

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

### Books and Book Chapters

- A. KLING, F. BARÃO, M. NAKAGAWA, L. TÁVORA, P. VAZ (Eds.), *Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications, Proceedings of the MC2000 Conference, Lisbon, 23-26 October*, Springer Verlag Berlin Heidelberg New York (2001) (1218 p.), ISBN 3-540-41795-8.
- E. MARTINHO, J. OLIVEIRA, *Reactor Português de Investigação: 40 anos ao serviço da Ciência e da Tecnologia – Publicações 1961-2001; Edição ITN, Julho 2001* (113 p.).

### Journals

#### Published

- I.F. GONÇALVES, E. MARTINHO, J. SALGADO, Monte Carlo calculation of resonance self-shielding factors for epithermal neutron spectra; in *Radiation Physics and Chemistry* **61** (2001) 461-462.
- I.F. GONÇALVES, E. MARTINHO, J. SALGADO, Monte Carlo calculation of neutron resonance self-shielding factors in wires of different materials; in *Applied Radiation and Isotopes* **55** (2001) 447-451.
- N. G. OLIVEIRA, M. CASTRO, A. S. RODRIGUES, I. C. GONÇALVES, R. CASSAPO, A. P. FERNANDES, ET. AL., Evaluation of the genotoxic effects of the boron neutron capture reaction in human melanoma cells using the cytokinesis block, *Mutagenesis* **16** (2001) 369-375.

#### Accepted for publication or in press

- I.F. GONÇALVES, E. MARTINHO, J. SALGADO, Monte Carlo calculation of neutron resonance self-shielding factors in wires of different materials; in *Applied Radiation and Isotopes*.
- E. MARTINHO, J. OLIVEIRA, *Reactor Português de Investigação: 40 anos ao serviço da Ciência e da Tecnologia*; in *Boletim da Sociedade Portuguesa de Química*.

- A.C. FERNANDES, I.C. GONÇALVES, A.F. CARVALHO, J. SANTOS, J. CARDOSO, L. SANTOS, M. OSVAY, Reproducibility of TL measurements in a mixed field of thermal neutrons and photons, *Radiation Protection Dosimetry*.

### Conference Proceedings

#### Published

- A. KLING, J.G. MARQUES, A.J.G. RAMALHO. Monte Carlo Simulations for the Estimation of Dose Rates During Handling of Spent Fuel at the Portuguese Research Reactor, in *Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications, Proceedings of the MC2000 Conference, Lisbon, 23-26 October*, A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz (Eds.), Springer Verlag Berlin Heidelberg New York (2001) pp. 529-534.
- A. VIEIRA, A.J.G. RAMALHO, I.C. GONÇALVES, A.P. FERNANDES, N.P. BARRADAS, J.G. MARQUES, J. PRATA, C. CHAUSSY, Monte Carlo calculations for neutron and gamma radiation fields on a fast neutron irradiation device, in *Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications, Proceedings of the MC2000 Conference, Lisbon, 23-26 October*, A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz (Eds.), Springer Verlag Berlin Heidelberg New York (2001) pp. 919-924.
- J.A. AGAPITO, N.P. BARRADAS, F.M. CARDEIRA., J. CASAS, A.P. FERNANDES, F.J. FRANCO, P. GOMES, I.C. GONÇALVES, A.H. CACHERO, J. LOZANO, J.G. MARQUES, A. PAZ, M. J. PRATA, A.J.G. RAMALHO, M.A. RODRIGUEZ RUIZ, J.P. SANTOS, A. VIEIRA, Radiation tests on commercial instrumentation amplifiers, analog switches and DACs, *Proc. 7th Workshop on Electronics for LHC Experiments* ([http://lebwshop.home.cern.ch/lebwshop/LEB01\\_Book/LEB01\\_Proceedings.html](http://lebwshop.home.cern.ch/lebwshop/LEB01_Book/LEB01_Proceedings.html)).

### Comunications

- A.C. FERNANDES, I.C. GONÇALVES, A.F. CARVALHO, J. SANTOS, J. CARDOSO, L. SANTOS, M. OSVAY, Reproducibility of TL measurements in a mixed field of thermal neutrons and photons, *XIII<sup>th</sup> International Symposium on Solid State Dosimetry*, Athens, July 2001, poster.
- N.G. OLIVEIRA, M. CASTRO, A.S. RODRIGUES, I.C. GONÇALVES, R. CASSAPO, A.P. FERNANDES, Parp inhibitor 3-aminobenzamide does not increase the yields of chromosomal aberrant cells induced by boron neutron capture reaction in V79 chinese hamsters cells, *31<sup>th</sup> Annual meeting of the European Environmental Mutagen Society*, Ghent, September 2001, poster.
- N.G. OLIVEIRA, M. CASTRO, A.S. RODRIGUES, I.C. GONÇALVES, On the mechanisms of genotoxicity of boron neutron capture reaction: data from human melanoma cells and non-tumoral cells, obenzamide does not increase the yields of chromosomal aberrant cells induced by boron, *XXXIII Reunião Annual da Sociedade Portuguesa de Farmacologia, XX Reunião de Farmacologia Clínica*. Coimbra, December 2001, oral.

- F.M. CARDEIRA, RPI Operation – Overview 1999/2000, *12<sup>th</sup> EAES-RROG Annual Meeting*. Athens, Greece, June 18-19, 2001, oral.

### Internal Reports

- E. MARTINHO, I.F. GONÇALVES, J. SALGADO, Curva universal do factor de autoproteção de ressonâncias isoladas referente a amostras com geometrias diversas (fios, folhas e esferas); *Internal Report ITN/RPI-R-62/01*

### Safety Analyses

- M.R. DA SILVA, N.P. BARRADAS, A. KLING, J.G. MARQUES, A.J.G. RAMALHO, Irradiação de granalha de berílio: Análise de segurança, March 2001.
- N.P. BARRADAS, F.M. CARDEIRA, J.G. MARQUES, A.J.G. RAMALHO, Co-ordinated by A.J.G. RAMALHO, Alteração da configuração do núcleo do RPI - Configuração N2-P1/7 - Relatório de segurança, November 2001.

## Applied Dynamics

### Books and Book Chapters

- J. ANTUNES, Dynamics of rotor/flow coupled systems, in *Flow Induced Vibrations*, P. ANAGNOSTOPOULOS (Ed.), WIT Press, Southampton (2002, in print).

### Journals

#### Published

- J. ANTUNES, P. IZQUIERDO, M. PAULINO, Blind Identification of Impact Forces from Multiple Measurements, *International Journal of Nonlinear Science and Numerical Simulation* **2** (2001) 1-20.

#### Accepted for publication or in press

- M. MOREIRA, J. ANTUNES, H. PINA, An improved model for rotors subject to dissipative annular flows, *Journal of Fluids and Structures* (2002).
- M. MOREIRA, J. ANTUNES, H. PINA, A symbolic-numerical method for nonlinear rotor dynamics under fluid confinement, *International Journal of Nonlinear Science and Numerical Simulation* (2002).
- J. ANTUNES, P. PITEAU, A nonlinear model for squeeze-film dynamics under axial flow, *Journal of Fluids and Structures* (2002).
- M. MOREIRA, J. ANTUNES, A simplified linearized model for the fluid-coupled vibrations of spent nuclear fuel racks, *Journal of Fluids and Structures* (2002).

### Conference Proceedings

#### Published

- J. ANTUNES, M. PAULINO. Balancing of flexible rotors from a single additional test, *Proceedings of the 18th Canadian Congress of Applied Mechanics (CANCAM 2001)* **1**, St. John's, Canada (2001) 57.
- M. MOREIRA, J. ANTUNES, H. PINA. Analysis of nonlinear motions of immersed rotors using a spectral/Galerkin approach, *Proceedings of the ICSV8-Eighth International Congress on Sound and Vibration* **1**, Hong-Kong, China (2001) 2075.
- O. INÁCIO, L. HENRIQUE, J. ANTUNES. Dynamical analysis of bowed bars, *Proceedings of the ICSV8-Eighth International Congress on Sound and Vibration* **1**, Hong-Kong, China (2001) 2795.

- M. MOREIRA, J. ANTUNES. A simplified linearized model for the fluid-coupled vibrations of spent nuclear fuel racks, *Proceedings of the ASME PVP - Symposium on Flow-Induced Vibration* **420-1**, Atlanta, USA (2001) 203.
- J. ANTUNES, P. PITEAU. A nonlinear model for squeeze-film dynamics under axial flow, *Proceedings of the ASME PVP - Symposium on Flow-Induced Vibration* **420-2**, Atlanta, USA (2001) 53.
- J. ANTUNES, L. HENRIQUE, O. INÁCIO. Aspects of bowed-string dynamics, *Proceedings of the 17th Int. Congress on Acoustics (ICA 2001)* **4**, Roma, Italy (2001) 3.
- L. HENRIQUE, J. ANTUNES, J. S. CARVALHO. Design of musical instruments using global optimization Techniques, *Proceedings of the International Symposium of Musical Acoustics (ISMA 2001)* **1**, Perugia, Italy (2001) 1.
- M. MOREIRA, H. PINA, J. ANTUNES. Nonlinear vibrations of asymmetrically supported vertical rotors under annular flow confinement: Theoretical Results, *Proceedings of the Fluid Structure Interaction Conference* **30**, Halkidiki, Greece (2001) 26.

### Comunications

- O. INACIO, L. HENRIQUE, J. ANTUNES, Influence des modes de torsion sur les régimes dynamiques des cordes frottées, *Rencontre sur les instruments à cordes : Entre facture et musique*, Lisbon, Portugal, April 20-21 2001, oral.
- J. ANTUNES, L. BORSOI, P. IZQUIERDO, P. PITEAU, Processus d'identification en vibrations non-linéaires de poutres à chocs, *Société Française de Mécanique, Journées sur l'analyse modale expérimentale*, Blois, France, November 29-30 2001, oral.

### Internal Reports

- M. PAULINO, J. ANTUNES, *Optimal balancing of flexible rotors: IV - Preliminary tests of a new balancing method*, Internal Report ITN/ADL-May2001-1, Sacavém (2001).
- M. MOREIRA, R. SAMPAIO, *Improved design of a tuned shaker*, Internal Report ITN/ADL-Nov2001-1, Sacavém (2001).
- J. ANTUNES, R. SAMPAIO, *Detection d'impacts à distance à l'aide de techniques auto-régressives*, Internal Report ITN/ADL-Dec2001-1, Sacavém (2001).

# Radiological Protection and Nuclear Safety

## Journals

### Published

- A. BAEZA, A. BROGUEIRA, M.C. CARREIRO, E. GARCIA, J.M. GIL, M.M. SEQUEIRA, M.M. TEIXEIRA, Spatial and Temporal Evolution of the Levels of Tritium in the Tagus River in its passage through Extremadura (Spain) and the Alentejo (Portugal), *Water Research*, **35**, n°3 (2001), 705-714.
- D.D. NHAN, F.P. CARVALHO, N.M. AM, N.Q. TUAN, N.T.H. YEN, J.-P. VILLENEUVE, C. CATTINI, Chlorinated pesticides and PCBs in sediments and molluscs from freshwater canals in the Hanoi region. *Env. Pollution* **112** (2001) 311-320.
- D.T. BARTLETT, A.F. CARVALHO et al., Harmonisation and Dosimetric Quality Assurance in Individual Monitoring for External Radiation, *Radiation Protection Dosimetry*, **96**, N° 1-3 (2001) 27-33.
- E. FANTUZZI, P. AMBROSI, D.T. BARTLETT, A. F. CARVALHO, and al., Present Status of Approval Procedures in the EU Member States and Switzerland, *Radiation Protection Dosimetry*, **96**, N° 1-3, (2001) 73-80.
- F.P. CARVALHO AND F.S. CIVILI. Monitoring of the Mediterranean Sea Pollution (MED POL) and Data Quality Assurance, *Intern. J. Environ. Studies*, **Vol. 58**, (2001), 139-158.
- J.G. ALVES, M.B. MARTINS, E.M. AMARAL, Occupational Exposure in Portugal in 1999, *Radiat. Prot. Dosim.* **96** (2001) 43-47.
- M.J. MADRUGA, A. BROGUEIRA, G. ALBERTO, F. CARDOSO, <sup>226</sup>Ra Bioavailability to Plants at Urgeiriça Uranium Mill Tailings, *J. of Environmental Radioactivity*, **54**, (2001) 175-188.

### Accepted for publication or in press

- A. BAEZA, A. BROGUEIRA, C. MIRÓ, M.M. SEQUEIRA, Study of Caesium-137 in Surface Waters and sediments of the Tagus River. *Colloquium Series of the Radioprotection Journal* (in press)
- M.J. MADRUGA, A. KONOPLEV, I. KONOPLEVA, Methodology Improvement of Radiocaesium Sorption Determinations on Bottom Sediments From Chernobyl Contaminated Areas, *Colloquium Series of the Radioprotection Journal* (in press)

## Conference Proceedings

### Published

- A.D. OLIVEIRA, O Método de Monte Carlo para Fotões de Energia entre 10 e 150 keV, *Radioprotecção*, **Vol I, N° 8-9**, (2001) 29-40.
- F.P. CARVALHO Protecção Radiológica do Homem e do Ambiente: Necessidade de um Sistema Coerente. *Radioprotecção*, **Vol I, N° 8-9**, (2001) 159-164.
- M. J. MADRUGA, I. FARIA, A. BROGUEIRA, Spatial Distribution of <sup>238</sup>U, <sup>226</sup>Ra and <sup>210</sup>Pb at Urgeiriça Uranium Mill Tailings. *Radioprotecção*, **Vol I, N° 8-9**, (2001) 125-134.
- A.D. OLIVEIRA, J.J. PEDROSO DE LIMA, Dynamical analysis of data, *Proceedings of the 5<sup>th</sup> Portuguese Conference on Biomedical Engineering*, in CD-ROM, 2001.
- A.D. OLIVEIRA, J.J. PEDROSO DE LIMA, Parallel perspective representation of three-dimensional points, *Proceedings of the 5<sup>th</sup> Portuguese Conference on Biomedical Engineering*, in CD-ROM, 2001
- A.D. OLIVEIRA, Description of the photon track structure in water, *Proceedings of the V IRPA Regional Congress on Radiation Protection and Safety*, Brasil (2001), in CD-ROM
- A.D. OLIVEIRA, The entropy of an X-ray beam, *Proceedings of the V IRPA Regional Congress on Radiation Protection and Safety*, Brasil (2001), in CR-ROM.
- A.D. OLIVEIRA, J.J. PEDROSO DE LIMA, The degradation of the energy of primary photons described through the entropy, *Proceedings of the Monte Carlo 2000 Conference in Advanced Monte Carlo for Radiation Physics, particle transport simulation and applications*, Lisbon 2000, editors A. Kling et al., Springer Verlag, Berlin, pp 425-430, 2001.
- J.H. PEREIRA LUIS. The genotoxic aggression as a method for evaluation of the radiation ionization health risks, *VI Medicine Work. Proceedings*, Lisbon, (2001) 94.
- M.I. PAIVA, Advanced Processes for the Treatment of Radioactive Liquid Wastes. Applications to the Uranium Mining and Milling Waste Streams, *VIII Jornadas Portuguesas de Protecção contra Radiações*, Lisboa, 29 November 2001 (Abstract in English)
- M.J. REIS, A.L. BROGUEIRA, R.N. ROSA, A.O. BETTENCOURT. Measurement of <sup>214</sup>Pb, <sup>212</sup>Pb, <sup>210</sup>Pb and <sup>7</sup>Be activities in size fractionated aerosols

- in the lower atmosphere at Sacavém (Lisbon), *V IRPA Regional Congress on Radiation Protection and Safety Proceedings*. Recife, Brasil, (2001).
- R. TRINDADE, M.I. PAIVA, L. PORTUGAL, Gestão dos Resíduos Radioactivos Sólidos em Portugal, *3<sup>as</sup> Jornadas Técnicas Internacionais de Resíduos*, Viana do Castelo, 24-26 October 2001 (CD-ROM)
  - R. TRINDADE, M.I. PAIVA, L. PORTUGAL, Substâncias Radioactivas em Sucatas Metálicas, *VIII Jornadas Portuguesas de Protecção contra Radiações*, Lisboa, 29 November 2001
- Accepted for publication or in press**
- M.I. PAIVA, Advanced Processes for the Treatment of Radioactive Liquid Wastes. Applications to the Uranium Mining and Milling Waste Streams, *Radioprotecção* (in press)
  - R. TRINDADE, M. I. PAIVA, L. PORTUGAL, Substâncias Radioactivas em Sucatas Metálicas, *Radioprotecção*, (in press)
  - A.D. OLIVEIRA, J.J. PEDROSO DE LIMA, The spatial structure of photons scattered in water, *Proceedings of the Topical Meeting on Medical Radiation Physics and Engineering*, Lisbon 2000, *Physica Medica*, in press.
  - J.G. ALVES, A. DELGADO. A Simple Program that Collects TL Data from a TOLEDO 654E Reader, *Proceedings of the IRPA Regional Congress on Radiation Protection in Central Europe*, Dubrovnik, Croatia (2001).
- Comunications**
- A. BAEZA, A. BROGUEIRA, C. MIRÓ, M.M. SEQUEIRA, Study of Caesium-137 in Surface Waters and sediments of the Tagus River, *International Congress on the Radioecology-Ecotoxicology of Continental and Estuarine Environments*, Aix-en-Provence, France, 3-7 September, 2001, poster.
  - A.D. OLIVEIRA, Description of the photon track structure in water, *V IRPA Regional Congress on Radiation Protection and Safety*, Brasil, May 2001, oral.
  - A.D. OLIVEIRA, The entropy of an X-ray beam, *V IRPA Regional Congress on Radiation Protection and Safety*, Brasil, May 2001, poster.
  - A. F. CARVALHO. Evolution of Concepts and Recommendations in Radiological Protection, *8th Meeting of the Portuguese Society of Radiological Protection*, Lisbon, 29 November 2001.
  - A. F. CARVALHO. Air craft radiation exposure – international recommendations. *Seminar on Cosmic Radiation – the invisible passenger, Portuguese Air line Pilots Association*. Lisbon, 13 December 2001.
  - A. LINARES, R. ZAPICO, J.A. CORISCO, J.A. FERNANDEZ, Transporte de Radiocésio (<sup>137</sup>Cs) en *Chlamydomonas reinhardtii*. Efecto del pH sobre la incorporación y acumulación. *VII Congreso Hispano Luso de Fisiología Vegetal*, Badajoz, España, 2001, poster.
  - C. PIRES, A. BROGUEIRA, P. DUARTE, F. P. CARVALHO, Determinação de Radionuclidos Naturais em Rochas por Espectrometria Gama, *Conferência Ibérica sobre Protecção Ambiental*, Instituto Piaget, Viseu, 12-14 July 2001, oral.
  - F. P. CARVALHO, M.J. MADRUGA, J. ALVES, Contaminação Radioactiva nas Áreas Mineiras Uraníferas, *Seminário sobre Áreas Mineiras Abandonadas ou Degradadas e Solos Contaminados*, Urgeiriça, Viseu, 14-15 July 2001, oral.
  - J. GASPAR, S. RODRIGUES, O. MONTEIRO GIL, I. MANITA, T.C. FERREIRA, J. ESPERANÇA PINA, E. LIMBERT, J. RUEFF, Glutathione S-Transferase GSTM1, GSTT1 and GSTP1 polymorphisms and thyroid cancer risk. *Human Genetics and Genomics, Keystone Symposia*, 2001, poster.
  - J.H. PEREIRA LUIS. The genotoxic aggression as a method for evaluation of the radiation ionization health risks, *VI Medicine Work*, Lisbon, Portugal, November 7-9 2001, oral.
  - J. V. CARDOSO, A. F. CARVALHO. Characterisation of non-ionizing radiation – bio-effects aspects, *4th Meeting of Occupational Health in Hospitals and other Health Establishments*, Lisbon, 7 November 2001
  - J. V. CARDOSO. Cosmic Radiation – physical properties. *Seminar on Cosmic Radiation – the invisible passenger, Portuguese Air line Pilots Association*. Lisbon, 13 December 2001.
  - M.F. ARAÚJO, T. BARBOSA, M.J. MADRUGA, I. FARIA, Dispersão de Contaminantes e sua Transferência no Sistema Solo/Planta nas Escombreiras da Mina de Urânio da Urgeiriça. *Congresso Internacional sobre Património Geológico e Mineiro*, Beja, 4-7 October 2001, oral.
  - M.J. MADRUGA, A. KONOPLEV, I. KONOPLEVA, Methodology Improvement of Radiocaesium Sorption Determinations on Bottom Sediments From Chernobyl Contaminated Areas, *International Congress on the Radioecology-Ecotoxicology of Continental and Estuarine Environments*, Aix-en-Provence, France, 3-7 September, 2001, poster.
  - M. I. PAIVA, Advanced Processes for the Treatment of Radioactive Liquid Wastes. Applications to the Uranium Mining and Milling Waste Streams, *VIII Jornadas Portuguesas de Protecção contra Radiações*, Lisboa, 29 November 2001, Invited.
  - M.J. MADRUGA, I. FARIA, A Cromatografia Iónica na Análise de Cátions em Plantas, *2<sup>o</sup>*

