

# Nuclear Engineering

## Books

OLIVEIRA, J., MARTINHO, E., Nuclear Energy Myths and Facts (in Portuguese), O Mirante (ed.), October 2000, 200 p.

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

## Journals

### Published

FERNANDES, A.P., OLIVEIRA, N.G., CASTRO, M.C., GONÇALVES, I.C., RAMALHO, A.J.G., RUEFF, J., RICO, J.M.TOSCANO, Boron Neutron Capture Therapy (BNCT) in Metastatic Melanoma, *Skin Cancer* 15 (2) (2000) 109-110.

## Conference Proceedings

### Published

AGAPITO, J.A., BARRADAS, N., CARDEIRA, F.M., CASAS, J., FERNANDES, A.C., FRANCO, F.J., GOMES, P., GONÇALVES, I.C., CACHERO, A.H., LOZANO, J., MARTIN, M.A., MARQUES, J.G., PAZ, A., PRATA, M.J., RAMALHO, A.J.G., RODRIGUEZ, M.A.R., SANTOS, J.P., VIEIRA, A. Instrumentation Amplifiers and Voltage Controlled Current Sources for LHC Cryogenic Instrumentation, *Proceedings of the 6<sup>th</sup> Workshop on Electronics for LHC experiments* (2000).

GONÇALVES, I.C., RAMALHO, A.J.G., GONÇALVES, I.F., SALGADO, J., FERNANDES, A.C.F., CASTRO, M., OLIVEIRA, N., RUEFF, J., BNCT Activities at the Portuguese Research Reactor, *Proceedings of the IAEA International Symposium on Research Reactor Utilization, Safety and Management - IAEA-SM-360/5* (2000).

MARQUES, J.G., RAMALHO, A.J.G., Operating and Maintenance Experience of the C&I of the Portuguese Research Reactor, *Proceedings of the International Conference on Control and Instrumentation in Nuclear Installations - Bristol, 2000*, The Institution of Nuclear Engineers, London, 2000.

RAMALHO, A.J.G., MARQUES, J.G., CARDEIRA, F.M., Return of Spent Fuel from the Portuguese Research Reactor, *Proceedings of the 4<sup>th</sup> International Meeting on Research Reactor Fuel Management*, European Nuclear Society, Berne, Colmar, 2000, pp. 75-79.

RAMALHO, A.J.G., MARQUES, J.G., GONÇALVES, I.C., FERNANDES, A.C., GONÇALVES, I.F., VIEIRA, A., PRATA, M.J., Use of RPI to Test the Behaviour

under Irradiation of Electronic Circuits and Components for CERN, *Proceedings of the IAEA International Symposium on Research Reactor Utilization, Safety and Management*, Lisboa - IAEA-SM-360/17P (2000).

RAMALHO, A.J.G., MARQUES, J.G., CARDEIRA, F.M., The Portuguese Research Reactor: A Tool for the Next Century, *Proceedings of the International Symposium on Research Reactor Utilization, Safety and Management*, IAEA-SM-360/5 (2000).

RAMALHO, A.J.G., MARQUES, J.G., CARDEIRA, F.M., Some Aspects of the Fuel Management in the Portuguese Research Reactor, *Proceedings of the International Symposium on Research Reactor Utilization, Safety and Management*, IAEA-SM-360/40P (2000).

### Accepted for publication or in press

BARRADAS, N.P., JEYNES, C., WEBB, R.P., WENDLER, E., Determination of Stopping Power of Ions in Matter, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000, eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

FERNANDES, A., VIEIRA, A., GONÇALVES, I.C., RAMALHO, A., Monte Carlo Characterisation of the Radiation Field in the Thermal Column of the Portuguese Research Reactor, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000, eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

KLING, A., MARQUES, J.G., RAMALHO, A.J.G., Monte Carlo Simulations for the Estimation of Dose Rates During Handling of Spent Fuel at the Portuguese Research Reactor, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000, eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

VIEIRA, A., RAMALHO, A.J.G., FERNANDES, A.P., BARRADAS, N.P., GONÇALVES, I.C., MARQUES, J.G., PRATA, J., CHAUSSY, C., Monte Carlo Calculations for Neutron and Gamma Radiation Fields on a Fast Neutron Irradiation Device, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000, eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

