Deferiprone Derivative

for Shuttle Metal Chelation, 12<sup>th</sup> Int. Conf. Biological Inorganic Chemistry, Ann Arbor, USA, Aug., poster.

## Theses

### PhD

S. Alves, Complexos com a Unidade fac- $[\text{}^{99\text{m}}\text{Tc}(\text{CO})_3]^+$  para o Desenvolvimento de Radiofármacos Específicos para Receptores de Péptidos, Faculdade de Farmácia, Universidade do Lisboa, 2005. Supervisor: Isabel Santos.

R. Garcia, Complexos Tricarbonilo de Re(I) e Tc(I) com Escorpionatos Doadores de Enxofre - Aplicações no Desenvolvimento de Radiofármacos para Imagiologia Molecular de Receptores do Sistema Nervoso Central, Faculdade de Ciências, Universidade de Lisboa, 2005. Supervisor: António Paulo.

### Graduation

M. Videira, Estrogénios Radioiodados para Diagnóstico e Terapia de Tumores da Mama, Faculdade de Ciências, Universidade de Lisboa, 2005. Supervisor: M. C. Oliveira.

B. González, Optimização do Método de Marcação da Eritropoietina com  $^{125}\text{I}$  Avaliação *in vitro* e *in vivo*, Escola Superior de Tecnologias da Saúde de Lisboa (ESTeSL), 2005. Supervisor: M. C. Oliveira.

E. Pereira, Avaliação *In Vitro/ In vivo* de Proteínas -  $^{99\text{m}}\text{Tc}$ -: Modelo para a Marcação de Eritropoietina com  $^{99\text{m}}\text{Tc}$ , Escola Superior de Tecnologias da Saúde de Lisboa (ESTeSL), 2005. Supervisor: M. L. Gano and F. Marques.

## Cultural Heritage and Sciences

### Cultural Heritage and Sciences

#### Books and Book Chapters

M.I. Dias, M.I. Prudêncio, Geochemical fingerprints in provenance studies of archaeological ceramics: the case of clay materials sources from the NW of Portugal. *Materiales Arcillosos: de la Geología a las Nuevas Aplicaciones*. Eds: M. Suárez, M. A. Vicente, V. Rives y M. J. Sánchez. Salamanca, pp. 243-253.

M.I. Prudêncio, I. Dias, J.C. Waerenborgh (Editors), Understanding People through their Pottery. EMAC'03, *Trabalhos de Arqueologia n°42* (Monographic series) Instituto Português de Arqueologia (IPA), Lisboa, Portugal (2005).

#### Journals

M.I. Dias, M.I. Prudêncio, A.C. Valera, M. Lago, M.A. Gouveia, Composition, Technology and functional features of Chalcolithic pottery from Perdígões, Reguengos de Monsaraz (Portugal). *Geoarchaeological and Bioarchaeological Studies*, Vol. 3, Amsterdam, Netherlands, pp. 161-164 (2005).

J. C. Waerenborgh, M. I. Prudêncio, M. A. Gaspar, M. I. Dias, Production Technology of Late Roman Grey Ceramics from Braga (North Portugal), (Proc. 33<sup>rd</sup> Int. Symp. on Archaeometry, April 2002, Amsterdam), *Geoarchaeological and Bioarchaeological Studies*, 3, 279-282 (2005).

#### Conference Proceedings

M.I. Dias, J. Albergaria, A.A. Jorge, C. Ramos, S. Melro, M.I. Prudêncio, F. Rocha, Ceramic production in Monte da Pata and Castelo das Juntas Late Iron Age archaeological sites (Guadiana Basin, Southern Portugal): some archaeological results, *Understanding People Through their Pottery. EMAC'03. Série Monográfica Trabalhos de Arqueologia*, n° 42, IPA, M.I. Prudêncio, M.I. Dias, J.C. Waerenborgh, Eds., Pp. 51-60 (2005).

M.I. Dias, A.C. Valera, M.I. Prudêncio, Pottery production technology through out the 3rd millennium B.C. on a local settlement network in Fornos de Algodres, central Portugal, *Understanding People through their Pottery. EMAC'03*, n° 42, IPA, pp. 41-50 (2005).