- Encontro Nacional de Cromatografia*, Lisboa, 10-12 December 2001, poster.
- M.J. REIS, Nuclídeos Radioactivos na Atmosfera: Fontes Antropogénicas e Fontes Naturais, *Jornadas sobre Ambiente, Atmosfera e Técnicas Nucleares*, Lisboa, Portugal, October 29, 2001, oral.
  - M.J. REIS, R.N. ROSA, A.L. BROGUEIRA, A.O. BETTENCOURT, Natural Radionuclides as Atmospheric Tracers, *International Meeting on Climate Change and the Kyoto Protocol*, Évora, Portugal, November 15-16 2001, poster.
  - M.J. REIS, R.N. ROSA, A.L. BROGUEIRA, A.O. BETTENCOURT, The Use of Natural Radionuclides to Trace Dry Deposition of Submicron Aerosols, *VIII Jornadas Portuguesas de Protecção Contra Radiações*, Lisboa, Portugal, November 29, 2001, oral.
  - M.L. PEDRO, The DNA Fragmentation Radioinduced in the Dose Absorbed Evaluation, *V Free Radicals in Chemistry, Biology and Medicine Congress*, Porto, Portugal, December 13-15 2001, painel.
  - O. MONTEIRO GIL, N.G. OLIVEIRA, A.S. RODRIGUES, A. LAIRES, T.C. FERREIRA, E. LIMBERT, J. RUEFF, Lymphocytes from iodine-133 treated thyroid cancer patients undergo a transient adaptation towards mitomycin C genotoxicity, Genetic Susceptibility at low dose exposure, *31<sup>st</sup> Annual Meeting of the EEMS*, Ghent, 2001, poster.
  - R. TRINDADE, M.I. PAIVA, L. PORTUGAL, Gestão dos Resíduos Radioactivos Sólidos em Portugal, *3<sup>as</sup> Jornadas Técnicas Internacionais de Resíduos*, Viana do Castelo, 24-26 October 2001, poster.
  - R. TRINDADE, M.I. PAIVA, L. PORTUGAL, Substâncias Radioactivas em Sucatas Metálicas, *VIII Jornadas Portuguesas de Protecção contra Radiações*, Lisboa, 29 November 2001, Invited.
  - *Report of the Portuguese Scientific Mission to Kosovo and to Bosnia-Herzegovina for Assessment of Radioactive Contamination and of the Radiological Risk Due to the Use of depleted Uranium Ammunitions, Final Report. Internal Report DPRSN-A, N°14/01, ISBN 972-8660-17-0, April 2001.*
  - M. L. PEDRO, *A Fragmentação do ADN Radioinduzida na Avaliação de Dose Absorvida., Internal Report DPRSN-A, N°15/01, ISBN-972-95401-4-4 (2001)*
  - A.D. OLIVEIRA, C. MARCELINO, K. JACOB, *Relatório técnico da base de dados SGAR, Internal Report DPRSN-B, N°5, ISBN-972-8660-14-6 Sacavém (2001).*
  - A.D. OLIVEIRA, C. MARCELINO, K. JACOB, *Manual de utilização da base de dados SGAR, Internal Report DPRSN-B, N°6, ISBN-972-8660-13-8, Sacavém (2001).*
  - F.P. CARVALHO, *Cuidados a Ter na Utilização de Substâncias Radioactivas nos Hospitais, Internal Report DPRSN-B N°13 (2001) ISBN:972-95401-6-0.*
  - F.P. CARVALHO, *The Current Situation of the Regulatory Authority and Radiation Protection and Safety of Radioactive Sources in Portugal. Internal Report DPRSN B, N° 14 (2001) ISBN 972-95401-7-9*
  - F.P. CARVALHO, M.J. MADRUGA, J. ALVES. *Contaminação radioactiva nas áreas mineiras uraníferas, Internal Report DPRSN-B, N.°15 (2001). ISBN: 972-95401-5-2*
  - L. PORTUGAL, R. CASQUINHA, *Controlo radiológico na Escola de Limitação de Avarias, Alfeite, Internal Report DPRSN-C, N°5 (2001)*
  - R. TRINDADE, L. PORTUGAL, R. CASQUINHA, *Controlo radiológico na sala dos Cofres do IPOFG, Internal Report DPRSN-C, N°6 (2001)*
  - R. TRINDADE, L. PORTUGAL, *Monitorização dos computadores de campanha BL-10 do depósito Militar de Linda-a-Velha. Internal Report DPRSN-C, N°7 (2001)*
  - A. BROGUEIRA, M. REIS, C. PIRES, *Deteção de <sup>41</sup>Ar na Sala de Medida de Radioactividade Ambiente. Internal Report DPRSN-C, N°8, April 2001.*
  - A.D. OLIVEIRA, C. MARCELINO, K. JACOB, *Estudo de avaliação de Segurança Radiológica Radiofarmácia do Instituto Tecnológico e Nuclear, Internal Report DPRSN-C, N°9, Sacavém (2001).*
  - M.C. FAÍSCA, P. DUARTE, G. FERRADOR, J.M. OLIVEIRA, C. PIRES, *Estudo Radioactivo das Águas das Termas Sulfurosas de Alcaface. Internal Report DPRSN-C, N°10, April 2001.*

### Internal Reports

- *Missão Científica no Kosovo e na Bósnia-Herzegovina para Avaliação da Contaminação Radioactiva e do Risco Radiológico Resultantes do Uso de Munições com Urânio Empobrecido. Preliminar Report, DPRSN, February 2001.*
- J.M. OLIVEIRA, M.M. SEQUEIRA, *Radioactividade no Rio Águeda Relacionada com a Exploração de Urânio. Internal Report DPRSN-A, N°6/01, ISBN 972-8660-05-7, October 2001.*
- *Missão Científica no Kosovo e na Bósnia-Herzegovina para Avaliação da Contaminação Radioactiva e do Risco Radiológico Resultantes do Uso de Munições com Urânio Empobrecido, Relatório Final. Internal Report DPRSN-A, N°13/01, ISBN 972-95401-2-B, April 2001.*

- R. TRINDADE, *Detecção de materiais radioactivos em sucatas na SNLNGOS, Maia, Internal Report DPRSN-C, N°11 (2001)*
  - L. PORTUGAL, R. CASQUINHA, R. TRINDADE, *Controlo radiológico na DAI, Coruche, Internal Report DPRSN-C, N°12 (2001)*
  - R. TRINDADE, L. PORTUGAL, *Detecção de material radioactivo em sucata na METALMONDA, Internal Report DPRSN-C, N°13 (2001)*
  - M.M. SEQUEIRA, C. PIRES, A. BROGUEIRA, *Medidas de Radioactividade Artificial em Águas Residuais da Rede de Saneamento de Lisboa, durante o Ano 2000. Internal Report DPRSN-C N°14, June 2001*
  - L. PORTUGAL, R. TRINDADE, *Controlo radiológico nos ensaios do sistema de movimentação das fontes na Unidade Experimental de <sup>60</sup>Co da UTR, Internal Report DPRSN-C N°15 (2001)*
  - A.D. OLIVEIRA, J.S. JESUS, C. MARCELINO, K. JACOB, *Estudo de Segurança Radiológica do Acelerador Linear Clinac 600C do Serviço de Radioterapia dos Hospitais da Universidade de Coimbra, Internal Report DPRSN-C, N°16, Sacavém (2001).*
  - A.D. OLIVEIRA, J.S. JESUS, C. MARCELINO, K. JACOB, *Estudo de Segurança Radiológica do Acelerador Linear Clinac 2100C/D do Serviço de Radioterapia dos Hospitais da Universidade de Coimbra, Internal Report DPRSN-C, N°17, Sacavém (2001).*
  - A.D. OLIVEIRA, C. MARCELINO, K. JACOB, *Estudo de Segurança Radiológica do Serviço de Medicina Nuclear do Centro de Lisboa do Instituto Português de Oncologia de Francisco Gentil (IPOFG), Internal Report DPRSN-C, N°18, Sacavém (2001).*
  - G. FERRADOR, C. PIRES, S. CURADO, *Medidas de Radioactividade em Águas da rede de abastecimento do Porto, 2000. Internal Report DPRSN-C, N°19, July 2001.*
  - A.D. OLIVEIRA, J.S. JESUS, K. JACOB, *Estudo de Avaliação de Segurança Radiológica da Instalação de Medicina Nuclear da Clínica Quadrantes, Internal Report DPRSN-C, N°20, Sacavém (2001).*
  - G. FERRADOR, S. CURADO, C. PIRES, *Medidas de Radioactividade em Águas da EPAL, 2000. Internal Report DPRSN-C, N°21, July 2001.*
  - G. FERRADOR, S. CURADO, C. PIRES, *Medidas de Radioactividade em Águas do Cávado, 1998-2000. Internal Report DPRSN-C, N°22, July 2001.*
  - L. PORTUGAL, R. CASQUINHA, R. TRINDADE, *Incidente com S-35 na Sala de Radioactivos do Instituto Nacional de Saúde Ricardo Jorge, Internal Report DPRSN-C, N°23 (2001)*
  - R. TRINDADE, L. PORTUGAL, C. PIRES, A. BROGUEIRA, M.I. PAIVA, R. CASQUINHA, H. GUERREIRO, P. DUARTE, M. A. TAVARES, *Controlo radiológico efectuado durante a estadia do porta aviões nuclear da marinha dos Estados Unidos USS ENTERPRISE no Rio Tejo, de 2 a 7 de Julho de 2001, Internal Report DPRSN-C, N°24 (2001)*
  - M.C. FAÍSCA, P. DUARTE, F. CARVALHO, *Medidas da Concentração de Radão em Habitações. Internal Report DPRSN-C, N°25, August 2001.*
  - L. PORTUGAL, R. TRINDADE, *Incidente com fonte selada de Ir-192, na Alstom, Internal Report DPRSN-C, N°26 (2001)*
  - A.D. OLIVEIRA, J.S. JESUS, K. JACOB, *Verificação das Condições de Segurança Radiológica de um Acelerador Linear Varian Clinac 2100C da Instalação CRP – Clínica de Radioterapia, a funcionar no Hospital da Ordem do Carmo no Porto, Internal Report DPRSN-C, N°27, Sacavém (2001)*
  - L. PORTUGAL, R. CASQUINHA, P. DUARTE, R. TRINDADE, *Avaliação das doses de radiação ambiente e contaminação de um edifício na ELA, Alfeite, Internal Report DPRSN-C, N°28 (2001)*
  - *Listagem dos Resultados das Concentrações de Urânio na Urina Determinadas por Medida Beta Total e Espectrometria Alfa. Internal Report DPRSN-C, N° 29, October 2001.*
- Other publications**
- F. P. CARVALHO, M.J. MADRUGA, J. ALVES, *Requalificação Ambiental das Minas de Urânio. O Primeiro de Janeiro, 30 de Setembro de 2001, 7-8.*
- Theses**
- PhD**
- A.D. OLIVEIRA. *Métodos Computacionais em Protecção Radiológica. Dosimetria Computacional para fótons de energia entre 10 e 150 keV, Fac. Ciências, Univ. Lisboa, Julho de 2001. Supervisor: Prof. J. J. Pedroso de Lima,*
- Graduation**
- T. COSTA *Caracterização de Sedimentos de Água Doce, Provenientes de Regiões Contaminadas após o Acidente de Chernobyl: Adsorção Específica para o Radiocésio. ISEIT, Instituto Piaget, Almada Supervisor: M.J. Madruga*

## Health and Environmental Studies Using Ion Beams

### Journals

#### Published

- M.L. CARVALHO, C. CASACA, J. P. MARQUES, T. PINHEIRO, A. S. CUNHA, P. CHEVALLIER, Human teeth elemental profiles by synchrotron radiation: Dietary habits and environmental influence, *X-ray Spectrom.* **30** (2001)190-193.
- T. PINHEIRO, L.C. ALVES, M.J. PALHANO, A. BUGALHO DE ALMEIDA, Mobilisation of Toxic Elements in the Human Respiratory System, *Nucl. Instr. and Meth.* **B181** (2001) 499-505.
- P.A. LOPES, T. PINHEIRO, M.C. SANTOS, M.L. MATHIAS, M.J. COLLARES-PEREIRA, A.M. - VIEGAS-CRESPO, Response of antioxidant enzymes in freshwater fish populations (*Leuciscus alburnoides* complex) to inorganic pollutants exposure, *The Science of Total Environ.* **280** (2001) 153-163.
- M.A. BARREIROS, T. PINHEIRO, M.F. ARAÚJO, M.M. COSTA, M. PALHA, R.C. DA SILVA, Quality assurance of X-ray spectrometry for chemical analysis, *Spectrochim. Acta Part B*, **56/11** (2001) 2095-2106.

#### Accepted for publication or in press

- P.A. LOPES, A.M. VIEGAS-CRESPO, A.C. NUNES, T. PINHEIRO, C. MARQUES, M.C. SANTOS, M.L. MATHIAS, Influence of age, sex and sexual activity on trace element levels and antioxidant enzyme activities in field mice (*Apodemus sylvaticus* and *Mus spretus*), *Biol. Trace Elem. Res.* (in press).
- M.D. YNSA, T. PINHEIRO, F.J. AGER, L.C. ALVES, J.C. MILLÁN, M.A. GÓMEZ-ZUBELBIA, M.A. RESPALDIZA, PIXE Studies

of Osteoporosis Preventive Treatments, *Nucl. Instr. and Meth.* (in press).

### Conference Proceedings

#### Published

- A. CORTÉS, M.A. BARREIROS, T. PINHEIRO, M.L. CARVALHO, M.M. BORDALO COSTA, Arsenic exposure assessment due to rice growth in treated paddy soils, 11<sup>th</sup> Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC) Proceedings, Madrid, Spain (2001) 545.
- C. MONTEIRO, M.C. SANTOS, T. PINHEIRO, N. RAIMUNDO, R.E. PINTO, Selenium affects rubidium concentration. A new challenge of selenium biochemistry, Proceedings of the 27<sup>th</sup> Meeting of the Federation of European Biochemical Societies, Lisboa, Portugal (2001), 30.422 complex) to inorganic pollutants exposure, *The Science of Total Environ.* **280** (2001) 153-163.
- M.A. BARREIROS, T. PINHEIRO, M.F. ARAÚJO, M.M. COSTA, M. PALHA, R.C. DA SILVA, Quality assurance of X-ray spectrometry for chemical analysis, *Spectrochim. Acta Part B*, **56/11** (2001) 2095-2106.

### Communications

- T. PINHEIRO, L.C. ALVES, A.A. BUGALHO DE ALMEIDA, Retention of airborne particulate matter in the human respiratory system, Congress on Trace Elements and Minerals in Medicine and Biology of the Federation of European Societies on Trace Elements and Minerals, Venice, Italy, May 16-19 2001, oral.



## Atmospheric Elemental Dispersion

### Books and Book Chapters

- H.TH. WOLTERBEEK, J. GARTY, M.A. REIS, M.C., FREITAS, *Biomonitoring in Use: Lichens and Metal Air Pollution in Bioindicators/Biomonitoring – Principles, Assessment, Concepts*, ed. Bernd Markert (in press).

### Journals

#### Published

- M.C. FREITAS, M.A. REIS, A.P. MARQUES, H.TH. WOLTERBEEK, Use of Lichens Transplants in Atmospheric Deposition Studies, *Journal of Radioanalytical and Nuclear Chemistry* **249** (2) (2001) 307-315.
- A.M.G. PACHECO, M.C. FREITAS, L.I.C. BARROS, R. FIGUEIRA, Investigating Tree Bark as an Air -Pollution Biomonitor by Means of Neutron Activation Analysis, *Journal of Radioanalytical and Nuclear Chemistry* **249** (2) (2001) 327-331.
- M.M. FARINHA, M.C. FREITAS, S.M. ALMEIDA, M.A. REIS, Some Improvements on Air Particulate Matter Analysis by INAA, *Radiation Physics and Chemistry*, **61** (3-6) (2001) 659-661.
- E.M.C. RITA, L.C. ALVES, M.A. REIS, F. RODRIGUES, P. FIALHO, J.C. SOARES, Analysis of Atmospheric Aerosol using the Lisbon Nuclear Micropobe, *Acta Physica Polonica A*, **100** (2001)

#### Accepted for publication or in press

- C.J. COSTA, A.P. MARQUES, M.C. FREITAS, M.A. REIS, O.R. OLIVEIRA, A Comparative Study for Results obtained using Biomonitoring and PM10 Collectors in Sado Estuary, *Environmental Pollution*, in press.
- A.M.G. PACHECO, L.I.C. BARROS, M.C. FREITAS, M.A. REIS, C. HIPÓLITO, O.R. OLIVEIRA, An Evaluation of Olive Tree Bark for The Biological Monitoring of Airborne Trace-Elements at Ground Level, *Environmental Pollution*, in press.

- M.A. REIS, L.C. ALVES, M.C. FREITAS, B. VAN OS, J. DE GOEIJ, H.TH. WOLTERBEEK, Calibration of Lichen Transplants considering Faint Memory Effects, *Environmental Pollution*, in press.
- M.A. REIS, O.R. OLIVEIRA, L.C. ALVES, E.M.C. RITA, F. RODRIGUES, P. FIALHO, C.A. PIO, M.C. FREITAS, J.C. SOARES, Comparison of Continental Portugal and Azores Islands Aerosol during a Sahara Dust Storm, *Nuclear Instrumental and Methods*, in press.

### Conference Proceedings

#### Published or in press

- M.C. FREITAS, A.M.G. PACHECO, A.P. MARQUES, L.I.C. BARROS, M.A. REIS, Application of Nuclear Analytical Techniques to Environmental Studies, Proceedings of the 16th International Conference Application of Accelerators in Research and Industry'2000, eds. Jerome L. Duggan and I. Lon Morgan, American Institute of Physics Publ., College Park MD, USA, 2001, pp. 508-511.
- S.M. ALMEIDA, M.M. FARINHA, M.C. FREITAS, C. COSTA, M.A. REIS, O. OLIVEIRA, Measurement in PM10 and PM2.5 of Lead, Cadmium, Arsenic, Nickel and Mercury by INAA and PIXE, Proceedings of the 6th International Conference on Technologies and Combustion for a Clean Environment, Porto, Portugal, July 9-12, 2001, pp 293-297.

#### Accepted for publication or in press

- M.C. FREITAS, M.A. REIS, A.P. MARQUES, S.M. ALMEIDA, M.M. FARINHA, O.R. OLIVEIRA, M.G. VENTURA, A.M.G. PACHECO, L.I.C. BARROS, Monitoring of Environmental Contaminants: 10 Years of Use of  $k_0$ , Proceedings of 3rd International  $k_0$  – Users Workshop, Bruges, Belgium, September 23-28, 2001 (in press). Submitted to *Journal of Radioanalytical and Nuclear Chemistry*.
- C.O. MUSTRA, M.C. FREITAS, S.M. ALMEIDA, Neutron Flux and Associated  $k_0$  Parameters in RPI after last Configuration Change, Proceedings of 3rd International  $k_0$  – Users Workshop, Bruges, Belgium, September 23-28, 2001. Submitted to *Journal of Radioanalytical and Nuclear Chemistry*.

- S.M. ALMEIDA, M.C. FREITAS, M.A. REIS, Quality Control of Air Particulate Matter PM10 and PM2.5 by  $k_0$ -INAA, Proceedings of 3<sup>rd</sup> International  $k_0$  – users Workshop, Bruges, Belgium, September 23-28, 2001. Submitted to *Journal of Radioanalytical and Nuclear Chemistry*.

### Comunications

- A.M.G. PACHECO, M.C. FREITAS, M.A. REIS, L.I.C. BARROS, O.R. OLIVEIRA, M.G. VENTURA, PIXE Analysis of Biological Samples for Assessing Environmental Pollution, 3<sup>rd</sup> International Symposium on Nuclear Analytical Chemistry (NAC-III), Halifax-NS, Canada, June 11-14, 2001. Submitted to *Journal of Radioanalytical and Nuclear Chemistry*.
- M.C. FREITAS, M.M. FARINHA, S.M. ALMEIDA, C.J. COSTA, M.A. REIS, O.R. OLIVEIRA, A.M.G. PACHECO, M.G. VENTURA, Measurement of Lead, Cadmium, Arsenic, Nickel and Mercury in PM10 and PM2.5 by means of INAA and PIXE, 3<sup>rd</sup> International Symposium on Nuclear Analytical Chemistry (NAC-III), Halifax-NS, Canada, June 11-14, 2001. Submitted to *Journal of Radioanalytical and Nuclear Chemistry*.
- C.J. COSTA, M.C. FREITAS, Determination of Trace Elements in Human Urine using Neutron Activation Analysis, 1<sup>st</sup> International FESTEM Congress on Trace Elements and Minerals in Medicine and Biology, Venice, Italy, May 16-19, 2001.
- A.M.G. PACHECO, M.C. FREITAS, M.A. REIS, M.G. VENTURA, L.I.C. BARROS, An Assessment of the Response of Tree Bark and Epiphytic Lichens to Elemental Availability at Ground Level through Nuclear Techniques, 47<sup>th</sup> Annual Radiochemical Measurements Conference, Honolulu, HI, November 4-8, 2001.
- S.M. ALMEIDA, M.M. FARINHA, M.C. FREITAS, M.A. REIS, O.R. OLIVEIRA, Intercomparison INAA/PIXE for the Elemental Concentrations of Zinc, Iron and Potassium in Air

Particulate Matter, 47<sup>th</sup> Annual Radiochemical Measurements Conference, Honolulu, HI, November 4-8, 2001.

- M.L. BOTELHO, M.C. FREITAS, M.H. GIL, RUBA ZEINOU, R. RIBEIRO, S. CORDEIRO, S. CABO VERDE, M.H. CASIMIRO, M.G. VENTURA, C. MUSTRA, Treatment of Wastewater by Gamma Radiation – A Case Study, IAEA Regional Training Workshop – Radiation Treatment of Industrial and Municipal Wastewater, Istanbul, Turkey, November 18-22, 2001. To be submitted to *Radiation Physics and Chemistry*.
- M.C. FREITAS, M.A. REIS, A.M.G. PACHECO, L.I.C. BARROS, Biological Monitoring of Environmental Contaminants - Established Systems and Potential Newcomers, Eurasap Workshop on Air Pollution & the Natural Environment: Biological Monitoring, Sofia, Bulgaria, April 25-27, 2001.

### Theses

#### PhD

- M.A. REIS  
*Biomonitoring and Assessment of Atmospheric Trace Elements in Portugal – Methods, Response Modelling and Nuclear Analytical Techniques*. Delft University of Technology, Delft, 2001. Supervisor: J. DE GOEIJ AND M. CARMO FREITAS

#### Researcher

- M.A. REIS  
*Biomonitoring and Assessment of Atmospheric Trace Elements in Portugal – Methods, Response Modelling and Nuclear Analytical Techniques*. ITN, 2001. Supervisor: M. CARMO FREITAS

#### Graduation

- A. VARAJÃO, C. PASSARINHO, I. SOARES  
*Estudo do Particulado Atmosférico na Região da Bobadela. Impacto da Incineradora da ValorSul*. IST-Universidade Técnica de Lisboa, 2001. Supervisor: A. PACHECO e M.C. FREITAS

## Environmental Analytical Chemistry

### Books and Book Chapters

- M.T. MELO, P.M. CARREIRA, M.A. MARQUES da SILVA, Evolution of the Aveiro Cretaceous aquifer (NW Portugal) during the Late Pleistocene and present day: evidence from chemical and isotopic data, in *Palaeowaters in Europe*, W.M. EDMUNDS & C.J. MILNE (Eds.), Geological Society, London, Special Publications (2001).