## Comunications

IRLES, A., GONÇALVES, I.C., LOPES, M.C., FERNANDES, A.C., RAMALHO, A.G., PERTUSA, J., A Biological Study on the effects of High and Low Radiations Following Boron Neutron Capture Reaction at RPI, *Topical Meeting on Medical Radiation Physics and Engineering - TM-MERPE2000*, Fundação Calouste Gulbenkian, Lisbon, 20-22 November 2000. (poster)

OLIVEIRA, N.G., CASTRO, M., GONÇALVES, I.C., RODRIGUES, A.S., CASSAPO, R., CHAVECA, T., FERNANDES, A.C., VALE, F.M., RAMALHO, A.J.G., RICO, J.M.TOSCANO, RUEFF, J., The Contribution of Physics, Chemistry and Biology for the Treatment of Malignant Melanoma: Boron Neutron Capture Therapy (BNCT), Abstracts of *XVII Encontro Nacional da SPQ*, Lisboa, 2000, pp.31. (poster)

OLIVEIRA, N.G., CASTRO, M.C., RODRIGUES, A.S., GONÇALVES, I.C., CASSAPO, R., FERNANDES, A.P., VALE, F.M., CHAVECA, T., RAMALHO, A.J.G., RICO, J.M.TOSCANO, RUEFF, J., Genotoxic effects of Boron Neutron Capture Reaction in human melanoma cells, *Ninth*

*International Symposium on Neutron Capture Therapy for Cancer*, Osaka, Japan (2000) pp.209-210. (poster)

RAMALHO, A.J.G., GONÇALVES, I.C., MARQUES, J.G., GONÇALVES, I.F., FERNANDES, A.C., PRATA, M.J., VIEIRA, A., CHAUSSY, C., CARDEIRA, F., BARRADAS, N., Utilização de Feixes de Neutrões no Reactor Português de Investigação, *XII National Physics Conference - "FISICA 2000"*, Figueira da Foz, Sept. 2000, pp.379-380. (oral)

## Internal Reports

BARRADAS, N., CARDEIRA, F., FERNANDES, A.C., GONÇALCES, I.C., MARQUES, J.G., RAMALHO, A.J.G., Neutronics Study of Core 2 of the Portuguese Research Reactor, *ITN/RPI-R-00/57*.

BARRADAS, N., Programs CYLINDER\_HEAT, ABSORBED\_DOSE and AQAM - Stationary Heat Conduction Through a Series of Concentric Cylindrical Layers with Internal Heat Generation by Gamma Absorption in the Portuguese Research Reactor (RPI); *ITN/RPI-R-00/60*.

MARTINHO, E., Cálculo da Actividade de uma Amostra Irradiada num Reactor Nuclear em Regime Descontínuo de Operação, *ITN/RPI-R-2000/58*.

MARTINHO, E., SALGADO, J., GONÇALVES, I.F., Cálculo de Doses Absorvidas por Amostras Irradiadas no Interior de um Cilindro Oco em Chumbo num Reactor Nuclear do Tipo Piscina, *ITN/RPI-R-2000/55*.

# ◆Applied Dynamics

## Journals

### Published

ANTUNES, J., TAFASCA, M., BORSOI, L., Simulation des Régimes Vibratoires Non-linéaires d'une Corde de Violon, *Revue Française de Mécanique*, Septembre 2000, pp. 193-202.

MOREIRA, M., ANTUNES, J., PINA, H., A Theoretical Model for Nonlinear Orbital Motions of Rotors Under Fluid Confinement, *Journal of Fluids and Structures* **14** (2000) 635-668.

MOREIRA, M., TISSOT, A., ANTUNES, J., Experimental Validation of Theoretical Models for the Linear and Nonlinear Vibrations of Immersed Rotors, *International Journal of Rotating Machinery* **7** (2000) 1-14.

### Accepted for publication or in press

ANTUNES, J., IZQUIERDO, P., PAULINO, M., Blind Identification of Impact Forces from Multiple Measurements, accepted for publication in *International Journal of Nonlinear Science and Numerical Simulation*.

MOREIRA, M., ANTUNES, J., PINA, H., A Symbolic-Numerical Method for Nonlinear Rotor Dynamics Under Fluid Confinement, accepted for publication in *International Journal of Nonlinear Science and Numerical Simulation*.

MOREIRA, M., ANTUNES, J., PINA, H., An Improved Model for Rotors Subject to Dissipative Annular Flows, accepted for publication in *Journal of Fluids and Structures*.

## Communications

ANTUNES, J., IZQUIERDO, P., PAULINO, M., Blind Identification of Impact Forces from Multiple Measurements, *ASME International Mechanical Engineering Congress*, Orlando, November 5-10, 2000.