A. Jorge, P.M. Day, A.C. Valera, M.I. Dias, M.I. Prudêncio, Ceramics, style and exchange in the early Neolithic upper Mondego basin: a technological approach. In: *Understanding People through their Pottery. EMAC'03*, n° 42, IPA, pp. 121-130 (2005).

M.I. Prudêncio, M.I. Dias, Ponte, S. Amphorae in Sellium (Portugal) from Ist century to Vth century –

importation and regional production, *Understanding People Through their Pottery. EMAC'03*, n° 42, IPA, pp. 201-210. (2005).

F Oliveira, M.A. Sequeira Braga, M.I. Prudêncio, M. Delgado, M.A. Gouveia, The non vitrifiable red slip ware found in Braga (Northwest of Portugal). A mineralogical and chemical characterization, *Understanding People Through their Pottery. EMAC'03*, n° 42, IPA, pp. 80-89 (2005).

M.J. Trindade, F. Rocha, M.I. Dias, Geoquímica de pelitos vermelhos de idade Triásico-Hetangiano do Algarve (Portugal). *Actas XIV Semana de Geoquímica e VIII Congresso de Geoquímica dos Países de Língua Portuguesa*, pp.79-83 (2005).

M.I. Dias, M.I. Prudêncio, F. Rocha, Geoquímica e mineralogia de matérias-primas não metálicas: aplicação a estudos de cerâmicas arqueológicas na área da barragem do Alqueva, Portugal. *Actas XIV Semana de Geoquímica*, pp. 289-292 (2005).

M.I. Prudêncio, Sequeira Braga, M.A., Gouveia, M.A., Geoquímica e mineralogia de sedimentos do depósito de Prado – bacia de drenagem do rio Cavado (NW de Portugal). *Actas XIV Semana de Geoquímica* pp. 671-674 (2005).

F. Moreno, S. Vilela, M. I. Prudêncio, C.A.S.Alves, Estudo geoquímico de solos urbanos de Évora (SE Portugal) – contribuição para a caracterização da contaminação salina do património construído. *Actas XIV Semana de Geoquímica*, pp.691-694 (2005).

M.I. Dias, M.A. Gouveia, M. F. Araújo, M.C. Freitas, M.I. Prudêncio, A. P. Marques, Trace element monitoring in the vicinity of a solid waste disposal. Goldschmidt Conference Abstracts 2005, Environmental Geochemistry/Mineralogy, *Geochemica et Cosmochimica Acta*, vol 69, Issue 10, Supplement 1, pp. A813 (2005).

M. I. Prudêncio, M. I. Gonzalez, M. I. Dias, E. Galan, F. Ruiz, J. Duplay, F. Gueddari, R. AHMED, Geochemistry, mineralogy and micropaleontology of sediments from El Meleh lagoon, Tunisia, *Geochemica et Cosmochimica Acta*, vol 69, Issue 10, Supplement 1, pp. A817.

#### Communications

M.I. Dias, M.I. Prudêncio, Geochemical and mineralogical characterization of Bell Beakers from Portuguese sites. A contribution to the establishment of provenance and circulation. *Table Ronde de Nanterre* (France). Mécanismes de circulation des vases campaniformes, 3-4 Mars, invited talk.

G. Cardoso, M. I. Prudêncio, A. Zink, M. I. Dias, J. C. Waerenborgh, Determinação da temperatura de cozedura de cerâmicas arqueológicas: Luminescência – potencialidades e limitações. *VI Congreso Ibérico de Arqueometria*. Girona, Espanha, 16-19 Nov., oral.

M. I. Dias, G. Cardoso, F. Geirinhas, A. C. Valera, I. Moitinho, M. I. Prudêncio, Caracterização química, mineralógica e datação absoluta (TL-OSL) dos contextos pré-históricos do Palácio dos Lumiares (Bairro Alto, Lisboa). *VI Congreso Ibérico de Arqueometria*. Girona, Espanha, 16-19 Nov., oral.

M. I. Dias, M. I. Prudêncio, J. Bugalhão, S. Gomes, M. J. Sousa, D. Folgado, Islamic ceramic production in downtown Lisbon: R. Correeiros and Mandarin Chinês Kilns. *European Meeting on Ancient Ceramics, EMAC'05* Lyon, France. Out., poster.