### Journals

#### Published

- M.A. BARREIROS, T. PINHEIRO, M.F. ARAÚJO, M.M. COSTA, M. PALHA, R.C. SILVA, Quality assurance of X-ray spectrometry for chemical analysis, *Spectrochimica Acta B* **56** (2001) 2095.

#### Accepted for publication or in press

- A.A. MELO, H. ALVES, M.F. ARAÚJO, The pre-historical bronze palstave of the Quarta-feira mine, *British Archaeological Report*.
- J.M.A. DIAS, J.-M. JOUANNEAU, M.F. ARAÚJO, T. DRAGO, C. GARCIA, R. GONZALEZ, A. OLIVEIRA, A. RODRIGUES, J. VITORINO, O. WEBER, Present day sedimentary processes on the Northern Iberian shelf, *Progress in Oceanography*.
- M.F. ARAÚJO, J.-M. JOUANNEAU, P. VALÉRIO, T. BARBOSA, A. GOUVEIA, O. WEBER, A. OLIVEIRA, A. RODRIGUES, J.M.A. DIAS, Geochemical tracers of northern estuarine sediments on the shelf, *Progress in Oceanography*.
- P.M. CARREIRA, A.M.M. SOARES, M.A.M. SILVA, M. STUTE, L. ARAGUÁS-ARAGUÁS, K. ROZANSKI, Isotopes and noble gases in a coastal aquifer of the Portuguese Atlantic margin as tracers of hydroclimatic changes during the last deglaciation period, *Water Resources Research*.

### Conference Proceedings

#### Published

- C. CORREDEIRA, M.F. ARAÚJO, A. GOUVEIA, J.-M. JOUANNEAU. Caracterização de sedimentos finos da plataforma continental Minho/Galiza, *VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Faro, Portugal (2001) 501.

- M.F. ARAÚJO, T. BARBOSA, M.J. MADRUGA, I. FARIA. Dispersão de contaminantes e mecanismos de transferência no sistema solo-planta nas escombrelas da mina de urânio da Urgeiriça, *Congresso Internacional Sobre Património Geológico e Mineiro*, Beja, Portugal (2001) 131.

- M.F. ARAÚJO, R. MARQUES, F. ROCHA. Geoquímica da fracção fina de sedimentos dos rios Minho, Lima, Cávado, Ave e Douro, *VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Faro, Portugal (2001) 506.

- P.G. FERNANDES, P.M. CARREIRA, D. NUNES, M. OLIVEIRA da SILVA. Use of hydrochemistry and isotopes as tracers in the Sado-Sines sedimentary basin (S Portugal), *XXXI International Association of Hydrogeologists Congress, New Approches Characterizing Groundwater Flow*, Munich, Germany (2001) 65.

- P.G. FERNANDES, P.M. CARREIRA, M. OLIVEIRA da SILVA. A hidrogeoquímica na definição do modelo hidrodinâmico do sistema aquífero da bacia do Sado, *VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Faro, Portugal (2001) 435.

- P.M. ALVARENGA, M.F. ARAÚJO, J. SILVA. Avaliação da possibilidade de utilização da Esteva (*Cistus ladanifer* L.) numa estratégia de fitorremediação na zona mineira de Aljustrel, *Congresso Internacional Sobre Património Geológico e Mineiro*, Beja, Portugal (2001) 129.

- P.M. CARREIRA, J.M. MARQUES, L. AIRES-BARROS. A problemática da datação por  $^{14}\text{C}$  em águas gasocarbónicas, *VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Faro, Portugal (2001) 698.

- S.A. GOMES, P.M. CARREIRA, D. NUNES. Estudo do comportamento isotópico ( $^2\text{H}$  e  $^{18}\text{O}$ ) das águas de precipitação em Portugal Continental, *VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Faro, Portugal (2001) 542.

#### Accepted for publication or in press

- J.M. MARQUES, M. ANDRADE, F. GOFF, L. ROCHA, R.C. GRAÇA, L. AIRES-BARROS, P.M. CARREIRA. Chemical and isotopic characterization of high pH mineral groundwaters from Cabeço de Vide region (S-Portugal):

preliminary results, *XXXII IAH Congress Proceedings*, Argentina, (2002).

- P.G. FERNANDES, P.M. CARREIRA, M.O. SILVA. Identification of groundwater salinization sources in Sines coastal basin by isotopes and hydrochemistry – SW Portugal, *XXXII IAH Congress Proceedings*, Argentina, (2002).
- P.M. CARREIRA, M.A. MARQUES da SILVA, M. PINHEIRO, D. NUNES, M.O. SILVA. Hydrodynamic features from isotope data in Bairrada karst system (Central Portugal) - preliminary results, *XXXII IAH Congress Proceedings*, Argentina, (2002).

### Comunications

- A. GOUVEIA, M.F. ARAÚJO, M.I. PRUDÊNCIO, M.C. FREITAS, M.I. DIAS, P. VALÉRIO, A.P. MARQUES, Programa de Monitorização de Elementos Traço na Envoltante à CTRSU de São João da Talha, *Efeitos da Central de Tratamento da Valorsul*, Oceanário, Lisboa, June 5 2001, oral.
- A. GOUVEIA, M.I. PRUDÊNCIO, M.F. ARAÚJO, M.C. FREITAS, M.I. DIAS, P. VALÉRIO, A.P. MARQUES, Programa de Monitorização de Elementos Traço na Envoltante à CTRSU de São João da Talha, *Jornadas Técnicas sobre os Efeitos da Central de Tratamento da Valorsul*, Valorsul, Lisboa, December 4 2001, oral.
- M.F. ARAÚJO, Arqueometalurgia, *Ciências Aplicadas à Arqueologia*, ITN, Sacavém, November 23 2001, oral.
- P.M. CARREIRA, Precipitation Patterns within Stables Isotopes - Portugal, *1<sup>st</sup> RCM on Isotopic Composition of Precipitation in the Mediterranean*

*Basin in Relation to Air Circulation Patterns and Climate*, Vienna, Austria, April 17 2001, oral.

### Internal Reports

- T. BARBOSA, *Relatório de Actividades do Curso para Técnicos Especializados de Laboratório, Internal Report*, Sacavém (2001).

### Theses

#### MSc

- A.C. CORREDEIRA  
*Caracterização Química de Sedimentos Finos da Plataforma Continental Minho/Galiza*  
Instituto Superior Técnico  
Supervisor: M.F. Araújo

#### Graduation

- A.C. TEIXEIRA  
*Caracterização de Metais e de Ligas Metálicas Pré-históricas – Aplicação da Técnica de Espectrometria de Fluorescência de Raios-X Dispersiva de Energias*  
Instituto Tecnológico e Nuclear  
Supervisor: M.F. Araújo
- A.S. CONCEIÇÃO  
*Bioacumulação Selectiva de Elementos Químicos em Esponjas Marinhas*  
Instituto Tecnológico e Nuclear  
Supervisor: M.F. Araújo
- S.A. GOMES  
*Estudo do Comportamento Isotópico das Águas de Precipitação em Portugal através da Técnica de Espectrometria de Massa*  
Instituto Tecnológico e Nuclear  
Supervisor: P.M. Carreira

# Inorganic Chemistry, Radiochemistry and Radiopharmacy

## Inorganic and Organometallic Chemistry

### Journals

#### Published

- A PIRES DE MATOS, M.A. FREITAS, A.G. MARSHALL, N. MARQUES, A. CARVALHO, P.C. ISOLANI, G. VICENTINI, FTICR Studies of Polypyrazol-1-yl Borates of Europium (II) Adducts, *J. Alloys Comp.* **323-324** (2001) 147.
- J.M. CARRETAS, J. BRANCO, J. MARÇALO, P.C. ISOLANI, A. DOMINGOS, A. PIRES DE MATOS, Synthesis and Characterization of Polynuclear Lanthanide Aryloxides, *J. Alloys Comp.* **323-324** (2001) 169.
- J.B. BRANCO, T. ALMEIDA GASCHÉ, A.P. GONÇALVES, A. PIRES DE MATOS, Selective Isoprene Hydrogenation over LnNi (Ln= Pr, Gd, Tm) Intermetallic Compounds, *J. Alloys Comp.*, **323-324** (2001) 610.
- A. CARVALHO, V. CACHATA, J.P. LEAL, Standard Molar Enthalpies of Formation of Li, Na, K and Tl Cyclopentadienyls, *Eur. J. Inorg. Chem.* (2001) 1587.
- I. LOPES, A.C. HILLIER, S.Y. LIU, A. DOMINGOS, J. ASCENSO, A. GALVÃO, A. SELLA, N. MARQUES, Solid State Structure and Solution Behaviour of Eight-Coordinate Sm(III) Poly(pyrazolyl)borate Compounds, *Inorg. Chem.* **40** (2001) 1116.
- A.C. HILLIER, X.W. ZHANG, G.H. MAUNDER, S.Y. LIU, T.A. EBERSPACHER, M.V. METZ, R. MCDONALD, A. DOMINGOS, N. MARQUES, V.W. DAY, A. SELLA, J. TAKATS, Synthesis and Structural Comparison of a Series of Divalent Ln(Tp<sup>R,R'</sup>)<sub>2</sub> (Ln = Sm, Eu, Yb) and Trivalent Sm(Tp<sup>Me2</sup>)<sub>2</sub>X (X = F, Cl, Br, I, BPh<sub>4</sub>) Complexes, *Inorg. Chem.* **40** (2001) 5106.
- I. LOPES, B. MONTEIRO, G. LIN, A. DOMINGOS, N. MARQUES, J. TAKATS, Samarium (III) Compounds Supported by the Hydrotris(3,5-dimethyl-pyrazolyl)borate Ligand; Synthetic Utility of the Putative, Reduction Prone Sm(III)-hydrocarbyls, (Tp<sup>Me2</sup>)<sub>2</sub>SmR, *J. Organomet. Chem.* **632** (2001) 119.
- M.C. VIEIRA, J. MARÇALO, A. PIRES DE MATOS, Gas-Phase Reactivity of Lanthanide and Actinide Cations with the Archetypal Organometallic Complexes Fe(CO)<sub>5</sub> and Fe(C<sub>5</sub>H<sub>5</sub>)<sub>2</sub>, *J. Organomet. Chem.* **632** (2001) 126.
- J.P. LEAL, N. MARQUES, J. TAKATS, Bond Dissociation Enthalpies of U(IV) Complexes. An Integrated View, *J. Organomet. Chem.* **632** (2001) 209.

#### Accepted for publication or in press

- J. MARÇALO, A. PIRES DE MATOS, Organolanthanide Chemistry in the Gas Phase, *J. Organomet. Chem.*..
- I. LOPES, A. DOMINGOS, N. MARQUES, Organo-f-Element Chemistry with Multidentate Nitrogen Ligands, *J. Alloys Comp.*

### Conference Proceedings

#### Published

- M.C. OLIVEIRA, J. MARÇALO, M.A. ALMOSTER FERREIRA, Gas-Phase Reactions of Methanol with Manganese and Iron Oxide Cluster Cations, in *Advances in Mass Spectrometry, vol. 15, Proceedings of the 15th International Mass Spectrometry Conference, Barcelona, Spain, August 2000*, E. Gelpi, Editor, Wiley, Chichester, England (2001) 761.
- A. PIRES DE MATOS, H. BURROWS, Introdução ao Seminário «Urânio um Elemento Químico com Futuro», *Química (Boletim da Sociedade Portuguesa de Química)* **81** (2001) 31.
- J.P. LEAL, Compostos de Urânio, *Química (Boletim da Sociedade Portuguesa de Química)* **81** (2001) 36.
- J. MARÇALO, O Urânio em Fase Gasosa, *Química (Boletim da Sociedade Portuguesa de Química)* **81** (2001) 40.

- J.B. BRANCO, Urânio e Catálise, *Química (Boletim da Sociedade Portuguesa de Química)* **81** (2001) 47.
- J. MARÇALO, M. SANTOS, A. PIRES DE MATOS, Characterization of Glasses by FTICR Mass Spectrometry, *Proceedings XIX International Congress on Glass, Edinburgh, Scotland, July 2001, Extended Abstracts, Vol 2*, (2001) 216.

### Comunications

- A. PIRES DE MATOS, H. BURROWS, Introdução, *Seminário Urânio um Elemento Químico com Futuro*, Lisboa, March 2001, oral.
- J.P. LEAL, Compostos de Urânio, *Seminário Urânio, um Elemento Químico com Futuro*, Lisboa, March 2001, oral.
- J. MARÇALO, O Urânio em Fase Gasosa, *Seminário Urânio, um Elemento Químico com Futuro*, Lisboa, March 2001, oral.
- J.B. BRANCO, Urânio e Catálise, *Seminário «Urânio, um Elemento Químico com Futuro»*, Lisboa, March 2001, oral.
- C.J. DIAS, A.P. GONÇALVES, T. ALMEIDA GASCHÉ, J.B. BRANCO, Síntese e Caracterização de Compostos Intermetálicos Binários do Tipo  $\text{LnCu}_2$  ( $\text{Ln} = \text{La, Ce, Pr, Nd, Gd, Tm}$ ), *V Conferência de Química Inorgânica da Sociedade Portuguesa de Química*, Monte Real, Portugal, April 2001, poster.
- J.P. LEAL, A Equação de Kapustinskii e a Energia de Rede. Porque os Compostos de Berílio são Diferentes?, *V Conferência de Química Inorgânica da Sociedade Portuguesa de Química*, Monte Real, Portugal, April 2001, poster.
- I. LOPES, B. MONTEIRO, A. DOMINGOS, N. MARQUES, Compostos de Samário (III) Suportados pelo Ligando Borato de Tris(3,5-Dimetil-Pirazolilo): Utilidade dos Hipotéticos Hidrocarbilos  $\text{Sm}(\text{Tp}^{\text{Me}_2})_2\text{R}$  na Síntese de Derivados  $\text{Sm}(\text{Tp}^{\text{Me}_2})_2\text{Y}$ , *V Conferência de Química Inorgânica da Sociedade Portuguesa de Química*, Monte Real, Portugal, April 2001, poster.
- V. J. GAFFNEY, J. BRANCO, A. PIRES DE MATOS, Síntese Directa do Dimetilcarbonato a

partir do  $\text{CO}_2$  e Metanol Utilizando Catalisadores do Tipo  $\text{ACl}_M/\text{KCl}/\text{SiO}_2$  ( $\text{A} = \text{Cu}^+, \text{Cu}^{2+}, \text{Ce}^{3+}, \text{U}^{4+}$ ), *5º Encontro Divisão de Catálise da Sociedade Portuguesa de Química*, Monte Real, Portugal, May 2001, poster.

- J. MARÇALO, M. SANTOS, A. PIRES DE MATOS, Characterization of Glasses by FTICR Mass Spectrometry, *XIX International Congress on Glass*, Edinburgh, Scotland, July 2001, oral.
- J.P. LEAL, Métodos Aditivos de Previsão: O Método de Laidler Revisitado. *V Conferência de Química-Física da Sociedade portuguesa de Química*, Faro, Portugal, September 2001, oral.
- N. MARQUES, Organo-f-Element Chemistry with Multidentate Nitrogen Ligands, *Rare Earths' 2001*, Campos do Jordão, Brazil, September 2001, invited oral.
- J. MARÇALO, A. PIRES DE MATOS, Organolanthanide Chemistry in the Gas Phase, *Rare Earths' 2001*, Campos do Jordão, Brazil, September 2001, invited oral.
- M. SANTOS, J. MARÇALO, A. PIRES DE MATOS, R. G. HAIRE, J. K. GIBSON, Gas Phase Oxidation Reactions of Neptunium and Plutonium Ions Investigated via FTICR-MS, *6th European FTICR-MS Workshop*, Kerkrade, The Netherlands, October 2001, poster.

### Internal Reports

- A.C. GONÇALVES, Obtenção do Metanol a partir do Gás de Síntese, *Report ITN/SPV*, Sacavém (2001).

### Other publications

- M.A.F.A.C. RAMOS, P.A. LOUÇA, J.P. LEAL, Análise do Programa Le Chat 2, *Química (Boletim da Sociedade Portuguesa de Química)* **80** (2001) 44.

### Theses

#### PhD

- I. LOPES  
*Reactividade de Compostos de Lantanídeos (II)*  
Univ. Lisboa  
Supervisor: N. Marques

# Inorganic and Radiopharmaceutical Chemistry

## Journals

### Published

- R. GARCIA, A. PAULO, A. DOMINGOS, I. SANTOS, Rhenium(I) organometallic complexes with novel bis(mercaptoimidazolyl)borates and with hydrotris(mercaptoimidazolyl)borate: chemical and structural studies, *J. Organomet. Chem.* **632** (2001) 41.
- J. D. G. CORREIA, A. DOMINGOS, I. SANTOS, H. SPIES, Synthesis and characterization of mixed-ligand oxorhenium(V) complexes with new [(PNO/S)(S)] donor atom sets, *J. Chem. Soc., Dalton Trans.* (2001) 2245.
- J. D. G. CORREIA, A. DOMINGOS, I. SANTOS, C. BOLZATI, F. REFOSCO, F. TISATO, Synthesis and structural analysis of mono-oxo Re(V) complexes with phosphino-carboxylato ligands, *Inorg. Chim. Acta*, **315** (2001) 213.
- J. D. G. CORREIA, A. DOMINGOS, I. SANTOS R. ALBERTO, K. ORTNER, Re Tricarbonyl complexes with ligands containing P,N,N and P,N,O donor atom sets: synthesis and structural characterization, *Inorg. Chem.*, **40** (2001) 5147.
- J. D. G. CORREIA, I. SANTOS, R. ALBERTO, K. ORTNER, H. SPIES, A. DREWS, Heterofunctionalized phosphines as anchor groups for coupling biomolecules to the fac-[M(CO)<sub>3</sub>]<sup>+</sup> (M = Re, Tc) moiety, *J. Labelled Compounds Radiopharm.* **44** (2001) 507.
- C. FERNANDES, J. D. G. CORREIA, L. GANO, I. SANTOS, S. SEIFERT, R. SYHRE, H. SPIES, Tc Oxocomplexes with the PNO/S and PNS/S donor atom sets: labelling of a 5HT<sub>1A</sub> receptor-binding ligand, *J. Labelled Compounds Radiopharm.* **44** (2001) 518.
- L. MARIA, A. DOMINGOS, I. SANTOS, Unique Uranium(III) Cations Anchored by Polydentate Sulfur- Based Ligands: Synthesis and Structure of [U{H(R)B(tim<sup>Me</sup>)<sub>2</sub>}(THF)<sub>3</sub>][BPh<sub>4</sub>] (R=H, Ph), *Inorg. Chem.*, **27** (2001) 6863.
- J. COLLIN, N. GIUSEPPONE, N. JABER, A. DOMINGOS, L. MARIA, I. SANTOS, Iodo bis bistrimethylsilylamido Lanthanides, *J. Organometallic Chemistry*, **628** (2001) 271.
- P. RAPOSINHO, D. PIERROZ, P. BROQUA, R. WHITE, T. PEDRAZZINI, M. AUBERT, *Chronic administration of neuropeptide Y into the lateral ventricle of C57BL/6J male mice produces an obesity syndrome including hyperphagia, hyperleptinemia, insulin resistance, and hypogonadism.* *Mol. Cell. Endocrinology*, **185** (2001)195.

### Accepted for publication or in press

- T. KNISS, H. SPIES, I. SANTOS, A. ZABLOTSKA, *Synthesis of Hydroxyl Silylated Re and <sup>99m</sup>Tc 3+1 Mixed Ligand Complexes.*, *J. Labelled Comp. Radiopharmaceuticals*, in press.

## Conference Proceedings

### Published

- M. AMÉLIA SANTOS, RAQUEL GRAZINA, LURDES GANO, GUILHERMINA CANTINO, A New Hexadentate 3-Hydroxy-4-pyridinonate Ligand as a Chelator for Iron, Gallium and Aluminium. In vitro and in vivo Studies, *J. Inorg. Biochem.*, **86**, 451 (2001).