ANTUNES, J., TAFASCA, M., BORSOI, L., Simulation des Régimes Vibratoires Non-linéaires d'une Corde de Violon, *Symposium sur Analyse Vibratoire Non-Linéaire sur Base Modale*, Paris, 25-26 Janvier 2000.

ANTUNES, J., TAFASCA, M., HENRIQUE, L., Simulation of the Bowed-String Dynamics: Part 1 – A Nonlinear Modal Approach, *5ème Conférence Française d'Acoustique (CFA 2000)*, Lausanne, 3-7 Septembre 2000.

MOREIRA, M., ANTUNES, J., PINA, H., A Symbolic-Numerical Method for Nonlinear Rotor Dynamics Under Fluid Confinement, *ASME International Mechanical Engineering Congress*, Orlando, November 5-10, 2000.

MOREIRA, M., TISSOT, A., ANTUNES, J., Experimental Validation of Theoretical Models for the Linear and Nonlinear Vibrations of Immersed Rotors, *8th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-8)*, Honolulu, March 26-30, 2000.

TAFASCA, M., ANTUNES, J., HENRIQUE, L., Simulation of the Bowed-String Dynamics: Part 2 – Parametric Computations", *5ème Conférence Française d'Acoustique (CFA 2000)*, Lausanne, 3-7 Septembre 2000.

## Internal Reports

ANTUNES, J., PAULINO, M., Optimal Balancing of Flexible Rotors: 1 - Theoretical Analysis Using the Method of Influence Coefficients and Some Important Generalisations, *ITN/ADL Report*, December 2000.

ANTUNES, J., PAULINO, M., Optimal Balancing of Flexible Rotors: 3 - Theoretical Development of a New Optimised Modal Method, *ITN/ADL Report*, December 2000.

MOREIRA, M., SAMPAIO, R., ANTUNES, J., Design of a Tuned Shaker for High-Amplitude Motions, *ITN/ADL Report*, November 2000.

PAULINO, M., ANTUNES, J., SOARES, J., Optimal Balancing of Flexible Rotors: 2 – Experimental Laboratory Validation of Methods Based on Influence Coefficients, *ITN/ADL Report*, December 2000.

SAMPAIO, R., ANTUNES, J., Vibratory Experiments on ADL/PRAXIS Test Model, *ITN/ADL Report*, March 2000.

# Industrial Technologies

## ◆ Nuclear Instruments and Methods

### Journals

#### Published

BOGAERTS A., DONKÓ Z., KUTASI K., BÁNÓ G., PINHÃO N., PINHEIRO M., Comparison of Calculated and Measured Optical Emission Intensities in a Direct Current Argon-Copper Glow Discharge, *Spectrochimica Acta, part B* **55** (2000) 1465-1479.

GOMES, M.J., GIRARD, T.A., OLIVEIRA, C., JEUDY, V., LIMAGE, D., A Superconductive Measurement of the  $^{187}\text{Re}$  Beta Decay Spectrum, *Nucl. Instr. and Meth. A* **444** (1) (2000) 84-87.

GOMES, M.R., GIRARD, T.A., OLIVEIRA, C., JEUDY, V. AND LIMAGNE, D., A Superconductive Measurement of the  $^{187}\text{Re}$  Beta Decay Spectrum: Preliminary Results, *Nucl. Phys. B Proc. Suppl.* **87** (2000) 493-394.

GONÇALVES, I.OF., MARTINHO, E., SALGADO, J., Monte Carlo Calculation of Gamma Spectra Inside a Lead Hollow Cylinder, *Kerntechnik* **65** (5-6) (2000) 236-239.

OLIVEIRA, C., GONÇALVES, I.F., CHAVES, A., LOPES, M.C., TEIXEIRA, N., MATOS, B., GONÇALVES, I.C., RAMALHO, A., SALGADO, J., Monte Carlo Method Applied to Medical Physics, *Radioprotecção* **1** (6-7) (2000) 37-42.

OLIVEIRA, C., SALGADO, J., CARVALHO, A.F., Dose Rate Determinations in the Portuguese Gamma Irradiation Facility: Monte Carlo Simulations and Measurements, *Appl. Radiat. Isot.* **58** (3) (2000) 279-285.