M. I. Prudêncio, M. I. Dias, C. Amaro, C. Gonçalves, The roman ceramic production center of Garrocheira (Tagus basin, Portugal): a first chemical characterization. *European Meeting on Ancient Ceramics, EMAC'05* Lyon, France. Out. 2005, poster.

M. J. Trindade, F. Rocha, M. I. Dias, Geochemical and mineralogical characterization of a lower Cretaceous sedimentary profile from central Algarve (Portugal). *7<sup>th</sup> Int. Symp. Geochemistry of the earth's surface, GES-7*, Aix-en-Provence, France, Aug., poster

M.I. Prudêncio, M.I. Dias, R. Marques, D. Franco, M.A. Gouveia, O Bromo como indicador geoquímico do uso de cerâmicas arqueológicas. *VI Congreso Ibérico de Arqueometria*. Girona, Espanha, 16-19 Nov., poster.

M. I. Dias, M. F. Araújo, M. I. Prudêncio, A. C. Valera, Contributos arqueométricos para a evidência da produção de sal pelo método da briquetage no Neolítico Final / Calcolítico Inicial do estuário do Tejo. *VI Congreso Ibérico de Arqueometria*. Girona, Espanha, 16-19 Nov., poster.

M.I. Dias, M.I. Prudêncio, Geochemical fingerprints in provenance studies of archaeological ceramics: the case of clay materials sources from the NW of Portugal. *XIX Reunion Científica de la Sociedad Española de Arcillas*. Salamaca, 26-28 Sep., poster.

M. J. Trindade, F. Rocha, M. I. Dias, Geoquímica e mineralogia de argilas de níveis cretácicos do Algarve, Portugal: resultados preliminares. *XIX Reunion Científica de la Sociedad Española de Arcillas*. Salamaca, 26-28 Sep., poster.

G. Cardoso, M. I. Prudêncio, A. Zink, M. I. Dias, J. C. Waerenborgh, Determinação da temperatura de cozedura de cerâmicas arqueológicas: luminescência - potencialidades e limitações *6º Congresso Ibérico de Arqueometria*, Gerona, Spain, 16-19 Nov., oral.

## Theses

### *Agregação(Professor Degree)*

M.I. Prudêncio, Geomateriais no património Cultural; Lição Síntese: Proveniência de Cerâmicas Arqueológicas- identificação de centros produtores, Professor Degree in Geociências, Universidade de Aveiro, November 2005.

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## Nuclear Instruments and Methods

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### Journals

U. Abbondanno et al., The data acquisition system of the neutron time of flight facility n\_TOF at CERN, *Nucl. Instr. Meth. A* 538 (2005) 692.

### Conference Proceedings

A. Carrillo De Albornoz, L. Marques, I.F. Gonçalves, P. Vaz, Characterization of a Neutron Beam Available at the RPI Using a Set of Bonner Spheres, *ICRS-10/RPS 2004, Rad. Prot. Dos.* 114 (2005).

C. Domingo-Pardo et al., Measurement of the resonance capture cross section of Pb-204 and Pb-206 and the termination of the s-process, *Int. Conf. on Capture Gamma-ray Spectroscopy and Related Topics*, Notre Dame, IN (USA), 5-9 Sep 2005.

C. Domingo-Pardo et al., New Measurement of Capture Cross Section of Bismuth and Lead isotopes, *Conf. Nuclear Data for Science and Technology 2004*, AIP Conf. Proc. 769 (2005) 1521-1524.

C. Moreau et al., Measurement of capture Cross-Sections of  $^{90,91,92,94,96}\text{Zr}$  isotopes at CERN n\_TOF, *Conf. Nuclear Data for Science and Technology 2004*, AIP Conf. Proc. 769 (2005) 880-883.

Cano-Ott et al., Measurements at n\_TOF of the Neutron Capture Cross Section of Minor Actinides relevant to the Nuclear Waste Transmutation, *Conf. Nuclear Data for Science and Technology 2004*, AIP Conf. Proc. 769 (2005) 1442-1445.

G. Aerts et al., Measurement of the  $^{232}\text{Th}$  neutron capture cross section at the CERN n\_TOF facility, *Conf. Nuclear Data for Science and Technology 2004*, AIP Conf. Proc. 769 (2005) 1470-1473.