## Comunications

- R. GARCIA, Y.H. XING, A. PAULO, A. DOMINGOS, I. SANTOS, Organometallic Re and Tc complexes for the labelling of biomolecules, *V Conferência de Química Inorgânica da SPQ, Monte Real, Portugal, April 6-7 2001*, poster.
- E. PALMA, J. D. G. CORREIA, A. DOMINGOS, I. SANTOS, Re and Tc Oxocomplexes with SSS/S Donor Atom Sets for Labelling Biomolecules, *V Conferência de Química Inorgânica da SPQ, Monte Real, Portugal, April 6-7 2001*, poster.
- J. D. G. CORREIA, Re(V) and Tc(V) Mixed-Ligand Oxocomplexes with New [(PNO/S)(S)] Donor Atom Sets for Labeling CNS Receptor Ligands, *V Conferência de Química Inorgânica da SPQ, Monte Real, Portugal, April 6-7 2001*, invited.
- L. MARIA, A. DOMINGOS, I. SANTOS, Uranium(III) Complexes: Synthesis and Structural Characterization, *V Conferência de Química Inorgânica da SPQ, Monte Real, Portugal, April 6-7 2001*, poster.
- R. GARCIA, A. PAULO, A. DOMINGOS, I. SANTOS, R. ALBERTO, New organometallic labelling tools based on tripodal sulfur donor ligands, *The Tenth European Symposium on*

- Radiopharmacy & Radiopharmaceuticals, Granada, Spain, May 5-8 2001, poster.*
- ISABEL SANTOS, *Specific Radiopharmaceuticals: Chemical and Radiochemical Studies, Laboratory of Neurosciences, Faculty of Medicine, Lisboa, Portugal, 4 June, 2001, invited.*
  - J.D.G. CORREIA, I. SANTOS, R. ALBERTO, K. ORTNER, H. SPIES, A. DREWS, Heterofunctionalized phosphines as anchor groups for coupling biomolecules to the fac-[M(CO)<sub>3</sub>]<sup>+</sup> (M = Re, Tc) moiety, *14<sup>th</sup> International Symposium on Radiophar. Chemistry, Interlaken, Switzerland, 10-15 June, 2001, award for the best poster in the session Tc, Re and Other Metals.*
  - C. FERNANDES, J. D. G. CORREIA, L. GANO, I. SANTOS, S. SEIFERT, R. SYHRE, H. SPIES, Tc Oxocomplexes with the PNO/S and PNS/S donor atom sets: labelling of a 5HT<sub>1A</sub> receptor-binding ligand, *14<sup>th</sup> International Symposium on Radiophar. Chemistry, Interlaken, Switzerland, 10-15 June, 2001, poster.*
  - P. ANTUNES, P. CAMPELLO, R. DELGADO, I. SANTOS, Lanthanide Complexes of Functionalized Benzotetraaza Macrocycles, *6<sup>th</sup> FIGIPS Meeting in Inorganic Chemistry, Barcelona, Spain, 15-20 July, 2001, poster.*
  - L. MARIA, A. DOMINGOS, I. SANTOS, Synthesis and Structural Characterization of bis[bis(2-mercapto-1-methylimidazolyl)hydroborato]U(III) Cations, *6<sup>th</sup> FIGIPS Meeting in Inorganic Chemistry, Barcelona, Spain, 15-20 July, 2001, poster.*
  - M.C. MELO E SILVA, G.G. da COSTA, M. M. MARQUES, Studies Towards the Synthesis of β-Halo Tamoxifen Derivatives, *4<sup>o</sup> Encontro Nacional de Química Orgânica, Coimbra, Portugal, September 26-28 2001, poster.*
  - P.C. PEREIRA, M. C. MELO E SILVA, G.G. da COSTA, M. M. MARQUES, A New Synthetic Approach to β-Halo-α-Hydroxytamoxifen *4<sup>o</sup> Encontro Nacional de Química Orgânica, 26-28 de Setembro de 2001, Coimbra (poster)*
  - M.C. MELO E SILVA, G.G. da COSTA, M. M. MARQUES, HPLC monitoring of the synthesis and purification of β-functionalized tamoxifen derivatives, *2<sup>o</sup> Encontro Nacional de Cromatografia, Lisboa, Portugal, December 10-12, 2001, oral.*
  - P. RAPOSINHO, T. PEDRAZZINI, R. WHITE, R. PALMITER, M. AUBERT, Chronic neuropeptide Y infusion into the lateral ventricle strongly stimulates feeding, and enhances insulin secretion and adiposity in both Y1 and Y5 receptor-deficient male mice, *6<sup>th</sup> International NPY Conference, Sydney, Sept., 2001.*

## Theses

### Graduation

- P. A. BACALHAU  
*Ligandos Macrociclicos para Aplicação em Medicina*  
ITQB/Instituto Tecnológico e Nuclear  
Co-supervisor: I. Santos



## Production and Application of Radioisotopes

### Journals

#### *Accepted for publication or in press*

1. M. NEVES, A. KLING and R. M. LAMBRECHT. Radionuclide production of therapeutic radiopharmaceuticals. *Applied Radiation and Isotopes* (2001). In press.
2. M. NEVES, L. GANO, N. PEREIRA, M.R. COSTA, M.C. COSTA, M. CHANDIA, M. ROSADO and R. FAUSTO. Synthesis, Characterization and Biodistribution of Bisphosphonates Sm-153 Complexes: Correlation with Molecular Modelling Interaction Studies. *Nuclear Medicine & Biology* (2001). In press.

### Conferences Proceedings

#### *Published*

1. N. V. JARVIS, J. M. WAGENER, J. R. ZEEVAART, K. A. LOUW, M. EDWIN, M. DITHEBE, A. V. ABELE and M. NEVES. Prediction of in vivo behaviour of new kidney imaging agents using a thermodynamic blood plasma model. *2<sup>nd</sup> National Nuclear Technology Conference*, Cape Town, 13-15 May 2001, South Africa.
2. M. NEVES. Technetium Chemistry and Radiopharmaceuticals. Production and Medical Uses of Radiopharmaceuticals *Faculty of Pharmacy, University of Coimbra*, 9-10 November 2001, Coimbra, Portugal.
3. M. Neves. Radiopharmaceuticals Perspectives in Chemistry. *Faculty of Sciences, University of Lisbon*, 21 December, Lisbon, Portugal.

### Comunications

1. N. V. JARVIS, J. M. WAGENER, J. R. ZEEVAART, K. A. LOUW, M. EDWIN, M. DITHEBE, A. V. ABELE and M. NEVES. Prediction of in vivo behaviour of new kidney imaging agents using a thermodynamic blood plasma model. *2<sup>nd</sup> National Nuclear Technology Conference*, Cape Town, 13-15 May 2001, South Africa.

## Cultural Heritage and Sciences

### Books and Book Chapters

- M.I. DIAS, M.I. PRUDÊNCIO, M.A. GOUVEIA, Arqueometria de cerâmicas islâmicas das regiões de Lisboa, Santarém e Alcácer do Sal (Portugal): caracterização química e mineralógica. in *GARB - Sítios Islâmicos do Sul Peninsular*, IPPAR/MC e JUNTA DA EXTREMADURA - CONSEJARÍA DE CULTURA (Eds.), IPPAR, Lisbon (2001) pp. 257-281.

### Journals

#### Published

- E. ROCHAS, M. NASRAOUI, F. SOUBIES, E. BILAL, Evolution géochimique du pyrochlore au cours de l'altération météorique du gisement de Catalão II (Goias, Brésil), *Compte Rendus de l'Académie des Sciences, Paris, Earth and Planetary Sciences* **332** (2001) 8 pp.

#### Accepted for publication or in press

- M. NASRAOUI, J.C. WAERENBORGH, Fe speciation in weathered pyrochlore-group minerals from Lueshe and Araxá by  $^{57}\text{Fe}$  Mössbauer spectroscopy, *Canadian Mineralogist*, **39**, 4 (2001)
- D. RICHTER, B. SCHROEDER, W.J. RINK, P.J. JULIG, D.G.F. LONG AND H.P. SCHWARCZ, The Middle to Upper Palaeolithic transition in the Levant and new TL dates for a Late Mousterian assemblage from Jerf al-Ajla Cave near Palmyra, Syria, *Paléorient* (2001) 8 pp.
- W.J. RINK, L.A. SCHEPARTZ, S. MILLER-ANTONIO, W. HUANG, Y. HOU, D. BAKKEN AND D. RICHTER, Electron Spin Resonance (ESR) Dating of Tooth Enamel at Panxian Dadong Cave, Guizhou, China, *British Archaeology Reports, International Series* (2001) 5 pp.
- J.C. WAERENBORGH, J. FIGUEIRAS, A. MATEUS, M. GONÇALVES,  $^{57}\text{Fe}$  Mössbauer spectroscopy study of the correlation between the  $\text{Fe}^{3+}$  content and the magnetic properties of natural Cr spinels, *Eur. J. Min.* (2001). In press.
- J. FIGUEIRAS, A. MATEUS, M. GONÇALVES, J.C. WAERENBORGH, P. FONSECA, Geodynamical evolution of the South Variscan Iberian Suture as recorded by mineral transformations, *Geod. Acta.* (2001). In press.

### Conference Proceedings

#### Published

- S. LEBEL, E. TRINKAUS, M. FAURE, P. FERNANDEZ, C. GUÉRIN, D. RICHTER, N. MERCIER, H. VALLADAS, AND G.A. WAGNER, Comparative morphology and paleobiology of Middle Pleistocene human remains from the Bau de l'Aubesier, Vaucluse, France, *Proceedings of the National Academy of Sciences of the United States of America* **98**, 2001, 11097-11102.
- M.I. DIAS, ROCHA, F, Geoquímica de um depósito de argilas fibrosas – Malpica do Tejo, Portugal, *Proceedings of the VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Univ. Algarve, Faro, Portugal. (2001), pp. 448-451.
- M.I. PRUDÊNCIO, M.I. DIAS, Geoquímica de materiais argilosos na região de Braga e sua implicação em estudos de proveniência de cerâmicas arqueológicas. *Proceedings of the VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Univ. Algarve, Faro, Portugal. (2001) pp. 452-456.
- M. NASRAOUI, J.C. WAERENBORGH, M.I. PRUDÊNCIO, E. BILAL. Typology of the granitic stones of the cathedral of Évora (Portugal): a combined contribution of geochemistry and  $^{57}\text{Fe}$  Mössbauer spectroscopy. *Proceedings of the VIº Congresso de Geoquímica dos Países de Língua Portuguesa & XII semana de Geoquímica*, Universidade do Algarve, Faro, Portugal. (2001). pp 649-652.
- M. NASRAOUI, M.J. TRINDADE, M.I. PRUDÊNCIO, M.A. GOUVEIA, J.C. WAERENBORGH, M.O. FIGUEIREDO, T. SILVA, Whole rock classification and geochemical variation of the stones of the Sé of Angra do Heroísmo and of the rocks of a surrounding quarry (Terceira Island, Azores, Portugal). *Proceedings of the VIº Congresso de Geoquímica dos Países de Língua Portuguesa & XII semana de Geoquímica*, Universidade do Algarve, Faro, Portugal. (2001). pp 653-655.

#### Accepted for publication or in press

- M.I. DIAS, M.I., PRUDÊNCIO, J. RAPOSO, M.A. GOUVEIA, F. FABIÃO, A. GUERRA, J. BUGALHÃO, A.L. DUARTE, A. SABROSA, Caracterização química por AAN dos tipos de

- ânfora de um centro de produção do estuário do Tejo: Quinta do Rouxinol (Portugal). *Proceedings of the IV Congreso Nacional de Arqueometria*, Valencia, Spain. (2001). In press.
- M.I. DIAS, M.I. PRUDÊNCIO, R. MORAIS, M.A. GOUVEIA, Caracterização química de cerâmicas de Bracara Augusta: produções locais e importações da Bética. *Proceedings of the IV Congreso Nacional de Arqueometria*, Valencia, Spain (2001). In press.
  - M.I. DIAS, M.I. PRUDÊNCIO, GOUVEIA, M.A., Geochemical study of clay materials in Fornos de Algodres region (Central Portugal) in an archaeometric view. *Proceedings of the 12th International clay Conference and 3rd International Symposium on Activated Clays*, Argentina. (2001). In press.
  - M.I. PRUDÊNCIO, M.I. DIAS, M.A. SEQUEIRA BRAGA, M.A. GOUVEIA, Geochemical study of the fluvio-lacustrine Prado formation (North of Portugal). *Proceedings of the 12th International clay Conference and 3rd International Symposium on Activated Clays*, Argentina. (2001). In press.
  - M.I. DIAS, M. SUAREZ BARRIOS, S. PRATES, Geochemical, mineralogical and textural characterisation of Bentonites from Benavila, Portugal. *Proceedings of the 12th International clay Conference and 3rd International Symposium on Activated Clays*, Argentina. (2001). In press.
  - M.I. DIAS, F. ROCHA, Fibrous clay minerals as lithostratigraphic markers in a Tertiary continental deposit (Malpica do Tejo, Portugal). *Proceedings of the 12th International clay Conference and 3rd International Symposium on Activated Clays*, Argentina. (2001). In press.
- Comunications**
- M.I. PRUDÊNCIO, M.I. DIAS, J. RAPOSO, M.A. GOUVEIA, F. FABIÃO, A. GUERRA, J. BUGALHÃO, A.L. DUARTE, A. SABROSA, Chemical characterisation of amphorae from Tagus and Sado estuaries production centers (Portugal) *6<sup>th</sup> European Meeting on Ancient ceramics, EMAC'01*, Fribourg, Switzerland, 2001, oral.
  - M.I. DIAS, A. ARRUDA, M.I. PRUDÊNCIO, M.A. GOUVEIA, The roman colony of Scallabis (Lusitânia): an archaeometric approach to the origin of the fish sauces containers (class 32 amphorae). *6<sup>th</sup> European Meeting on Ancient ceramics, EMAC'01*, Fribourg, Switzerland 2001, oral.
  - M.I. DIAS, M.I. PRUDÊNCIO, G. CARDOSO, M.A. GOUVEIA, S. RODRIGUES, Chemical characterisation of pottery from the workshop of Peniche (Portugal). A provenance study, *6<sup>th</sup> European Meeting on Ancient ceramics, EMAC'01*, Fribourg, Switzerland 2001, poster.
  - M.I. DIAS, M.I. PRUDÊNCIO, R. MORAIS, M.A. GOUVEIA, Caracterização química de cerâmicas de Bracara Avgvsta: Produções locais e importações da Bética. *IV Congreso Nacional de Arqueometria*, Valencia, Spain, 2001, oral.
  - M.I. DIAS, M.I. PRUDÊNCIO, J. RAPOSO, M.A. GOUVEIA, C. FABIÃO, A. GUERRA, J. BUGALHÃO, L. DUARTE, A. SABROSA, Caracterização química por AAN das formas de ânfora de um centro de produção do estuário do Tejo: Quinta do Rouxinol (Portugal). *IV Congreso Nacional de Arqueometria*, Valencia, Spain, 2001, oral.
  - M.I. DIAS, M.I. PRUDÊNCIO, M.A. GOUVEIA, Cerâmicas islâmicas (Portugal): caracterização química e mineralógica. *GARB - Sítios Islâmicos do Sul Peninsular, Archaeological Exposition in the Museo de Cáceres*, Spain, 2001, oral.
  - M.I. DIAS, M.I. PRUDÊNCIO, M.A. GOUVEIA, Caracterização química e mineralógica de cerâmicas islâmicas (Portugal) *GARB - Sítios Islâmicos do Sul Peninsular, Archaeological Exposition in the Museo Nacional de Arqueologia*, Portugal, 2001, oral.
  - M.I. DIAS, F. ROCHA, Geoquímica de um depósito de argilas fibrosas – Malpica do Tejo, Portugal, *VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Univ. Algarve, Faro, Portugal. 2001, poster.
  - M.I. PRUDÊNCIO, M.I. DIAS, Geoquímica de materiais argilosos na região de Braga e sua implicação em estudos de proveniência de cerâmicas arqueológicas. *VI Congresso de Geoquímica dos Países de Língua Portuguesa e XII Semana de Geoquímica*, Univ. Algarve, Faro, Portugal. 2001, poster.
  - M.A. GOUVEIA, M.I. PRUDÊNCIO, M.F. ARAÚJO, M.C. FREITAS, M.I. DIAS, P. VALÉRIO, A.P. MARQUES, Valorizar os Resíduos Monitorizar o Ambiente - Monitorização de Elementos Traço, *Valorsul - Valorização e tratamento de resíduos sólidos da área metropolitana de Lisboa (Norte), S.A., Jornadas Técnicas*, Portugal, 2001, oral.
  - M. I. PRUDÊNCIO, Balanço das actividades desenvolvidas no ITN no âmbito do protocolo ITN-IPA. *Workshop Ciências Aplicadas à Arqueologia, Protocolo ITN-IPA*, Portugal, 2001, oral.
  - M. I. DIAS, Arqueometria de cerâmicas. Balanço e perspectivas. *Workshop Ciências Aplicadas à Arqueologia, Protocolo ITN-IPA*, Portugal, 2001, oral.

- M. NASRAOUI, Proveniência de materiais líticos. *Workshop Ciências Aplicadas à Arqueologia, Protocolo ITN-IPA*, Portugal, 2001, oral.
- D. RICHTER, Reading out TLD-500 (Al<sub>2</sub>O<sub>3</sub>:C) pellets with blue-OSL, and their use as small intrusion gamma dosimeters in archaeological sites. *Workshop Ciências Aplicadas à Arqueologia, Protocolo ITN-IPA*, Portugal, 2001, oral.
- D. RICHTER, A. ZINK, The ITN luminescence dating laboratory: Presentation and first test results. *Workshop Ciências Aplicadas à Arqueologia, Protocolo ITN-IPA*, Portugal, 2001, oral.
- A. ZINK, Développement actuel à l'unité de datation TL/OSL. *Workshop Ciências Aplicadas à Arqueologia, Protocolo ITN-IPA*, Portugal, 2001, oral.
- J.C. WAERENBORGH, Espectroscopia de Mössbauer no estudo de cerâmicas arqueológicas. *Workshop Ciências Aplicadas à Arqueologia, Protocolo ITN-IPA*, Portugal, 2001, oral.
- M. NASRAOUI, M.I. PRUDÊNCIO, Fluid/rock interaction: a comparison of the geochemical behavior of elements in natural geological system (quarry) and in a monument environment. *Earth System Process*, Edinburgh, Scotland. 2001, oral.
- M. NASRAOUI, J.C. WAERENBORGH, M.I. PRUDÊNCIO, Geochemical discrimination indexes for granitic rocks: application to monument stones. *Eleventh annual V.M. Goldschmidt Conference*, Virginia Polytechnic Institute and State University, Hot Springs, Virginia, USA 2001, poster.
- M. NASRAOUI, J.C. WAERENBORGH, M.I. PRUDÊNCIO, E. BILAL, Typology of the granitic stones of the cathedral of Évora (Portugal): a combined contribution of geochemistry and <sup>57</sup>Fe Mössbauer spectroscopy. *VI Congresso de Geoquímica dos Países de Língua Portuguesa & XII Semana de Geoquímica*, Faro, Portugal 2001, oral.
- M. NASRAOUI, M.J. TRINDADE, M.I. PRUDÊNCIO, M.A. GOUVEIA, J.C. WAERENBORGH, M.O. FIGUEIREDO, T. SILVA, Whole rock classification and geochemical variation of the stones of the Sé of Angra do Heroísmo and of the rocks of a surrounding quarry (Terceira island, Azores, Portugal). *VI Congresso de Geoquímica dos Países de Língua Portuguesa & XII semana de Geoquímica*, Faro, Portugal, 2001, poster.
- D. RICHTER, Thermoluminescence and Radiocarbon Dating of the Early Upper Palaeolithic layers at the Geißenklösterle Cave, Germany, *XIV<sup>th</sup> U.I.S.P.P. Congress*, Liège, Belgium, September 2-8, 2001, oral.
- D. RICHTER, A. ZINK AND I. PRUDÊNCIO, Luminescence dating of Quaternary sediments and a new laboratory at the Instituto de Tecnológico e Nuclear (ITN), Sacavém, Portugal, *V<sup>th</sup> Iberian Quaternary Meeting*, Lisbon, Portugal, July 23-27, 2001, poster.
- A. ZINK, Probabilités Bayésiennes - application aux datations par luminescence *Archéométrie 2001*, La Rochelle, France, April 24-28, 2001, oral
- A. ZINK, Bayesian approach applied to authenticity testing by luminescence *XIV<sup>th</sup> U.I.S.P.P. Congress*, Liège, Belgium, *XIV<sup>th</sup> U.I.S.P.P. Congress*, Liège, Belgium, September 2-8, 2001, oral.
- A. ZINK, D. RICHTER, Luminescence from Portuguese quartzite - preliminary results. *Cathodoluminescence in Geosciences CL 2001*, Freiberg, Germany, September 5-8, 2001, poster
- R. MARQUES, G.O. CARDOSO, Datação por radiocarbono, ITN, Colóquio, 17 Dez., 2001, oral.
- D. FRANCO, Análise por aplicação neutrónica - Aplicações em arqueometria, ambiente e indústria, ITN, Colóquio, 17 Dez., 2001, oral.

### Museum exhibitions

- M.I. DIAS, M.I. PRUDÊNCIO, M.A. GOUVEIA, Arqueometria de cerâmicas islâmicas de sítios arqueológicos portugueses. *GARB - Sítios Islâmicos do Sul Peninsular, Temporary Archaeological Exposition in the Museo de Cáceres*, Spain, (Sept.-Oct) 2001.
- M.I. DIAS, M.I. PRUDÊNCIO, M.A. GOUVEIA, Arqueometria de cerâmicas islâmicas das regiões de Lisboa, Santarém e Alcácer do Sal (Portugal): caracterização química e mineralógica. *GARB - Sítios Islâmicos do Sul Peninsular, Temporary Archaeological Exposition in the Museo Nacional de Arqueologia*, Portugal, (Nov.-Dez.) 2001.
- M.I. DIAS, M.I. PRUDÊNCIO, M.A. GOUVEIA, Caracterização Química e Mineralógica de Cerâmicas: Proveniências e Tecnologias de Produção. *Permanent Exhibition at the Archaeological Museum of Fornos de Algodres*, Portugal, 2001.

### Internal Reports

- M.I. PRUDÊNCIO, M.I. DIAS, D. RICHTER, M.F. ARAÚJO, Relatório de Actividades desenvolvidas no ITN ao abrigo do protocolo ITN-IPA 1999-2001, Portugal, Internal Report, Sacavém (2001)

### Other publications

- M.A. GOUVEIA, M.I. PRUDÊNCIO, M.F. ARAÚJO, M.C. FREITAS, M.I. DIAS, P. VALÉRIO, A.P. MARQUES, Programa de monitorização de elementos traço na envolvente CTRSU de S. João da Talha, Valorizar os resíduos. Monitorizar o ambiente. Efeitos da central de tratamento da Valorsul. *Resumos técnicos dos programas de monitorização*. Ed. Valorsul, Valorização e tratamento de resíduos sólidos da área metropolitana de Lisboa (Norte), S.A., (2001) pp. 9-10.
- M.A. GOUVEIA, M.I. PRUDÊNCIO, M.F. ARAÚJO, M.C. FREITAS, M.I. DIAS, P. VALÉRIO, A.P. MARQUES, *Valorizar os Resíduos Monitorizar o Ambiente - Monitorização de Elementos Traço*, Ed. Valorsul - Valorização e tratamento de resíduos sólidos da área metropolitana de Lisboa (Norte), S.A.(2001), pp.1-21

### Theses

#### MSc

- M.A. GASPAR  
*Contribuição para o estudo de cerâmicas dos séc. V-VI DC de Braga*  
Universidade do Minho  
Co-supervisor: M.I. PRUDÊNCIO
- A. GOMES  
*Cerâmicas pintadas da época romana: tecnologia, tipologia e cronologia*  
Universidade do Minho  
Co-supervisor: M.I. PRUDÊNCIO

## Nuclear Solid State Physics Using Ion Beams

### Books and Book Chapters

- A. PAÚL, M.F. DA SILVA, L.C. ALVES, S. ELMRABET, J.A. ODRIOZOLA, F.A. AGER, C. SOARES, Técnicas de haces de iones para el análisis y caracterización de metales y aleaciones, in *Avances en Ciencia y Tecnología del Acero Inoxidable*, J.A. Odriozola, J. Botella (eds.), Sevilla, 2001, pp.371-386.
- N.P. BARRADAS, A.D. SEQUEIRA, N. FRANCO, M. MYRONOV, O.A. MIRONOV, P.J. PHILIPS, E.H.C. PARKER, RBS analysis of MBE grown SiGe/(001)Si heterostructures with thin high Ge content SiGe channels for HMOS transistors, *Modern Phys.Letters* **B15** (2001) 1297.
- N.P. BARRADAS, M.F. DA SILVA, J.C. SOARES, U. KREISSIG, S. CARDOSO, P.P. FREITAS, High resolution IBA analysis of spin dependent tunnel junctions, *Modern Phys Letters*. **B15** (2001).

### Journals

#### Published

- E. ALVES, C. LIU, J.C. WAERENBORGH, M.F. DA SILVA, J.C. SOARES, Study of Fe<sup>+</sup> implanted GaN, *Nucl. Inst. and Meth.* **B175-177** (2001) 241.
- E. ALVES, K. LORENZ, R.VIANDEN, C. BOEMARE, M. J. SOARES, T. MONTEIRO, Optical doping of nitrides by ion implantation, *Mod. Phys. Letters* **B15** (28-29) (2001).
- E. ALVES, J.G. MARQUES, M.F. DA SILVA, J.C. SOARES, J. BARTELS, R. VIANDEN, Heavy ion implantation in GaN epilayers, *Radiation Effects & Defects in Solids* **153** (2001)1.
- E. ALVES, T. MONTEIRO, J. SOARES, L. SANTOS, M.F. DA SILVA, J.C. SOARES, W. LOJKOWSKI, D. KOLESNIKOV, R. VIANDEN, J.G. CORREIA, High Temperature Annealing of Er Implanted GaN, *Materials Research and Engineering* **B81** (2001) 132.
- E. ALVES, A.D. SEQUEIRA, N. FRANCO, M.F. DA SILVA, J.C. SOARES, N.A. SOBOLEV, M.C. CARMO, Coherent amorphization of Ge/Si multilayers with Ion Beams, *Nucl. Inst. and Meth.* **B178** (2001) 279.
- L.C. ALVES, E. ALVES, M.F. DA SILVA, J.C. SOARES, A. PAÚL, A. LA BARBERA, B. RICCARDI, Study of solid-state reactions of SiC/SiC<sub>f</sub> composites using microbeams, *Nucl. Instr. and Meth.* **B181** (2001) 377.
- J.P. ARAÚJO, J.G. CORREIA, V.S. AMARAL, P.B. TAVARES, F. LENCART-SILVA, A.A.C.S. LOURENÇO, J.B. SOUSA, J.M. VIEIRA, J.C. SOARES and the ISOLDE Collaboration, Hyperfine fields at the Cd site in La<sub>0.67</sub>Cd<sub>0.25</sub>MnO<sub>3</sub> CMR manganites, *Hyperfine Interactions* **133** (2001) 89-94.
- N.P. BARRADAS, A. VIEIRA, E. ALVES, Artificial neural network analysis of RBS data of Er-implanted sapphire, *Nucl. Instrum. Methods* **B175-177** (2001) 108-112.
- N.P. BARRADAS, Rutherford backscattering analysis of thin films and superlattices with roughness, *J. Phys. D: Appl. Phys.* **34** (2001) 2109-2116.
- M.B.H. BREESE, P.J. SELLIN, L.C. ALVES, A.P. KNIGHTS, R.S. SUSSMANN, A.J. WHITEHEAD, Imaging of Charge Transport Properties in Polycrystalline CVD Diamond Using IBIC and IBIL Microscopy, *Nucl. Instr. and Meth.* **B181** (2001) 219-224.
- S. CARDOSO, Z.G. ZHANG, P.P. FREITAS, P. WEI, N. BARRADAS, J.C. SOARES, Electrode roughness and interfacial mixing effects on tunnel junction thermal stability, *J. Appl. Phys.* **89** (2001) 6650-6652.
- S. CARVALHO, L. REBOUTA, D. SCHNEIDER, A. CAVALEIRO, E. ALVES, Elastic properties of (Ti,Si,Al)N nanocomposite films, *Surf. and Coatings Technology* **142-144** (2001) 110-116.
- S. CARVALHO, L. REBOUTA, A. CAVALEIRO, L.A. ROCHA, J. GOMES, E. ALVES, Microstructure and Mechanical Properties of nanocomposite (Ti, Si, Al)N coatings, *Thin Solid Films* **398-399** (2001) 391-396.
- A. KLING, M.F. DA SILVA, J.C. SOARES, P.F.P. FICHTNER, L. AMARAL, F. ZAWISLAK, Defect Evolution and Characterization in He-Implanted LiNbO<sub>3</sub>, *Nucl. Instr. Meth.* **B175-177** (2001) 394-397.
- A. KLING, M.F. DA SILVA, J.C. SOARES P.F.P. FICHTNER, L. AMARAL, F. ZAWISLAK, I. FÖLDVÁRI AND Á. PÉTER, Formation of Nanoclusters in Au-Implanted Bismuth Tellurite, *Nucl. Instr. Meth.* **B175-177** (2001) 331-334.
- A. KLING, M.F. DA SILVA, J.C. SOARES, P.F.P. FICHTNER, L. AMARAL, F.C. ZAWISLAK, Influence of Helium Co-Implantation

- on the Formation of Gold Nanoclusters in Lithium Niobate, *Mod. Phys. Letters* **B15** (28-29) (2001).
- C. LIU, X.J. FAN, A. WENZEL, J.W. GERLACH, B. RAUSCHENBACH, E. ALVES, M.F. DA SILVA, Amorphization of GaN by ion Implantation, *Nucl. Inst. and Meth.* **B178** (2001) 200.
  - C. LIU, E. ALVES, A.D. SEQUEIRA, N. FRANCO, M.F. DA SILVA, J.C. SOARES, Fe ion implantation in GaN: Damage, annealing, and lattice site location, *Journal of Applied Physics* **90** (2001) 81-86.
  - C. MARQUES, M.M. CRUZ, R.C. DA SILVA, E. ALVES, Study of new surface structures created on sapphire by Co ion implantation, *Nucl. Inst. and Meth.* **B175-177** (2001) 500-504.
  - T. MONTEIRO, J. SOARES, M. R. CORREIA, E. ALVES, Green, red and infrared Er-related emission in implanted GaN:Er and GaN:Er,O samples, *J. Appl. Phys.* **89** (2001) 6183.
  - A.M.G. PACHECO, M.C. FREITAS, L.I.C. BARROS, R. FIGUEIRA, Investigating Tree Bark as an Air -Pollution Biomonitor by Means of Neutron Activation Analysis, *Journal of Radioanalytical and Nuclear Chemistry* **249** (2) (2001) 327-331.
  - A. PAÚL, A.R.L. RAMOS, L. RIJNERS, M. F. DA SILVA, J. C. SOARES, Measurement of (p,p) elastic cross-sections for  $^{14}\text{N}$  and  $^{27}\text{Al}$  at laboratory angles of  $178^\circ$  and  $140^\circ$  in the range 0.5-2.5 MeV, *Materials Science Forum* **383** (2001) 191.
  - A. PAÚL, S. ELMRABET, L.C. ALVES, M.F. DA SILVA, J.C. SOARES, J.A. ODRIOZOLA, Ion microprobe study of the scale formed during high temperature oxidation of high silicon EN 1-4301 stainless steel, *Nucl. Instr. Meth.* **B181** (2001) 394.
  - S. PEREIRA, M. R. CORREIA, T. MONTEIRO, E. PEREIRA, E. ALVES, A. SEQUEIRA, N. FRANCO, Compositional dependence of the strain-free optical bandgap in  $\text{In}_x\text{Ga}_{1-x}\text{N}$  layers, *Appl. Phys. Lett.* **78** (2001) 2137.
  - S. PEREIRA, M. R. CORREIA, T. MONTEIRO, E. PEREIRA, R. SOARES, E. ALVES, Indium Content Determination Related with Structural and Optical Properties of InGaN Layers, *J. of Crystal Growth* **230** (2001) 448.
  - S. PEREIRA, M.R. CORREIA, E. PEREIRA, E. ALVES, A. SEQUEIRA, N. FRANCO, Interpretation of double x-ray diffraction peaks from InGaN layers, *Appl. Phys. Lett.* **79** (2001) 1432.
  - S. PEREIRA, M.R. CORREIA, E. PEREIRA, K.P. O'DONNELL, C. TRAGER-COWAN, F.SWEENEY, E. ALVES, A.D. SEQUEIRA, N. FRANCO, I.M. WATSON, Depth resolved studies of Indium content and strain in InGaN layers, *Physica status solidi (b)* **228** (2001) 59-64.
  - S. PEREIRA, M.R. CORREIA, T. MONTEIRO, E. PEREIRA, C. TRAGER-COWAN, K.P. O'DONNELL, E. ALVES, Compositional pulling effects in  $\text{In}_x\text{Ga}_{1-x}\text{N}/\text{GaN}$  layers: A combined depth-resolved cathodoluminescence and Rutherford backscattering/channeling study, *Phys. Rev.* **B64** (2001) 1653.
  - A.R. RAMOS, F. PÁSZTI, Z.E. HORVÁTH, É. VÁZSONYI, O. CONDE, M.F. DA SILVA, M.R. DA SILVA, J.C. SOARES, Combined analyses of ion beam synthesized layers in porous silicon, accepted for publication in *Acta Physica Polonica A* **100** (5) (2001) 773.
  - A.R. RAMOS, F. PASZTI, E. KOTAI, E. VAZSONYI, O. CONDE, M.R. DA SILVA, M.F. DA SILVA, J.C. SOARES, Synthesis of cobalt silicide on porous silicon by high dose ion implantation, *Nucl. Instr. And Meth.* **B178** (2001) 283-286.
  - L.M. REDONDO, E. MARGATO, J. FERNANDO SILVA, A new method to build a High Voltage Pulse Supply using only semiconductor switches for plasma immersion ion implantation, *Surface and Coatings Technology*, **136** (1-3) (2001) 51-54.
  - J.P. RIBEIRO, A.P. JESUS, B. BRAZINHA, J. CRUZ, R. MATEUS, J.V. PINTO, Experimental study of the  $^{19}\text{F}(p,\alpha\gamma)^{16}\text{O}$  reaction, *Nucl. Phys. A* **688** (2001) 468c.
  - E.M.C. RITA, L.C. ALVES, M.A. REIS, F. RODRIGUES, P. FIALHO, J.C. SOARES, Analysis of Atmospheric Aerosol using the Lisbon Nuclear Microprobe, *Acta Physica Polonica A* **100** (5) (2001) 781.
  - G.J. ROSS, N.P. BARRADAS, M.P. HILL, C. JEYNES, P. MORRISSEY, J.F. WATTS, Rutherford backscattering spectrometry and computer simulation for the in-depth analysis of chemically modified poly(vinylidene fluoride), *J. Mat. Sci.* **36** (2001) 4731-4738.
  - T. TELBIZOVA, S. PARASCANDOLA, F. PROKERT, N.P. BARRADAS, E. RICHTER, W. MÖLLER, Ion nitriding of Al: growth kinetics and characterisation of the nitride layer, *Surface and Coatings Technology* **142-144** (2001) 1028-1033.
  - E. VASCO, L. VÁZQUEZ, C. ZALDO, C. COYA, A. KLING, J.C. SOARES, Integration of Piezoelectric (Pb,La)TiO<sub>3</sub> on (100)InP by Using a CeO<sub>2</sub> Buffer Layer, *J. Vacuum Sci.Techn.* **B19** (2001) 812-817.
  - A. VIEIRA, N.P. BARRADAS, C. JEYNES, Error performance analysis of Artificial Neural Networks applied to Rutherford backscattering data, *Surf. Interface Analysis* **31** (2001) 35-38.
  - A. VIEIRA, N.P. BARRADAS, Composition of NiTaC films on Si using neural networks analysis

- of elastic backscattering data, *Nucl. Instrum. Methods B* **174** (2001) 367-372.
- J. WANG, S. CARDOSO, P.P. FREITAS, P. WEI, N.P. BARRADAS, J.C. SOARES, Tunnel junctions with AlN barriers and FeTaN electrodes, *J. Appl. Phys.* **89** (2001) 6868-6870.
  - U. WAHL, A. VANTOMME, G. LANGOUCHE, J.G. CORREIA, L. PERALTA, and the ISOLDE collaboration, Direct evidence for implanted Fe on substitutional Ga sites in GaN, *Applied Physics Letters* **78** (2001) 3217-3220.
  - Z. ZHANG, S. CARDOSO, P.P. FREITAS, P. WEI, N. BARRADAS, J.C. SOARES, Annealing effect of magnetic tunnel junctions with one FeOx layer inserted at the Al<sub>2</sub>O<sub>3</sub>/CoFe interface, *Appl. Phys. Lett.* **78** (2001) 2911-2913.
  - Z. ZHANG, S. CARDOSO, P.P. FREITAS, X. BATTLE, P. WEI, N. BARRADAS, J. C. SOARES, 40% tunneling magnetoresistance after anneal at 380 °C for tunnel junctions with iron-oxide interface layers, *J. Appl. Phys.* **89** (2001) 6665-6667.
  - Z.G. ZHANG, P.P. FREITAS, A.R. RAMOS, N.P. BARRADAS, J.C. SOARES, Resistance decrease in spin tunnel junctions by control of natural oxidation conditions, *Appl. Phys. Lett.* **79** (2001) 2219-2221.
- Accepted for publication or in press**
- A. ALMENDRA, A. RODRÍGUEZ, T. RODRÍGUEZ, A. KLING, M.F. DA SILVA, J.C. SOARES, C. BALLESTEROS, Ion Beam Analysis of the Segregation and Solubility of Iridium During Silicon Crystallization, *Nucl. Instr. Meth. B*.
  - E. ALVES, C. LIU, E.B. LOPES, M.F. DA SILVA, J.C. SOARES, C. BOEMARE, J. SOARES, T. MONTEIRO, Study of Calcium implanted GaN, *Nucl. Inst. and Meth.*
  - E. ALVES, N. P. BARRADAS, T. MONTEIRO, R. CORREIA, U. KREISSIG, Ion Beam Studies of MBE grown GaN films on (111)silicon substrates, *Nucl. Inst. and Meth.*
  - E. ALVES, S. PEREIRA, M. R. CORREIA, E. PEREIRA, A.D. SEQUEIRA, N. FRANCO, Strain Relaxation and compositional analysis of InGaN/GaN layers, *Nucl. Inst. and Meth.*
  - L.C. ALVES, M.B.H. BREESE, M.F. DA SILVA, J.C. SOARES, A Photomultiplier-based Secondary Electron Imaging System for a Nuclear Microprobe, *Nucl. Instr. and Meth.*
  - J.P. ARAÚJO, U. WAHL, E. ALVES, J.G. CORREIA, T. MONTEIRO, J. SOARES and the ISOLDE Collaboration; Erbium implantation in Strontium Titanate, accepted by *Nuclear Instruments and Methods in Physics Research B*.
  - J.P. ARAÚJO, V.S. AMARAL, P.B. TAVARES, A.A. LOURENÇO, F. LENCART-SILVA, E. ALVES, J.B. SOUSA, J.M. VIEIRA, Cadmium addition to vacancy doped lanthanum manganites: from metallic to insulator behavior, accept in *Journal of Magnetism and Magnetic Materials*, in press.
  - N.P. BARRADAS, Fitting of RBS data including roughness: application to Co/Re multilayers, accepted by *Nucl. Instrum. Methods B*.
  - N.P. BARRADAS, P. WEI, M.F. DA SILVA, J.C. SOARES, U. KREISSIG, WIM ARNOLDBIK, S. CARDOSO, P.P. FREITAS, High resolution IBA analysis of complex ultra-thin magnetic systems: potential and limitations (IAEA TCM Vienna).
  - N.P. BARRADAS, R. PATRÍCIO, A. VIEIRA, RBS without humans, accepted by *Nucl. Instrum. Methods B*.
  - C. BOEMARE, T. MONTEIRO, M. J. SOARES, J.G. GUILHERME, E. ALVES, Photoluminescence studies in ZnO samples, *Phys. Stat. Solidi*.
  - J.G. CORREIA, H. HAAS, J.P. ARAUJO, J.G. MARQUES, A.A. MELO, J.C. SOARES and the ISOLDE collaboration, <sup>80m</sup>Br/<sup>80</sup>Br - A new electron-gamma PAC Probe; accepted by *Hyperfine Interactions*.
  - K.D. CHTCHERBATCHEV, A.D. SEQUEIRA, N. FRANCO, N.P. BARRADAS, M. MYRONOV, O. A. MIRONOV, E. H. C. PARKER, Application of high-resolution x-ray diffraction to study strain status in Si<sub>1-x</sub>Ge<sub>x</sub>/Si<sub>1-y</sub>Ge<sub>y</sub>/Si(001) heterostructures; Materials Science and Engineering B (2002)
  - I. FERREIRA, M.E. COSTA, E. FORTUNATO, R. MARTINS, A.R. RAMOS, M.F. DA SILVA, Silicon Carbide Alloys Produced by Hot Wire, Hot Wire Plasma Assisted and Plasma Enhanced CVD Techniques, accepted for publication in *Applied Surface Science*.
  - A.F. GURBICH, N. P. BARRADAS, C. JEYNES, E. WENDLER, Applying elastic spectrometry when the nuclear excitation function has a fine structure, accepted by *Nucl. Instrum. Methods B*.
  - A. KLING, C. VALDREZ, J.G. MARQUES, M.F. DA SILVA, J.C. SOARES, Incorporation of Tungsten in Lithium Niobate by Diffusion, *Nucl. Instr. Meth. B*.
  - A. KLING, M.F. DA SILVA, J.C. SOARES, Determination of the Erbium Lattice Site in Bismuth Tellurite Using, PIXE/Channeling, *Nucl. Instr. Meth. B*.
  - A. KLING, M.F. DA SILVA, J.C. SOARES, J.A. SANZ-GARCÍA, J. GARCÍA-SOLÉ, Change of Uranium Lattice Site in LiNbO<sub>3</sub> Induced by Thermal Reduction, Treatment, *Rad. Eff. Def. Solids*, in press.



- A. KLING, M.F. DA SILVA, J.C. SOARES, P.F.P. FICHTNER, L. AMARAL, F.C. ZAWISLAK, Formation of Coherent Gold Nanoclusters in Lithium Niobate, *Nucl. Instr. Meth. B*.
- C. LIU, E. ALVES, A. R. RAMOS, M. F. DA SILVA, J. C. SOARES, T. MATSUTANI, M. KIUCHI, Lattice Location and Annealing Behavior of Mn Implanted GaN, *Nucl. Instr. and Meth.*
- C. MARQUES, A. FALCÃO, R.C. DA SILVA, E. ALVES, Structural and optical characterization of topaz implanted with Fe and Co, *Nucl. Instr. and Meth.*
- C. MARQUES, E. ALVES, C. MCHARGUE, L.C. ONONYE, T. MONTEIRO, J. SOARES, L.F. ALLARD, Influence of annealing atmosphere on the behavior of titanium implanted sapphire, *Nucl. Instr. and Meth.* (2002).
- C. MARQUES, M.M. CRUZ, R.C. DA SILVA, E. ALVES, Optical changes induced by high fluence implantation of Co ions on sapphire, *Surf. and Coatings Technology*, in press.
- A. MARTIN SÁNCHEZ, M.J. NUEVO SÁNCHEZ, M. JURADO VARGAS, J. DIAZ BEJARANO, M.F. DA SILVA, C. ROLDÁN GARCIA, A.G. PAÚL ESCOLANO, J.L. FERRERO CALABUIG, Application of atomic and nuclear techniques to the study of inhomogeneities in electrodeposited alpha sources, *Nucl. Instr. Meth.*
- J.G. MARQUES, N.P. BARRADAS, E. ALVES, A.R. RAMOS, A.P. GONÇALVES, M.F. DA SILVA, J.C. SOARES, Hyperfine Fields of  $^{181}\text{Ta}$  in  $\text{UF}_4\text{Al}_8$ , accepted for publication in *Hyperfine Interactions*.
- R. MATEUS, A.P. JESUS, B. BRAIZINHA, J. CRUZ, J.V. PINTO, J. P. RIBEIRO, Analysis of Lithium in thick samples, accepted for publication in *Nucl. Instr. Meth. B*.
- C. MCHARGUE, L.C. ONONYE, L.F. ALLARD, E. ALVES, M.F. DA SILVA, J.C. SOARES, The structure of sapphire implanted with nitrogen at room temperature and  $1000^\circ\text{C}$ , *Nucl. Instr. and Meth.*
- T. MONTEIRO, C. BOEMARE, M. J. SOARES, R.A.SÁ FERREIRA, L.D. CARLOS, K. LORENZ, R. VIANDEN, E. ALVES, Photoluminescence and lattice location of Eu and Pr implanted GaN samples, *Phis. Stat. Solidi*.
- T. MONTEIRO, J. SOARES, C. BOEMARE, E. ALVES, C. MARQUES, Luminescence studies in iron implanted  $\alpha\text{-Al}_2\text{O}_3$ , *Phis. Stat. Solidi*.
- T. MONTEIRO, J. SOARES, E. ALVES, C. MARQUES, C. MCHARGUE, L.C. ONONYE, L.F. ALLARD, Luminescence and RBS studies in iron implanted  $\alpha\text{-Al}_2\text{O}_3$ , *Nucl. Instr. and Meth.*, in press.
- R. NEVADO, C. SADA, F. SEGATO, F. CACCAVALE, A. KLING, J.C. SOARES, E. CANTELAR, F. CUSSÓ, G. LIFANTE, Compositional Characterization of Zn-Diffused Lithium Niobate Waveguides, *Appl. Phys. B*, in press.
- A. PASCOAL, N. TEIXEIRA, E. ALVES, Influence of radiotherapy treatments in head & neck oncological patients with biomaterials prostheses, *Physica Medica* Vol. XVII, supl. n°4 (2001), in press.
- A. PAÚL, L.C. ALVES, J.A. ODRIOZOLA, J.C. SOARES, Study on the solubility of U at very low concentration on RAFM steel, *Nucl. Instr. and Meth.*, in press.
- A. PAÚL, S. ELMRABET, F.J. AGER, J.A. ODRIOZOLA, M.A. RESPALDIZA, M.F. DA SILVA, J.C. SOARES, Influence of preoxidation and annealing treatments on the isothermal oxidation in air at  $1173\text{K}$  of cerium implanted EN-1.4301 stainless steel, *Oxidation of Metals*, in press.
- S. PEREIRA, M. R. CORREIA, E. PEREIRA, K. P. O'DONNELL, C. TRAGER-COWAN, F. SWEANEY, E. ALVES, A. D. SEQUEIRA, N. FRANCO, A new approach to estimate the band gap deformation potentials of III-N wurtzite semiconductor alloys: application to  $\text{In}_{0.19}\text{Ga}_{0.81}\text{N}$ , *Physics Research B*.
- L. PRUDÊNCIO, J.C. WAERENBORGH, A.P. GONÇALVES, O. CONDE, R.C. DA SILVA, Alloys by ion implantation of Fe in Al, *Surf. and Coatings Technology*, in press.
- A.R.L. RAMOS, A. PAÚL, L. RIJNIERS, M. F. DA SILVA, J. C. SOARES, Measurement of (p,p) elastic differential cross-sections for carbon, nitrogen, oxygen, aluminium, and carbon in the  $500\text{-}2500\text{ keV}$  range at  $140^\circ$  and  $178^\circ$  laboratory scattering angles, accepted for Publication in *Nucl. Instr. and Meth. B*.
- L.M. REDONDO, E. MARGATO, J. FERNANDO SILVA, Rise time reduction in high-voltage pulse transformers using auxiliary windings, *Transactions on Power Electronics*, in press.
- L.M. REDONDO, N. PINHÃO, E. MARGATO, J. FERNANDO SILVA, Progress on high-voltage pulse generators, using low voltage semiconductors ( $<1\text{kV}$ ), designed for Plasma Immersion Ion Implantation (PIII), *Surface and Coatings Technology*, in press.
- R.C. DA SILVA, E. ALVES, M.M. CRUZ, Conductivity behaviour of Cr implanted  $\text{TiO}_2$ , *Nucl. Instr. and Meth.* (2002).