I.F. Gonçalves, J. Salgado, L.M.N. Távora, P. Vaz, Towards The Enhancement of the Photon/Neutron Discrimination of  $\text{C}_6\text{D}_6$  Detectors in the Range from 1 MeV to 10 MeV using Liquid Scintillator Materials Doped with High-Z Elements, *Conf. ICRS-10/RPS 2004, Rad. Prot. Dos.* 114 (2005).

M. Mosconi et al., Neutron Capture Cross Sections for the Re/Os clock, *Conf. Nuclear Data for Science and Technology 2004*, AIP Conf. Proc. 769 (2005) 1335-1338.

R. Terlizzi et al., Measurement of the  $^{139}\text{La}(n,g)$  cross section, *Int. Conf. Capture Gamma-ray Spectroscopy and Related Topics*, Notre Dame, IN (USA), 5-9 Sep 2005.

U Abbondanno et al., The n\_TOF Facility at CERN: Performances And First Physics Results, *Conf. Nuclear Data for Science and Technology 2004*, AIP Conf. Proc. 769 (2005) 724-729.

### Internal Reports

J.B. Manteigas, J. Neves, C. Cruz, F.G. Carvalho, Technical Assistance in the Field of Engineering Applications of Radiation and Radioisotopes, ITN 2005.



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## Radiation Technologies: Processes and Products

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### Journals

M.H. Casimiro, M.L. Botelho, J.P. Leal, M.H. Gil, Study on chemical, UV and gamma radiation induced grafting of 2-hydroxyethyl methacrylate onto chitosan. *Rad. Phys. Chem.* 72 (2005) 731-735.

### Conference Proceedings

R. Melo, J. Branco, M.L. Botelho, Slaughterhouse Sewage Treatment using Gamma Radiation – Economical Feasibility Study. *Proc. Int. Nuclear Atlantic Conf.*, Santos, Brasil, 28 Aug – 2 Sep 2005.

### Communications

S. Cabo Verde, S. Cajão, P. Martinho, J. Santos, M.L. Botelho, S. Xisto, P. Mazarelo, Investigação e Desenvolvimento: um projecto em colaboração. *Workshop A FARMÁCIA MILITAR – Logística Farmacêutica e Serviços Analíticos*, Laboratório Militar, Lisboa, 20 April, invited talk.

Alves, S. Cabo Verde, M.L. Botelho, Wastewater Microorganisms' Response to ionizing Radiation, *Int. Chemical Congress of Pacific Basin Societies*, Honolulu, Hawaii, 15-20 Dec., poster.

R. Melo, M.L. Botelho, J. Branco, A. Castelo Branco, R. Menino, Slaughterhouse Sludge Treatment using Ionizing Radiation: Studies on Sludge as Agriculture Fertilizers, *Int. Chemical Congress of Pacific Basin Societies*, Honolulu, Hawaii, 15-20 Dec., poster.

S. Cabo Verde, R. Tenreiro, P. Pinto, P. Luís, M.G. Lima, S. Martins, A. Santana, M.L. Botelho, The tools to safe egg-products: detection and irradiation, *Int. Chemical Congress of Pacific Basin Societies*, Honolulu, Hawaii, 15-20 Dec., poster.

### Theses

#### M.Sc.

A. Alves, Isolation of radioresistant aerobic and anaerobic bacteria from slaughterhouse wastewater and characterization by phenotypic and genotypic methods. Uppsala Univ., Apr 2005.

R. Melo, Estudo da radiação ionizante no tratamento de águas residuais: aspectos tecnológicos e sócio-económicos. Univ. dos Açores, Feb 2005.

#### Graduation

A.M. Anacleto, Impacto da irradiação nas características físico-químicas e reológicas do mel. Instituto Politécnico de Santarém, Jun 2005.

P. Luís, Estudos físicos e reológicos em maionese e bolo esponja confeccionados com ovoprodutos irradiados e não irradiados. Instituto Politécnico de Santarém, Dec 2005.

S. Martins, Determinação de parâmetros físico-químicos em ovoprodutos submetidos à irradiação, Instituto Politécnico de Santarém, Jun 2005.