- C.J. TAVARES, L. REBOUTA, E. ALVES, N.P. BARRADAS, J. PACAUD, J.P. RIVIÈRE, Study of roughness in  $Ti_{0.4}Al_{0.6}N/Mo$  multilayer structures, *Nucl. Inst. and Meth.*, in press.
- W. TRÖGER, M. DIETRICH, J.G. CORREIA, H. HAAS and the ISOLDE Collaboration; The Nuclear Quadrupole Interaction of 204m Pb in Cadmium monitored by g-g Perturbed Angular Correlations, accepted by *Zeitschrift für Naturforschung*.
- A. VANTOMME, E. ALVES, J.G. CORREIA, I. BRYNTSE, LARS-G. JOHANSSON, S.M. LOUREIRO, S. LEFLOCH, P. TOULEMONDE, P. BORDET, C. BOUGEROL-CHAILLIOUT, Surface quality studies of high-Tc superconductors of the  $Hg^-$ ,  $T^-$  and  $Hg_xT_{1-x}$ -families: RBS and resonant C and O backscattering studies; accepted by *Nucl. Instrum. Methods in Physics Research B*.
- F. VAZ, S. CARVALHO L. REBOUTA, M.Z. SILVA, A. PAÚL, D. SCHNEIDER, Young's Modulus of Si based TiN Films by Surface Acoustic Waves (SAW) and Indentation Techniques, *Thin Solid Films*.
- A. VIEIRA, N. P. BARRADAS, E. ALVES, Analysis of sapphire implanted with different elements using artificial neural networks, accepted by *Nucl. Instrum. Methods B*.
- M. VILARIGUES, L.C. ALVES, N. FRANCO, A. SEQUEIRA, R.C. DA SILVA, Characterisation of corrosion products in Cr implanted Mg surfaces, *Surf. and Coatings Technology*, in press.
- A. WU, P.M. VILARINHO, I.M. MIRANDA SALVADO, J.L. BAPTISTA, ZHAOXIA ZHOU, I.M. REANEY, A.R. RAMOS, M.F. DA SILVA, The Effect of PZT Seeds on the PtxPb Formation During the Pyrolysis of Lead Zirconate Titanate Thin Films, accepted for publication in the *Journal of the American Ceramic Society*.
- U. WAHL, J.G. CORREIA, A. VANTOMME and the ISOLDE collaboration, Lattice location of implanted Ag in Si, accepted by *Nucl. Instrum. Methods in Physics Research B*.
- P. WEI N. P. BARRADAS, J. C. SOARES, M.F. DA SILVA, U. KREISSIG, S. CARDOSO, P. P. FREITAS, Composition analysis of the insulating barrier in magnetic tunnel junctions by high resolution RBS, accepted by *Nucl. Instrum. Methods B*.
- M.D. YNSA, T. PINHEIRO, F.J. AGER, L.C. ALVES, J.C. MILLÁN, M.A. GÓMEZ-ZUBELBIA, M.A. RESPALDIZA, PIXE Studies of Osteoporosis Preventive Treatments, *Nucl. Instr. and Meth.*, in press.

## Conference Proceedings

- E. ALVES, C. LIU, M. F. DA SILVA, J. C. SOARES, T. MONTEIRO, Doping of GaN by ion implantation, *Mater. Res. Soc. Symp. Proc.* **647** (2001) O4.2.1.
- M.R. CORREIA, S. PEREIRA, N. PINHO, T. MONTEIRO, E. PEREIRA AND E. ALVES, Raman Spectroscopy Studies in InGaN/GaN Wurtzite Epitaxial Films, *Mater. Res. Soc. Symp. Proc.* **639** (2001) G6.10.1.
- A. KLING, M.F. DA SILVA, J.C. SOARES, P.F.P. FICHTNER, L. AMARAL, F. ZAWISLAK, I. FÖLDVÁRI, Á. PÉTER, Gold Nanoclusters Formed by Ion-Implantation into  $Bi_2TeO_5$ , *Mater. Res. Soc. Symp. Proc.* **647** (2001) O5.14.1-O5.14.6.
- C. MARQUES, C. MCHARGUE, M. F. DA SILVA, J. C. SOARES, E. ALVES, Optical and Structural Changes of Fe Implanted Sapphire, *Mater. Res. Soc. Symp. Proc.* **647** (2001) O.13.4.1.
- S. PEREIRA, M. R. CORREIA, E. PEREIRA, E. ALVES, L. C. ALVES, C. TRAGER-COWAN, K. P. O'DONNELL, Strain and Compositional Analysis of InGaN/GaN Layers, *Mater. Res. Soc. Symp. Proc.* **639** (2001) G3.52.
- R. ROCHA, T. MONTEIRO, E. PEREIRA, E. ALVES, Optical Characterization of AlGaIn/GaN MQW's, *Mater. Res. Soc. Symp. Proc.* **639** (2001) G6.21.1.

## Communications

- E. ALVES, From high fluence ion implantation to microbeam studies, *ECFA Meeting*, Lisboa, Portugal, May 4, 2001, oral.
- E. ALVES. Material studies under the fusion program at ITN, *Mol (SCK/CEN)*, Belgium, May 16, 2001, oral.
- E. ALVES. Electrical behaviour of a Be pebble bed under irradiation in a reducing atmosphere *JCT/EUHT Bilateral Meeting on Blanket R&D and Design*, Garching, Germany, June 26-28, 2001. Ora
- E. ALVES, C. LIU, E.B. LOPES, M.F. DA SILVA, J.C. SOARES, C. BOEMARE, J. SOARES, T. MONTEIRO. Study of Calcium implanted GaN, *15<sup>th</sup> International Conference on Ion Beam Analysis*, Cairns, Australia, July 15-20, 2001, poster.
- E. ALVES, M.R. DA SILVA, L.C. ALVES, F. SCAFFIDI-ARGENTINA, J.C. SOARES, Electrical behavior of a beryllium pebble bed at high temperature in a reducing atmosphere, *5<sup>th</sup> IEA International Workshop on Beryllium Technology for Fusion*, Moscow, Russia, October 10-12, 2001.
- E. ALVES, M.R. DA SILVA, L.C. ALVES, F. SCAFFIDI-ARGENTINA, J.C. SOARES. Electrical behavior of a beryllium pebble bed at high temperature in a reducing atmosphere, *10<sup>th</sup>*

*International Conference on Fusion Reactor Materials*, October 14-19, 2001, poster.

- E. ALVES, S. PEREIRA, M.R. CORREIA, E. PEREIRA, A.D. SEQUEIRA, N. FRANCO. Strain Relaxation and compositional analysis of InGaN/GaN layers, *15<sup>th</sup> International Conference on Ion Beam Analysis*, Cairns, Australia, July 15-19, 2001, oral.
- E. ALVES, K. LORENZ, R. VIANDEN, C. BOEMARE, M. J. SOARES, T. MONTEIRO. Optical Doping of Nitrides by Ion Implantation, *Workshop Advanced Materials Produced and Analysed with Ion Beams*, Wellington, New Zealand, July 10-12, 2001, oral.
- L.C. ALVES, M.B.H. BREESE, M.F. da SILVA, J.C. SOARES, A Photomultiplier-based Secondary Electron Imaging System for a Nuclear Microprobe, *7<sup>th</sup> European Conference on Accelerators in Applied Research and Technology*, Guilford, U.K., August 21-25, poster
- C. LIU, E. ALVES, A. R. RAMOS, M. F. DA SILVA, J.C. SOARES, T. MATSUTANI, M. KIUCHI. Lattice Location and Annealing Behavior of Mn Implanted GaN. *11<sup>th</sup> International Conference on Radiation Effects in Insulators*, Lisboa, Portugal, September 3-7, 2001, poster.
- C. MARQUES, E. ALVES, C. MCHARGUE, L.C. ONONYE, T. MONTEIRO, J. SOARES, L.F. ALLARD. Influence of annealing atmosphere on the behavior of titanium implanted sapphire, *11<sup>th</sup> International Conference on Radiation Effects in Insulators*, Lisboa, Portugal, September, 3-7, 2001, poster.

### Other publications

- E. ALVES, M.R. DA SILVA, L.C. ALVES, J.C. SOARES, Beryllium pebble bed Electrical resistivity in the presence of purge gas and ionising radiation. Final Report IST/ITN, ITER T431-EU.
- J.G. CORREIA, J.P. ARAÚJO, *et al.*, (JGC, spokesman of the proposal approved by the scientific committee of the ISOLDE-CERN 1996), Studies of High-Tc Superconductors Doped with Radioactive Isotopes, CERN/ISC 96-30, ISC P86, IS360, addendum approved by the November INTC/CERN scientific committee 2000.
- J.G. CORREIA, C. COHEN, M. DEICHER F. MEZEI, Section 5 - Material Analysis, Chapter 3 - Atomic and Condensed Matter, Physics, NuPECC REPORT - *Impact and Applications of Nuclear Science in Europe* - to be published in 2002.
- U. WAHL, J.G. CORREIA, J.P. ARAÚJO, A.M. LOPES, A. VANTOMME, G. LANGOUCHE, addendum to the IS368 proposal, now approved by the February INTC/CERN scientific committee 2001, Lattice location of Transition Metals and Rare Earths in Semiconductors, CERN/INTC 2001-004.

### Theses

#### PhD

- ANA RITA RAMOS  
Preparação de silicetos metálicos para aplicação em microelectrónica. Faculdade de Ciências da Universidade de Lisboa  
Supervisor: Prof. J.C. SOARES

#### MSc

- ANA PASCOAL  
*Estudo de Próteses de Biomateriais e sua influência em meio tecido-equivalente irradiado.*  
Fac. Ciências da UL, July 2001,  
Supervisor: E. ALVES

#### Graduation

- VASCO SERRÃO  
*Produção e implantação de recuo do radioisótopo <sup>7</sup>Be no ciclotrão de Bona*  
Faculdade de Ciências da Universidade de Lisboa, Outubro 2001.  
Supervisor: Prof. J.C. SOARES
- ELISABETE M.C. RITA  
*Aplicação da Microsonda Nuclear na Análise de Aerossois.* Lic. in Physics Engineering from de Faculty of Sciences of the University of Lisbon  
Supervisor: Prof. J.C. SOARES.

## Condensed Matter Physics

### Journals

#### Published

- S. PEREIRA, M.R. CORREIA, E. PEREIRA, K.P. O'DONNELL, C. TRAGER-COWAN, F. SWEENEY, E. ALVES, A.D. SEQUEIRA, N. FRANCO AND I. M. WATSON. Depth Resolved Studies of Indium Content and Strain in InGaN Layers. *Phys. Stat. Sol. (B)* vol. 228, 1 (2001) 59.
- S. PEREIRA, M. R. CORREIA, AND E. PEREIRA, K. P. O'DONNELL, E. ALVES, A. D. SEQUEIRA, AND N. FRANCO. On the interpretation of double X-ray diffraction peaks from InGaN layers. *Appl. Phys. Lett.* 79 vol. 10 (2001) 1432.
- N.P. BARRADAS, A.D. SEQUEIRA, N. FRANCO, M. MYRONOV, O.A. MIRONOV, P.J. PHILLIPS, E.H.C. PARKER. RBS Analysis of SiGe Heterostructures. *Modern Physics Letters B* Vol. 15, Nos. 28 & 29 (2001) 1297.
- C. LIU, E. ALVES, A.D. SEQUEIRA, N. FRANCO, M.F. DA SILVA AND J.C. SOARES. Fe ion implantation in GaN: Damage, annealing and lattice site location. *J. Appl. Phys.* 90, 1 (2001) 81.
- S. PEREIRA, M.R. CORREIA, T. MONTEIRO, E. PEREIRA, E. ALVES, A.D. SEQUEIRA AND N. FRANCO. Compositional dependence of the strain-free optical bandgap in  $\text{In}_x\text{Ga}_{1-x}\text{N}$  layers. *Appl. Phys. Lett.* Vol 78, 15 (2001) 2137.
- A.D. SEQUEIRA, N. FRANCO AND J. NEVES. High-Resolution and High-Temperature Double-Crystal X-ray Diffractometer for in-situ Studies - the Hotbird. *Mat. Sci. Forum* Vols. 378-381 (2001) 206.
- N. FRANCO AND A.D. SEQUEIRA. Software Package for the Remote Control and Data Acquisition from a High-temperature X-ray Diffractometer The Hotbird. *Mat. Sci. Forum* Vols. 378-381 (2001) 212.
- E. ALVES, A.D. SEQUEIRA, N. FRANCO, M.F. DA SILVA, J.C. SOARES, N.A. SOBOLEV, M.C. CARMO. Coherent Amorphization of Ge/Si Multilayers With Ion Beams. *Nuclear Instruments and Methods B* Vols. 178, 1-4 (2001) 279.
- C. LIU, A. WENZEL, B. RAUSCHENBACH, E. ALVES, A.D. SEQUEIRA, N. FRANCO, M.F. DA SILVA, J.C. SOARES, X.J. FAN. Amorphization of GaN by ion implantation. *Nuclear Instruments and Methods* Vols. 178, 1-4 (2001) 200.
- M. MISHEVA, N. DJOURELOV, F.M.A. MARGAÇA, and I.M. MIRANDA SALVADO. Positronium study of sol-gel prepared  $\text{SiO}_2$ : influence of pH, *J. Non-Cryst. Solids* 279 (2001) 196.
- M.M.L. RIBEIRO CARROTT, A.J. ESTÊVÃO CANDEIAS, P.J.M. CARROTT, P.I. RAVIKOVITCH AND A.V. NEIMARK AND A.D. SEQUEIRA. Comparison of the adsorption of nitrogen with neopentane, n-hexane, benzene and methanol to evaluate pore sizes in silica grades of MCM-41. *Microporous and Mesoporous Materials*, 47 (2001) 323-337.

#### Accepted for publication or in press

- E. ALVES, S. PEREIRA, M. R. CORREIA, E. PEREIRA, A.D. SEQUEIRA, N. FRANCO AND K. P. O'DONNELL, C. TRAGER-COWAN. Strain Relaxation and Compositional Analysis of InGaN/GaN layers. *Nuclear Instruments and Methods B*. (2002).
- K.D. CHTCHERBATCHEV, A.D. SEQUEIRA, N. FRANCO, N. BARRADAS, M. MYRONOV, O.A. MIRONOV, E.H.C. PARKER. Application of High-Resolution X-ray Diffraction techniques to study strain status in  $\text{Si}_{1-x}\text{Ge}_x/\text{Si}_{1-y}\text{Ge}_y/\text{Si}$  (001) heterostructures. *Materials Science and Engineering B*. (2002).
- S. PEREIRA, M.R. CORREIA, E. PEREIRA, K.P. O'DONNELL, R.W. MARTIN, M.E. WHITE, E. ALVES, A.D. SEQUEIRA, N. FRANCO. Splitting of X-ray diffraction (XRD) and photoluminescence (PL) peaks in InGaN/GaN layers. *Mat. Sci. Eng. (B)*. (2002).
- M. VILARIGUES, L.C. ALVES, N. FRANCO, A.D. SEQUEIRA, R.C. DA SILVA. Characterisation of Corrosion Products in Cr Implanted Mg Surfaces. *Surface and Coatings Technology* (2002).

### Conference Proceedings

#### Published

- P.N. FERREIRA, R. VILAR, J.P. PINA, R.C. DA SILVA AND A.D. SEQUEIRA. MCrAlY Coatings Deposited on Single-crystal High-temperature Alloys by Laser Cladding. *Proceedings of ICALEO 2001 - 20th International Congress on Applications of Lasers and Electro-optics*, Laser Institute of America (2001) 521.

- S. PEREIRA, M.R. CORREIA, E. PEREIRA, C. TRAGER-COWAN, F. SWEENEY, P.R. EDWARDS, K.P. O'DONNELL, E. ALVES, A.D. SEQUEIRA, N. FRANCO. Strain and Compositional Analysis of InGaN/GaN Layers in GaN and Related Alloys – 2000, Edited by U. Mishra, M.S. Shur, C.M. Wetzel, B. Gil, K. Kishino (*Mater. Res. Soc. Proc.* **639**, Pittsburgh, PA, 2001) G 3.52.1-6.

### Accepted for publication or in press

- I.M. MIRANDA SALVADO, J. SANTOS SOUSA, F.M.A. MARGAÇA, and J. TEIXEIRA, The influence of monomers addition on the microstructure of xerogels – a SANS study, *J. Sol-Gel Sci. and Tech.* (2002).
- A. N. FALCÃO, F.M.A. MARGAÇA and F.G. CARVALHO, The use of multichannel collimation in small angle neutron scattering: a computer simulation study, *Appl. Phys. A* (2002)
- A. N. FALCÃO, J. SANTOS SOUSA, F.M.A. MARGAÇA, L. M. FERREIRA, F.G. CARVALHO, I.M. MIRANDA SALVADO and J. TEIXEIRA, Investigation of organic-inorganic materials prepared by irradiation, *J. Sol-Gel Sci. and Tech.* (2002).
- A. N. FALCÃO, J. SANTOS SOUSA, F.M.A. MARGAÇA, F.G. CARVALHO, I.M. MIRANDA SALVADO and J. TEIXEIRA, SANS Study of zirconia-silica sol-gel prepared hybrid materials, *J. Sol-Gel Sci. and Tech.* (2002).
- S. PEREIRA, M. R. CORREIA, E. PEREIRA, E. ALVES, A.D. SEQUEIRA, N. FRANCO, C. TRAGER-COWAN, F. SWEENEY, P.R. EDWARDS, K.P. O'DONNELL. Strain and composition in InGaN/GaN Layers, *Spectroscopy of Systems with Spatially Confined Structures*, NATO-ASI, Erice, Sicily, Italy, June 15-30 (2001). Poster.
- S. PEREIRA, M.R. CORREIA, E. PEREIRA, K.P. O'DONNELL, R.W. MARTIN, M.E. WHITE, E. ALVES, A.D. SEQUEIRA, N. FRANCO. Splitting of X-ray diffraction (XRD) and photoluminescence (PL) peaks in InGaN/GaN layers. *E-MRS 2001. Symposium H: GaN and related Compounds*. June 4-8 Strasbourg, France, (2001) Poster H/PII.20.
- K.D. CHTCHERBATCHEV, A.D. SEQUEIRA, N. FRANCO, N. BARRADAS, M. MYRONOV, O.A. MIRONOV, E.H.C. PARKER. Application of High-Resolution X-ray Diffraction techniques to study strain status in Si<sub>1-x</sub>Ge<sub>x</sub>/Si<sub>1-y</sub>Ge<sub>y</sub>/Si (001) heterostructures. *9th International Conference on Defects - Recognition, Imaging and Physics in Semiconductors*, DRIP IX. Rimini, Italy, September 24-28 (2001). Poster.
- M. VILARIGUES, L.C. ALVES, N. FRANCO, A.D. SEQUEIRA, R.C. DA SILVA. Characterisation of Corrosion Products in Cr Implanted Mg Surfaces. *12th International Conference on Surface Modification of materials by Ion Beams*, SMMIB'2001, 9-14 September 2001, Marburg, Germany. Poster.

### Comunications

- P.N. FERREIRA, R. VILAR, J.P. PINA, R.C. DA SILVA AND A.D. SEQUEIRA. MCrAlY Coatings Deposited on Single-crystal High-temperature Alloys by Laser Cladding. *ICALEO 2001 – 20th International Congress on Applications of Lasers and Electro-optics*. Jacksonville, Orlando, Florida 15-18 Outubro (2001). Oral.
- A.D. SEQUEIRA, O Difratômetro de Raios-X alta temperatura Hotbird e sua potencialidade na Arqueologia. *Workshop Ciências Aplicadas à Arqueologia, Protocolo ITN-IPA*, 23 November 2001, Portugal, 2001, oral.
- E. ALVES, S. PEREIRA, M.R. CORREIA, E. PEREIRA, A.D. SEQUEIRA, N. FRANCO AND K.P. O'DONNELL, C. TRAGER-COWAN. Strain Relaxation and Compositional Analysis of InGaN/GaN layers. *15th International Conference on Ion Beam Analysis, IBA-15*. 15-20 July, Cairns, Australia (2001). Oral.
- S. PEREIRA, M.R. CORREIA, E. PEREIRA, K.P. O'DONNELL, C. TRAGER-COWAN, F. SWEENEY, E. ALVES, A.D. SEQUEIRA, N. FRANCO AND I. M. WATSON. Depth Resolved Studies of Indium Content and Strain in InGaN Layers. *The Fourth International Conference on Nitride Semiconductors ICNS-4*. July 16-20, Denver, Colorado USA (2001). Poster.
- M. MYRONOV, O.A. MIRONOV, P.J. PHILLIPS, E.H.C. PARKER N.P. BARRADAS, A.D. SEQUEIRA, N. FRANCO, E. ALVES. Transport and structural characterization of ex-situ annealed MBE grown p-type Si<sub>0.2</sub>Ge<sub>0.8</sub>/Si<sub>0.7</sub>Ge<sub>0.3</sub>/Si(001) heterostructures. *Symposium D: 2nd International Conference on Silicon Epitaxy and Heterostructures E-MRS 2001* June 4-8 (2001) Strasbourg, France,. Poster.
- N.P. BARRADAS, A.D. SEQUEIRA, N. FRANCO, M. MYRONOV, O.A. MIRONOV, P.J. PHILLIPS, E.H.C. PARKER. Grazing angle rbs analysis of Si/Si<sub>0.7</sub>Ge<sub>0.3</sub>/Si<sub>0.2</sub>Ge<sub>0.8</sub>/Si<sub>0.7</sub>Ge<sub>0.3</sub> heterostructures. *Workshop on Advanced materials produced and analysed with ion beams*, Wellington, New Zealand (2001) July 10-12. Oral.
- M. DIEGO, M.A. ROSA, E.B. LOPES, E. ALVES, A.D. SEQUEIRA, N. BARRADAS, M. GODINHO, M. ALMEIDA AND A.P. GONÇALVES, *Actinides 2001*, Hayama, Japan, November 4-9, 2001, oral.
- A.N. FALCÃO, J. SANTOS SOUSA, F.M.A. MARGAÇA, F.G. CARVALHO, I.M. MIRANDA SALVADO and J. TEIXEIRA, A study on the

structure of organic-inorganic hybrids, *ICNS'2001*, München, Alemanha, September 9-13, 2001, poster.

### Internal Reports

- F.G. CARVALHO, F.M.A. MARGAÇA, A. N. FALCÃO, I.F. GONÇALVES and J. SALGADO, Relatório para a análise de segurança da instalação e operação no RPI do Espectrómetro de dispersão de neutrões a pequenos ângulos - EPA, *Internal Report ITN*, Sacavém (2001).

### Theses

#### *MSc*

- N.P. FRANCO. *Desenvolvimento das Capacidades de Análise do Difractómetro de Raios-x Hotbird e sua Aplicação ao Estudo de Heterojunções de Si-Ge*. Faculdade de Ciências de Lisboa da Universidade de Lisboa e Instituto Tecnológico e Nuclear.

Supervisor: ANTÓNIO D. SEQUEIRA

## Nuclear Reactions

---

### Journals

#### *Published*

- A.P. Jesus, B. Braizinha, J. Cruz, J.P. Ribeiro, Influence of target thickness on resonant elastic scattering of protons by  $^{19}\text{F}$ , *Nucl. Instr. Meth. B* **174** (2001) 229.
- J.P. Ribeiro, A.P. Jesus, B. Braizinha, J. Cruz, R. Mateus and J.V. Pinto, Experimental study of the  $^{19}\text{F}(p,\alpha\gamma)^{16}\text{O}$  reaction, *Nucl. Phys. A* **688** (2001) 468c.

#### *Accepted for publication or in press*

- R. Mateus, A.P. Jesus, B. Braizinha, J. Cruz, J.V. Pinto, J. P. Ribeiro, Analysis of Lithium in thick samples, accepted for publication in *Nucl. Instr. Meth. B*.

## Solid State

### Journals

#### Published

- P. SALAMAKHA, A.P. GONÇALVES, O. SOLOGUB, M. ALMEIDA, Single crystal investigation of the binary NdB<sub>4</sub> compound, *J. Alloys Comp.*, **316** (2001) L4.
- J.C. WAERENBORGH, P. SALAMAKHA, O. SOLOGUB, A.P. GONÇALVES, S. SÉRIO, M. GODINHO, M. ALMEIDA, <sup>57</sup>Fe Mössbauer spectroscopy study of the AFe<sub>x</sub>Al<sub>12-x</sub> intermetallics (A = Y, Tm, Lu and U, 4 ≤ x ≤ 4.3), *J. Alloys Comp.*, **317-318** (2001) 44.
- S. SÉRIO, J.C. WAERENBORGH, A.P. GONÇALVES, M. ALMEIDA, D. FRUCHART, S. MIRAGLIA, M. GODINHO, Effect of interstitial hydrogen on UFe<sub>12-x</sub>Al<sub>x</sub>, *J. Alloys Comp.*, **317-318** (2001) 88.
- I. HALEVY, E. STERER, M. AIZENSHTEIN, G. KIMMEL, D. REGEV, E. YAHIEL, L.C.J. PEREIRA, A.P. GONÇALVES, High pressure studies of a new ternary actinide compound, UV<sub>2</sub>Al<sub>20</sub>, *J. Alloys Comp.*, **319** (2001) 19.
- A.P. GONÇALVES, M. KUZNIETZ, M. ALMEIDA, Magnetic features of the (U<sub>0.50</sub>Tm<sub>0.50</sub>)Ni<sub>2</sub>B<sub>2</sub>C solid solution, *J. Alloys Comp.*, **323-324** (2001) 477.
- I. CATARINO, C. CARDOSO, J.C. WAERENBORGH, A.P. GONÇALVES, M.M. CRUZ, M. KUZNIETZ, G. BONFAIT, M. ALMEIDA, M. GODINHO, Magnetism of the series UFe<sub>x</sub>Al<sub>12-x</sub>, *J. Magn. Magn. Mater.* **226** (2001) 1120
- J. B. BRANCO, A. P. GONÇALVES, T. ALMEIDA GASCHE, A. PIRES de MATOS, Selective isoprene hydrogenation over LnNi (Ln=Pr, Gd, Tm) intermetallic compounds, *J. Alloys Comp.*, **323-324** (2001) 610.
- J.C. WAERENBORGH, P. SALAMAKHA, O. SOLOGUB, S. SÉRIO, M. GODINHO, A.P. GONÇALVES, M. ALMEIDA, Y-Fe-Al ternary system: partial isothermal section at 1070 K. Powder X-ray diffraction and Mössbauer spectroscopy study, *J. Alloys Comp.*, **323-324** (2001) 78.
- H. NÖEL, A.P. GONÇALVES, Isothermal section at 750°C of the U-Fe-Sn ternary system, *Intermetallics*, **9** (2001) 473.
- D. BELO, H. ALVES, E. B. LOPES, M. T. DUARTE, V. GAMA, R. T. HENRIQUES, M. ALMEIDA, A. PÉREZ-BENÍTEZ, C. ROVIRA, J. VECIANA, Gold complexes with dithiophene ligands; A metal based neutral molecule, *Chem. Eur. J.*, **7** (2001) 511.
- S. RABAÇA, R. MEIRA, J. SOARES, M. T. DUARTE, V. GAMA, Structural and Magnetic Characterisation of [Fe(Cp\*)<sub>2</sub>][DR-DCNQI], R=Me and Ph, *Synthetic Metals*, **121** (2001) 1828.
- D. BELO, H. ALVES, E. B. LOPES, V. GAMA, R. T. HENRIQUES, M.T. DUARTE, M. ALMEIDA, A. PÉREZ-BENÍTEZ, C. ROVIRA, J. VECIANA, New dithiothiophene complexes for conducting and magnetic materials, *Synthetic Metals*, **120** (2001) 699.
- C. ROVIRA, S. LEMOUSTARDER, D. BELO, J. VECIANA, M. ALMEIDA, V. GAMA, M.T. DUARTE, BET-TTF (bisethylenedithio-tetrathiafulvalene) donor as a building block of organic metals, *Synthetic Metals*, **120** (2001) 717.
- H. ALVES, D. SIMÃO, E. B. LOPES, D. BELO, V. GAMA, M.T. DUARTE, H. NOVAIS, R. T. HENRIQUES, M. ALMEIDA, Structure and Physical Properties of (n-But<sub>4</sub>N)<sub>2</sub>[Au(dcbdt)<sub>2</sub>]<sub>5</sub>, *Synthetic Metals*, **120** (2001) 1011.
- S. RABAÇA, R. MEIRA, L. C. J. PEREIRA, M. T. DUARTE, V. GAMA, Synthesis, Structural and Magnetic Characterization of the Metamagnet [Fe(Cp\*)<sub>2</sub>][DMe-DCNQI], *J. Organomet. Chem.*, **632** (2001) 67.
- J. MORGADO, I. C. SANTOS, L. F. VEIROS, C. RODRIGUES, R. T. HENRIQUES, M. T. DUARTE, L. ALCÁCER and M. ALMEIDA, Preparation, Structural, Electrical and Magnetic Properties of Tetrathiafulvalene-Au(pds)<sub>2</sub> Radical-cation Salts (pds=pyrazine-2,3-diselenolate), *Journal of Materials Chemistry*, **11** (2001) 2108.
- M. CLEMENTE-LÉON, E. CORONADO, C. GIMENEZ-SAIZ, C. J. GOMEZ-GARCIA, E. MARTINEZ-FERRERO, M. ALMEIDA and E. B. LOPES, Organic Inorganic Molecular Conductors Based upon Perylene and Lindquist-type Polyoxometalates, *Journal of Materials Chemistry*, **11** (2001) 2176.
- E. CORONADO, J. R. GALÁN-MASCARÓS, C. J. GÓMEZ-GARCÍA, J. M. MARTÍNEZ-AGUDO, E. MARTÍNEZ-FERRERO, J. C. WAERENBORGH, and M. ALMEIDA, Layered Molecule-Based Magnets Formed by Decamethylmetallocenium Cations and Two-Dimensional Bimetallic Complexes [MIRuIII(ox)<sub>3</sub>]- (MII = Mn, Fe, Co, Cu and Zn; ox = oxalate), *Journal of Solid State Chemistry*, **159** (2001) 391.

- L.C.J. PEREIRA, J.C. WAERENBORGH, I. CATARINO, G. BONFAIT, M. GODINHO, M. ALMEIDA, The effect of Th substitution for U in the heavy fermion  $U_2Pt_2In$ , *J. Alloys Comp.* **317-318** (2001) 419.
  - I.CATARINO, L.C.J. PEREIRA, J.C. WAERENBORGH, M. ALMEIDA, M. GODINHO, G. BONFAIT, Non-Fermi-liquid behaviour of the  $(U_{1-x}Th_x)_2Pt_2In$  solid solutions, *J. Magn. Magn. Mat.* **226-230** (2001) 93.
  - D. SIMÃO, H. ALVES, D. BELO, S. RABAÇA, E.B. LOPES, I.C. SANTOS, V. GAMA, M.T. DUARTE, R.T. HENRIQUES, M. ALMEIDA, H. NOVAIS, Synthesis, Structure and Physical Properties of Tetrabutylammonium Salts of Nickel Complexes with the New Ligand  $dcdbt = 4,5$ -dicyanobenzene-1,2-dithiolate,  $[Ni(dcdbt)_2]^{z-}$  ( $z = 0.4, 1, 2$ ), *Eur. J. Inor. Chem.* (2001) 3119.
  - D. BELO, H. ALVES, S. RABAÇA, L.C. PEREIRA, M.T. DUARTE, V. GAMA, R.T. HENRIQUES, M. ALMEIDA, E. RIBERA, C. ROVIRA, J. VECIANA, Nickel Complexes, Based on Dithiothiophene Ligands; Magnetic Properties of Metalocenium Salts, *Eur. J. Inor. Chem.* (2001) 3127.
  - J.A. PAIXÃO, M. RAMOS SILVA, J. C. WAERENBORGH, A. P. GONÇALVES, G. H. LANDER, P. J. BROWN, M. GODINHO, P. BURLET Study of the magnetic structures of  $MFe_{4+\delta}Al_{8-\delta}$ ,  $M = Lu, Y$  *Phys. Rev. B* **63** (2001) 54410.
  - E. ALVES, C. LIU, J.C. WAERENBORGH, M.F. DA SILVA, J.C. SOARES Study of  $Fe^+$  implanted GaN. *Nucl. Instr. Meth. Phys. Res. B* **175** (2001) 241.
  - J.C. WAERENBORGH, F.M. FIGUEIREDO, J.R. FRADE, M.T. COLOMER, J.R. JURADO,  $Fe^{4+}$  content and ordering of anion vacancies in partially reduced  $AFe_xTi_{1-x}O_{3-y}$  ( $A = Ca, Sr; x \leq 0.6$ ) perovskites. An  $^{57}Fe$  Mössbauer spectroscopy study., *J. Phys.: Cond. Mat.* **13** (2001) 8171
  - M. M. CRUZ, M. D. CARVALHO, A. CASACA, G. BONFAIT, F.M. COSTA, M. GODINHO, Ruddlesden-Popper versus perovskite phases in manganites, *J. Magn. Magn. Mat.* **226-230** (2001) 800.
  - I. CATARINO, G. BONFAIT, A simple calorimeter for fast adiabatic heat capacity measurements from 15 K to 300 K based on closed cycle cryocooler, *Cryogenics* **40** (2001) 425.
  - P. KOVÁČ, I. HUŠEK, W. PACHLA, M. DIANTORO, G. BONFAIT, J. MARIA, K. FROHLICH, L. KOPERA, R. DIDUSZKO, A. PRESZ, Material for resistive barriers in Bi-2223/Ag tapes, *Supercond. Sci. Technol.* **14** (2001) 966.
  - P. ESTRELA, A. DE VISSER, T. NAKA, F.R. DE BOER, L.C.J. PEREIRA, High-pressure study of the non-Fermi liquid material  $U_2Pt_2In$ , *European Physical Journal B.*, **23** (2001) 449
  - S. RABAÇA, R. MEIRA, L.C.J. PEREIRA, M.T. DUARTE, J.J. NOVOA, V. GAMA, Metamagnetism in Linear Chain Electron-Transfer Salts Based on Decamethylferrocenium and Metalbis(dichalcogenate) Acceptors, *Inorg. Chimica Acta*, **326** (2001) 89.
- Accepted for publication or in press**
- A.P. GONÇALVES, H. NOËL, J.C. WAERENBORGH, Crystallographic and magnetic properties of the  $U_{2.1}Fe_2Sn_{0.9}$  ternary stannide, *J. Magn. Magn. Mat.*, accepted for publication.
  - J.G. MARQUES, N.P. BARRADAS, E. ALVES, A.R. RAMOS, A.P. GONÇALVES, M.F. DA SILVA, J.C. SOARES, Hyperfine fields of  $^{181}Ta$  in  $UFe_4Al_8$ , *Hyperfine Interactions*, accepted for publication.
  - B. VENGALIS, V. PLAUSINAITIENĖ<sup>1</sup>, A. ABRUTIS, Z. ŠALTYTĖ, R. BUTKUTĖ, V. PETRAUSKAS, J. MARIA, G. BONFAIT, *Transverse and longitudinal electrical transport properties in HTS/I/FM and HTS/FM Heterostructures*, Accepted in Journ. de Physique C4.
  - D.P.FAGG, J.C. WAERENBORGH, V.V. KHARTON, J.R. FRADE Redox behavior and transport properties of  $La_{0.5-x}Sr_{0.5-x}Fe_{0.4}Ti_{0.6}O_{3-\square}$  ( $0 < x < 0.1$ ) validated by Mössbauer Spectroscopy *Solid State Ionics* (in press).
- Comunications**
- A.P. GONÇALVES, A importância dos compostos intermetálicos de urânio para a Ciência, *Urânio, um Elemento com Futuro*, 22 de Março de 2001, Auditório II da Fundação Calouste Gulbenkian, Lisboa, oral.
  - C. DE JESUS DIAS, A.P. GONÇALVES, T. ALMEIDA GASCHÉ, J. BRANCO, Síntese e caracterização de compostos intermetálicos binários do tipo  $LnCu_2$  ( $Ln = La, Ce, Pr, Nd, Gd, Tm$ ), 5<sup>a</sup> Conferência de Química Inorgânica, Monte Real, 6-7 de Abril de 2001, poster.
  - A.P. GONÇALVES, H. NOËL, I. CATARINO, G. BONFAIT, J.C. WAERENBORGH, M. ALMEIDA, M. GODINHO, Preparation and physical properties of  $UF_3Sn$  single crystals, 31<sup>èmes</sup> Journées des Actinides, Saint-Malo, France, 26-28 April 2001, O6, oral.
  - I. HALEVY, S. SALHOV, G. KIMMEL, U. ATZMONY, L.C.J. PEREIRA, A.P. GONÇALVES, W. SCHÄFER, High pressure studies of  $ThMn_{12}$ -type actinide



- compounds:  $\text{UFe}_5\text{Al}_7$ , *31<sup>èmes</sup> Journées des Actinides*, Saint-Malo, France, 26-28 April 2001, O31, oral.
- M. KUZNIETZ, A.P. GONÇALVES, M. ALMEIDA, Magnetic features observed in  $(\text{A,A}')\text{Ni}_2\text{B}_2\text{C}$  solid solutions, *31<sup>èmes</sup> Journées des Actinides*, Saint-Malo, France, 26-28 April 2001, O34, oral.
  - M.A. ROSA, A.P. GONÇALVES, E. ALVES, M.R. DA SILVA, M. DIEGO, O. CONDE, M. GODINHO, M. ALMEIDA, Structural and microstructural characterization of uranium sputtered films, *31<sup>èmes</sup> Journées des Actinides*, Saint-Malo, France, 26-28 April 2001, O35, oral.
  - I. CATARINO, G. BONFAIT, A.P. GONÇALVES, M. ALMEIDA, M. GODINHO, Specific heat of the  $\text{UFe}_x\text{Al}_{12-x}$  family, *31<sup>èmes</sup> Journées des Actinides*, Saint-Malo, France, 26-28 April 2001, P17, poster.
  - M. DIEGO, A.P. GONÇALVES, M.R. DA SILVA, M.A. ROSA, M. GODINHO, M. ALMEIDA, Development of a sputtering system for the deposition of U-containing films, *31<sup>èmes</sup> Journées des Actinides*, Saint-Malo, France, 26-28 April 2001, P38, poster.
  - M. A. ROSA, A. P. GONÇALVES, E. ALVES, M.R. DA SILVA, M. DIEGO, O. CONDE, M. GODINHO, M. ALMEIDA, Uranium films prepared by dc sputtering, *Physics of Magnetic Multilayers - Theory and Experiment, European Graduate School on Condensed Matter (EGSCM Prague '01)*, Prague, June 9-16, 2001, poster.
  - P. ESTRELA, A.de VISSER, F.R.de BOER, T. NAKA, L.C.J. PEREIRA, Pressure-Induced Recovery of the Fermi-Liquid Material  $\text{U}_2\text{Pt}_2\text{In}$ , *International Conference on Strongly Correlated Electron Systems, SCES'2001*, Ann Arbor, U.S.A., August 6-10, 2001, poster.
  - M. ALMEIDA, A. P. GONÇALVES, J.C. WAERENBORGH, G. BONFAIT, I. CATARINO, S. SÉRIO, C. CARDOSO, M. CRUZ, M. GODINHO, U/Y intermetallics with Fe derived from the  $\text{ThMn}_{12}$ -type structure, *Rare Earths 2001*, São Paulo, Brasil, 22-26 September 2001, invited oral.
  - M.R. SILVA, J.A. PAIXÃO, C. DETLEFS, A.P. GONÇALVES, M. GODINHO, Neutron and X-ray scattering studies of the magnetism in off-stoichiometry  $\text{ErFe}_4\text{Al}_8$ , *8<sup>th</sup> Workshop on Magnetism and Intermetallics*, Physics Department, Coimbra University, Coimbra, 17-18 October 2001, oral.
  - M. A. ROSA, M. DIEGO, E. B. LOPES, E. ALVES, N. P. BARRADAS, O. CONDE, M. GODINHO, M. ALMEIDA, A.P. GONÇALVES, Structural, magnetic and electrical transport characterisation of U/Co multilayers, *8<sup>th</sup> Workshop on Magnetism and Intermetallics*, Physics Department, Coimbra University, Coimbra, 17-18 October 2001, oral.
  - A.P. GONÇALVES, H. NOËL, J.C. WAERENBORGH, M. ALMEIDA, Crystallographic and magnetic properties of  $\text{UFe}_3\text{Al}_9$  and  $\text{UFe}_7\text{Al}_5$ , *8<sup>th</sup> Workshop on Magnetism and Intermetallics*, Physics Department, Coimbra University, Coimbra, 17-18 October 2001, oral.
  - J.C. WAERENBORGH, A.P. GONÇALVES, M. ALMEIDA, S. SÉRIO, C. CARDOSO, M.M. CRUZ, M. GODINHO, J.A. PAIXÃO, M.R. SILVA, Magnetism in  $\text{AFe}_x\text{Al}_{12-x}$  ( $\text{A} = \text{U}, \text{Y}; 4 \leq x \leq 6$ ) intermetallics, *8<sup>th</sup> Workshop on Magnetism and Intermetallics*, Physics Department, Coimbra University, Coimbra, 17-18 October 2001, oral.
  - J. C. WAERENBORGH, Espectroscopia de Mössbauer no estudo de cerâmicas arqueológicas, *Workshop Ciências Aplicadas à Arqueologia*. ITN, Sacavém, Portugal, 23 November 2001, oral.
  - A.P. GONÇALVES, H. NOËL, Study of the U-Fe-Al ternary system, *Actinides 2001*, Hayama, Japan, November 4-9, 2001, 7P02, poster.
  - I. HALEVY, S. SALHOV, G. KIMMEL, U. ATZMONY, L.C.J. PEREIRA, A.P. GONÇALVES, W. SCHÄFER, High pressure studies of  $\text{U}(\text{Fe}_x\text{Al}_{1-x})_{12}$  actinide compounds, *Actinides 2001*, Hayama, Japan, November 4-9, 2001, 2P22, poster.
  - A.P. GONÇALVES, M. DIEGO, E. ALVES, M.A. ROSA, O. CONDE, M. GODINHO, M. ALMEIDA, Preparation and study of U/Co multilayers, *Actinides 2001*, Hayama, Japan, November 4-9, 2001, 2004, oral.
  - S. RABAÇA, D. BELO, L.C.J. PEREIRA, M.T. DUARTE, V.GAMA, Magnetic Behavior of the Decamethylmetallocenium salts of Metal-bis-(trifluoromethyl)ethylenediselenates, *V Conferência de Química Inorgânica*, Monte Real, Portugal, April 6-7, 2001, p.17 PL6, invited oral.
  - S. RABAÇA, R. MEIRA, L.C.J. PEREIRA, M.T. DUARTE, V. GAMA, Síntese, Caracterização Magnética e Estrutural do Metamagneto  $[\text{Fe}(\text{Cp}^*)_2]\text{DMe-DCNQi}$ , *V Conferência de Química Inorgânica*, Monte Real, Portugal, April 6-7, 2001, p.91 P18, poster.
  - H. ALVES, D. SIMÃO, D. BELO, M.T. DUARTE, V. GAMA, H.M. NOVAIS, E.B. LOPES, R.T. HENRIQUES, M. ALMEIDA, Síntese e Propriedades Físicas de novos Complexos de Au e Ni com o Ligando Dicianobenzenoditiolato, *V Conferência de Química Inorgânica*, Monte Real, Portugal, April 6-7, 2001, p.157 P51, poster.

- I. C. SANTOS, D. BELO, E. B. LOPES, S. RABAÇA, V. GAMA, M. T. DUARTE, R. T. HENRIQUES, M. ALMEIDA, Structure and Properties of the New Compounds based on  $[\text{Ni}(\text{dcmp})_2]$ , *6th FIGIPS Meeting in Inorganic Chemistry*, Barcelona, Spain, July 15-20, 2001, p.162 PA050, poster.
  - F. M. FIGUEIREDO, C. GRANJA, V.V.KHARTON, J.C. WAERENBORGH, A.P. VISKUP, E.N. NAUMOVICH, J.R. FRADE, The Effect of Microstructure on the Oxygen Permeation of  $\text{CaTi}_{0.8}\text{Fe}_{0.2}\text{O}_{3-\delta}$ , *Vª Reunión Nacional de Electrocerámica*, Barcelona, Spain, May 31-June 1, 2001 poster.
  - H. ALVES, D. BELO, D. SIMÃO, H.M. NOVAIS, E.B. LOPES, V. GAMA, R.T. HENRIQUES, M.T. DUARTE, M. ALMEIDA, Au, Ni and Cu Bis-dicyanobenzenedithiolate Complexes, *6th FIGIPS Meeting in Inorganic Chemistry*, Barcelona, Spain, July 15-20, 2001, p.209 PA097, poster.
  - S. RABAÇA, R. MEIRA, L.C.J. PEREIRA, M.T. DUARTE, V. GAMA, Synthesis, Structural and Magnetic Characterization of  $[\text{Fe}(\text{Cp}^*)_2]\text{DR-DCNQI}$ , R = Me and Ph, *6th FIGIPS Meeting in Inorganic Chemistry*, Barcelona, Spain, July 15-20, 2001, p.274 PB062, poster.
  - S. RABAÇA, D. BELO, L.C.J. PEREIRA, M.T. DUARTE, V. GAMA, Magnetic Behavior of the Decametalocenium Salts of Metal Bis-(trifluoromethyl)ethylenediselenates, *6th FIGIPS Meeting in Inorganic Chemistry*, Barcelona, Spain, July 15-20, 2001, p.284 PB072, poster.
  - S. RABAÇA, D. BELO, M.T. DUARTE, I.C. SANTOS, V. GAMA, Crystal Structure and Magnetic Behavior of  $[\text{M}(\text{C}_5\text{Me}_5)][\text{Ni}(\alpha\text{-tpdt})_2]$  (M = Co, Fe, Cr) Electron Transfer Salts, *20th European Crystallographic Meeting*, Krakow, Polónia, August 25-31, 2001, oral.
  - M. ALMEIDA, H. ALVES, D. BELO, I. C. SANTOS, E. B. LOPES, V. GAMA, R.T. HENRIQUES, D. SIMÃO, H. NOVAIS, M.T. DUARTE, A. PÉREZ-BENÍTEZ, C. ROVIRA, J. VECIANA, New Metal Bis-dithiolene Type Complexes for Conducting and Magnetic Materials, *The 56th Yamada Conference The Fourth International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, u/SCOM2001*, Hokkaido, Japan, September 10-14, 2001, abstract S59, p.39, oral.
  - E. B. LOPES, H. ALVES, R. T. HENRIQUES, M. ALMEIDA, E. RIBERA, M. MAS-TORRENT, E. CANNADELL, E. MOLINS, J. VECIANA, C. ROVIRA, P. AUBIN SENZIER, D. JEROME,  $(\text{TTDM-TTF})_2 [\text{Au}(\text{mnt})_2]$ ; an extreme one dimensional system, *Yamada Conference LVI, the Fourth International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets ISCOM 2001*, abstract F1Mon p.102, poster.
  - C. ROVIRA, E. RIBERA, A. PÉREZ-BENITEZ, S. L. LE MUSTARDER, M- MAS, E. MOLINS, E. CANNADELL, J. VECIANA, R. HENRIQUES, M. ALMEIDA, H. ALVES, J. C. DIAS, J.-P. POUGET, P. AUBIN-SENZIER, D. JEROME, K. WURST, Strategies to construct Spin-ladders using TTF derivatives as molecular building blocks, Yamada Conference LVI, the Fourth International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets ISCOM 2001, abstract S49, p. 33.
  - M. ALMEIDA, A. P. GONÇALVES, J. C. WAERENBORGH, G. BONFAIT, I. CATARINO, S. SÉRIO, C. CARDOSO, M. GODINHO, U/Y intermetallics with Fe derived from the  $\text{ThMn}_{12}$ -type structure, *Reare Earths'2001*, 22-26 September 2001, Campos do Jordão, Brazil, abstract IL13, p. 43. invited oral.
  - B. VENGALIS, V. PLAUŠINAITIENĖ<sup>1</sup>, A. ABRUTIS, Z. ŠALTYTĖ, R. BUTKUTĖ, V. PETRAUSKAS, J. MARIA, G. BONFAIT, Transverse and longitudinal electrical transport properties in HTS/I/FM and HTS/FM Heterostructures, Poster
  - G. BONFAIT, A. CASACA, V. GALINDO, J. P. SENATEUR, D. FEINBERG, 3D anisotropic scaling in  $\text{YBaCuO}/\text{PrBaCuO}$  multilayers probed by Magnetoresistance, *Transport and Dynamics in Complex Systems*, Porto, Portugal September 2001. Invited oral.
- Other publications**
- A.P. GONÇALVES, M. ALMEIDA, A importância dos compostos intermetálicos de urânio para a Ciência, *Química*, nº 81, April-June, 29-40, 2001.
- Theses**
- PhD**
- I. C. SANTOS, *Caracterização Estrutural de Sólidos Moleculares; Relação entre estrutura e propriedades eléctricas e magnéticas*, Universidade Técnica de Lisboa, Janeiro de 2001. Supervisores, M. Almeida e M. T. Duarte.
  - M. J. MATOS, *Estudo de Soluções Sólidas de  $(\text{Per})_2 \text{Pt}_x\text{Au}_{1-x}(\text{mnt})_2$* , Universidade Técnica de Lisboa, Março de 2001, Supervisor, R. T. Henriques
- Graduation**
- JOANA MARIA, *Caracterização de Óxidos condutores sob campos magnéticos intensos*, Instituto Tecnológico e Nuclear/ Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa. Supervisor: G. Bonfait

## Nuclear Instruments and Methods

### Journals

#### Published

- I.F. GONÇALVES, E. MARTINHO, J. SALGADO, Monte Carlo calculation of epithermal neutron resonance self-shielding factors in wires of different materials, *Applied radiation and Isotopes*, **55/4** (2001) 447-451.
- I.F. GONÇALVES, E. MARTINHO, J. SALGADO, Monte Carlo calculation calculation of resonance self-shielding factors for epithermal neutron spectra varying as  $E^{-(1-\alpha)}$ , *Radiation Physics and Chemistry*, **61/3-6** (2001) 461-462.
- C. OLIVEIRA, J. SALGADO, Isodose distributions and dose uniformity in the Portuguese Gamma Irradiation Facility calculated using the MCNP code, *Radiation Physics and Chemistry*, **61/3-6** (2001) 791-793.
- N. R. PINHÃO, *PLASMAKIN*: A chemical kinetics library for plasma physics modeling, *Computer Physics Communications* **135** (2001) 105-131
- A. D. SEQUEIRA, N. FRANCO, J. NEVES, High-resolution and high-temperature X-ray Diffractometer for in-situ studies – the Hotbird, *Mat. Sci. Forum* **378-381** (2001) 206-211.

#### Accepted for publication or in press

- I.F. GONÇALVES, E. MARTINHO, J. SALGADO, Monte Carlo calculation of epithermal neutron resonance self-shielding factors in foils of different materials, *Applied radiation and Isotopes* (in press).
- C. OLIVEIRA, L.M. FERREIRA, I.F. GONÇALVES and J. SALGADO. Monte Carlo optimisation of the irradiator geometry of the Portuguese Gamma Irradiation Facility. *Appl. Radiat. Isot.*
- L.M. FERREIRA, M.H. CASIMIRO, C. OLIVEIRA, M.E. CABEÇO SILVA, M.J. MARQUES ABREU AND A. COELHO. Thermal Analysis Evaluation of Mechanical Properties Changes Promoted by Gamma Radiation in Surgical Polymeric Textiles. NIM-B.
- L.M. REDONDO, N. PINHÃO, E. MARGATO, J. FERNANDO SILVA, Progress on high-voltage pulse generators, using low voltage semiconductors (<1kV), designed for Plasma Immersion Ion Implantation (PIII), *Surface and Coatings Technology*.

### Conference Proceedings

#### Published

- C. OLIVEIRA, L. FERREIRA, J. SALGADO, Monte Carlo studies of the Portuguese Gamma Irradiation Facility: The irradiator geometry and its influence on process parameters, *Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications*, ed. A. Kling et al., Lisbon (2001) 497-502.
- I. F. GONÇALVES, A.G. RAMALHO, I.C. GONÇALVES, J. SALGADO, MCNP calculations for the shielding design of a beam tube to be installed at the Portuguese Research Reactor, *Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications*, ed. A. Kling et al., Lisbon (2001) 755-759.
- A. TRINDADE, P. RODRIGUES, C. ALVES, A. CHAVES, M.C. LOPES, C. OLIVEIRA AND L. PERALTA. Monte Carlo Simulations of electron beams for radiotherapy – EGS4, MCNP4b and Geant3 intercomparison. MC2000 – *Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications*, ed. A. Kling et al., Lisbon (2001) 311
- A. RAMALHO, I.F. GONÇALVES, I.C. GONÇALVES, J. CASTRO, A.F.P. FERNANDES, Preparation of a beam tube of the Portuguese Research Reactor to be used in BNCT and other activities, *Frontiers in Neutron Therapy*, ed. M.F. Hawthorne et al., Kluwer Academic Press/Plenum Publishers, New York **1** (2001) 307-311.

#### Accepted for publication or in press

- C. ALVES, M.C. LOPES, A. CHAVES, L. PERALTA, P. RODRIGUES, A. TRINDADE AND C. OLIVEIRA. Buildup measurements and calculations for photon beams – search of the effective point of measurement for pinpoint and Markus chambers. *Physica Medica. Proceedings MeRPE-2000*.
- JI COLLAR, D. LIMAGNE, T. MORLAT, J. PUIBASSET, G. WAYSAND, HS MILEY, TA GIRARD, F. GIULIANI, C. OLIVEIRA, J.G. MARQUES AND F. D'ERRICO, SIMPLE: Present Status and Improvements. in *Proc. XIIIeme Rencontres de Blois: Frontieres of the Universe* (in press).

- T.A GIRARD, P. VALKO, M.R. GOMES, C. OLIVEIRA, G. JUNG AND V. JEUDY, 109Cd Irradiation of a Metastable Sn Foil in Proc. Particle Detection & Metastable Superconductivity, ed. TA Girard, M.R. Gomes, P. Valko (in press).

### Comunications

- C. OLIVEIRA, I.F. GONÇALVES, L. FERREIRA, J. SALGADO, Screening effects of steady irradiation in the routine process: Monte Carlo studies in the Portuguese Gamma Irradiation Facility, XII International Meeting on Radiation Processing, Avignon, France, Mars 25-30 2001.
- L.M. REDONDO, N. PINHÃO, E. MARGATO, J. FERNANDO SILVA, Progress on high-voltage pulse generators, using low voltage semiconductors (<1kV), designed for Plasma Immersion Ion Implantation (PIII), 6th International Workshop in PBII 2001, Grenoble, France, June 26-28 2001, (Oral)
- A. CHAVES, M.C. LOPES, C. OLIVEIRA, L. PERALTA, P. RODRIGUES AND A. TRINDADE Monte Carlo Simulation of Radiosurgery Photon Beams. Bio'Eng 01. Faro. Portugal. 2001. (Oral)
- M.E. CABEÇO SILVA, C. OLIVEIRA, M.J. MARQUES ABREU, A. COELHO, I.F. GONÇALVES, L.M. FERREIRA. The impact of gamma irradiation over the properties of disposal surgical clothing. 12th International Meeting on Radiation Processing. 25-30 March 2001, Avignon, France. (Poster).
- L. PERALTA, P. RODRIGUES, A. TRINDADE, M.C. LOPES, C. ALVES, A. CHAVES AND C. OLIVEIRA. Treatment planning verification by means of a Monte Carlo dose calculation engine. 6th Biennial ESTRO Meeting on Physics for Clinical Radiotherapy. 17-20 Sept. Sevilla. Espanha. 2001. (Oral).
- A. TRINDADE, C. ALVES, A. CHAVES, M.C. LOPES, C. OLIVEIRA, L. PERALTA, P. RODRIGUES AND R. PAIVA. Influence of Air Gaps on electron Dose Calculations. 6th Biennial ESTRO Meeting on Physics for Clinical Radiotherapy. 17-20 Sept. Sevilla. Espanha. 2001. (Oral).
- L.M. FERREIRA, M.H. CASIMIRO, C. OLIVEIRA, M.E. CABEÇO SILVA, M.J. MARQUES ABREU AND A. COELHO. Thermal Analysis Evaluation of Mechanical Properties Changes Promoted by Gamma Radiation in Surgical Polymeric Textiles. 11th International Conference on Radiation Effects

in Insulators REI-11. 3-7 Sept. Lisbon. Portugal. 2001. (Oral).

- J. AMBRÓSIO, A. TRINDADE, C. ALVES, A. CHAVES, M.C. LOPES, C. OLIVEIRA, L. PERALTA AND P. RODRIGUES. Design and Simulation of Irregular Frames for Electron Radiotherapy Treatment. 6th Biennial ESTRO Meeting on Physics for Clinical Radiotherapy. 17-20 Sept. Sevilla. Espanha. 2001. (Poster).

### Internal Reports

- E. MARTINHO, I.F. GONÇALVES, J. SALGADO, Curva universal do factor de autoprotecção de ressonâncias isoladas referente a amostras com geometrias diversas (fios folhas e esferas), Internal Report ITN/RPI-R-01/62, Sacavém (2001) (in portuguese).

### Other publications

- J. SALGADO, Radiations in everyday life and environment. Lectures MSc Course, Faculty of Sciences, University of Lisbon (2001).
- N. R. PINHÃO, PLASMAKIN Manual, CPC International Program Library, catalogue Id: ADNH
- M.E. CABEÇO SILVA, M.J. MARQUES ABREU, A. COELHO, C. OLIVEIRA and L. M. FERREIRA. 2º Relatório de Execução Material do Projecto Steritex (Influência da Esterilização nas Propriedades e Desempenho de Materiais e Produtos de Protecção Hospitalar Descartáveis). Abril 2001.
- M.E. CABEÇO SILVA, M.J. MARQUES ABREU, A. COELHO, C. OLIVEIRA and L. M. FERREIRA. 3º Relatório de Execução Material do Projecto Steritex (Influência da Esterilização nas Propriedades e Desempenho de Materiais e Produtos de Protecção Hospitalar Descartáveis). Novembro 2001.

### Theses

#### Graduation

- MARISA S. SILVA  
Aplicação de um algoritmo genético à determinação de secções eficazes de colisão  
Universidade Nova de Lisboa  
Co-supervisor: N.R. PINHÃO
- PEDRO PEREIRA  
Automatização dos sistemas de ventilação e refrigeração da Unidade de Tecnologias de Radiação  
Universidade Lusófona, Lisboa  
Co-supervisor: CARLOS CRUZ

## Radiation Technologies: Processes and Products

### Journals

#### Published

- C. OLIVEIRA, J. SALGADO, M. LUISA BOTELHO, L. M. FERREIRA (2001) *Application for irradiation process planning at portuguese Gamma Irradiation Facility*. Applied Radiation and Isotopes 4 (4/2), 1-9.

#### Accepted for publication or in press

- L.M.FERREIRA, M.H.CASIMIRO, C.OLIVEIRA, M.E.CABEÇO SILVA, M.J.MARQUES ABREU and A.COELHO. Thermal Analysis Evaluation of Medical Propertis Changes Promoved by Gamma Radiation in Surgical Polymeric Textiles *Nuc.Inst. Methods B*, (2001) In press.
- A.N. FALCÃO, J. SANTOS SOUSA, F.M.A. MARGAÇA, L. M. FERREIRA, F.G. CARVALHO, I.M. MIRANDA SALVADO, and J.TEIXEIRA, Investigation of organic-inorganic materials prepared by irradiation, *J. Sol-Gel Sci. and Tech.* (2002) In press.

### Conference Proceedings

- H. CASIMIRO, M.H.GIL. Graft Copolymerisation of Acrylic Acid onto Chitosan by Gamma Radiation, *Proceedings of 11<sup>th</sup> International Conference on Radiation Effects in Insulators*, Lisbon, Portugal September 2001.
- R. RIBEIRO, S.CABO VERDE, M.L. BOTELHO, Estudo da cinética de crescimento e Inativação de uma estirpe Contaminante de um produto farmacêutico, *2<sup>as</sup> Jornadas da Sociedade Portuguesa de Ciências Farmacêuticas*, Lisbon March 16 2001.
- M.L. BOTELHO, A.M. BAPTISTA, S. CABO VERDE, F. ÁGUAS, R. RIBEIRO, F. RUSSO, Estudo da Viabilidade de Esterilização por Radiação  $\gamma$  da Pomada Oftálmica Terricil-Seleção de Dose de Esterilização, *2<sup>as</sup> Jornadas da Sociedade Portuguesa de Ciências Farmacêuticas*, Lisbon March 16, 2001.
- S. CABO VERDE, M. L. BOTELHO, R. TENREIRO, Avaliação da carga microbiana de ovos de galinhas de diferentes classes etárias, Congresso Nacional de Microbiologia, Póvoa de Varzim December 2001.
- M.F.A PROENÇA, R. MÁRCIA, M.L. BOTELHO, O Efeito da Radiação  $\gamma$  na Actividade da Oxitetraclina: Contributo para o Estudo da Viabilidade de Esterilização por Raios  $\gamma$  da Pomada

Oftálmica, *2<sup>as</sup> Jornadas da Sociedade Portuguesa de Ciências Farmacêuticas*, Lisbon March 16, 2001.

### Comunications

- M. J. TRIGO, E.S. FERREIRA, M. M. SAPATA, M. B. SOUSA, T. CURADO, L. ANDRADA, A. FERREIRA, M. L. BOTELHO, G. VELOSO, Improving Quality and Safety of Minimally Processed Fruits and Vegetables by Gamma Irradiation on Use of Irradiation To Ensure Hygienic Quality Of Fresh, Pre-Cut Fruits And Vegetables And Other Minimally *Processed Food Of Plant Origin*, Brasil November 2001.
- M.L.BOTELHO, R. RIBEIRO, R. CORDEIRO, S. CABO VERDE, M.H. CASIMIRO, M.G. VENTURA, C. MUSTRA, M.C. FREITAS, M.H.GIL and RUBA ZEINOU, Treatment of WastWater by Gamma Radiation – a case study - IAEA/RER Istanbul/Turkey, November, 2001.

### Internal Reports

- M.L.BOTELHO, N.A. SAN, C.M. FLDVÁRY and ROBERT KOCJANCIC, Studies on Radiation Induced Degradation of Chloroorganic Pollutants in WasteWater, IAEA Vienna/Austria, September 1, 2001.
- M.L.BOTELHO, R. RIBEIRO, R. CORDEIRO, S. CABO VERDE, M.H. CASIMIRO, M.G. VENTURA, C. MUSTRA, M.C. FREITAS, M.H.GIL and RUBA ZEINOU, Treatment of WastWater by Gamma Radiation – a case study - presented at IAEA/RER Istanbul/Turkey, November, 2001.
- RUBA ZEINOU, Studies on Microbial Inactivation by Gamma Radiation ( $\gamma$  and UV) On Wastewater, Fellowship Code N° SYR/00002P, IAEA project N° SYR/8/009, Jan-May 2001.

### Theses

#### Graduation

- PEDRO A. BASTOS PEREIRA  
Automatização dos Sistemas de Ventilação e Refrigeração da Unidade de Tecnologias de Radiação, Universidade Lusófona de Humanidades e Tecnologias, September 2001.  
Supervisor: CARLOS M. CRUZ.
- R. CORDEIRO  
Efeito da Radiação Gama em efluentes, Escola Superior Agrária de Santarem, November 2001.  
Supervisor: M.L. BOTELHO.