OLIVEIRA, C., SALGADO, J., LUISA BOTELHO, M. AND FERREIRA, L.M., Monte Carlo Studies for Irradiation Process Planning at the Portuguese Gamma Irradiation Facility, *Appl. Radiat. Isot.* **53** (4-5) (2000) 867-875.

OLIVEIRA, C., SALGADO, J., BOTELHO, M.L., FERREIRA, L.M., Dose Determination by Monte Carlo – a Useful Tool in Gamma Radiation Process, *Appl. Radiat. Isot.* **57** (3-6) (2000) 667-670.

#### Accepted for publication or in press

CHAVES, A., LOPES, M.C., OLIVEIRA, C., Monte Carlo Simulation Applied to Radiosurgery Narrow Beams using MCNP-4C Code, *Radioprotecção* **1** (8-9), in press.

GONÇALVES, I.F., MARTINHO, E., SALGADO, J., Monte Carlo Calculation of Resonance Self-shielding Factors for Epithermal Neutron Spectra, *Radiation Physics and Chemistry*, in press.

OLIVEIRA, C., SALGADO, J., Isodose Distributions and Dose Uniformity in the Portuguese Gamma Irradiation Facility Calculated using the MCNP Code, *Appl. Radiat. Isot.*, in press.

PINHÃO, N., PLASMAKIN: A Chemical Kinetics Package for Plasma Physics Modelling, *Computer Physics Communications*, in press.

### Books and Book Chapters

CHARBUNCINSKI, J., WATT, J. S., CASTAGNET, A. C., LIYE, Z., TOLA, F., BOUTAINE, J. L., TOMINAGA, H., SCHEERS, M., WALLACE, G., URBANSKI, P., SALGADO, J., FEDORKOV, F. G., GARDNER, R.P., MINGAY, D.W., WHEATLEY, J. AND THERESKA, J., Emerging new applications of nucleonic control systems in industry, IAEA-TECDOC-1142 (2000).

OLIVEIRA, C., SALGADO, J., CARVALHO, F.G., Prompt Gamma Neutron Activation Analysis (PGNAA), Encyclopaedia of Analytical Chemistry. Ed. R.A. Meyers, John Wiley & Sons Ltd, Chichester. (2000), pp. 12740-12762.

SALGADO, J., CARVALHO F.G., MANTEIGAS, J., OLIVEIRA, C., GONÇALVES, I.F., NEVES, J., CRUZ, C., Current Status of Nucleonic gauges in Portugal, Advisory Group Meeting on Emerging New Applications of NCS in Industry, in Emerging new applications of nucleonic control systems in industry, IAEA - TECDOC - 1142 (2000), pp. 155-168.

### Conference Proceedings

#### Published

BOGAERTS A., DONKÓ Z., KUTASI K., BÁNÓ G., PINHÃO N., PINHEIRO M., Comparison of Calculated and Measured Optical Emission Intensities in a Direct Current Argon-Copper Glow Discharge, XV<sup>th</sup> ESCAMPIG: Abstract of Invited Lectures and Contributed Papers (2000) 200-201.

FRAGOSO, M., CHAVES, A., ALVES, C., LOPES, M. C., OLIVEIRA, C., PERALTA, L., SECO, J., MC Simulation of a Linear Accelerator Treatment Head - EGS4 and MCNP-4B Intercomparison, *Proc. 8<sup>th</sup> Int. Conf. on Calorimetry in High Energy Physics*, eds. G. Barreira B. Tomé, A. Gomes, A. Maio, and M.J. Varanda, World Scientific, 2000, pp. 697-702.

GOMES, M.R., GIRARD T.A., OLIVEIRA, C. AND JEUDY V., Particle Detection with Geometrically-Metastable Type-I Superconductors, *Applied Superconductivity* 1999, eds. X. Obradors, F. Sandiumenge and J. Fonteuberta, IOP Publishing, Bristol, (2000) pp. 691.

PINHÃO, N., DONKÓ, Z., LOFFHAGEN, D., PINHEIRO, M., RICHLEY, E.A., Comparison of Monte Carlo and Electron Boltzmann Equation Methods at Low and Moderate E/N Field Values, *XVth ESCAMPIG*: Abstract of Invited Lectures and Contributed Papers (2000) pp. 156-157.

PINHÃO, N., *PLASMAKIN*: A Chemical Kinetics Package for Plasma Physics Modelling, *XV<sup>th</sup> ESCAMPIG*: Abstract of Invited Lectures and Contributed Papers (2000) pp. 44-45.

GOMES, M.J., GIRARD, T.A., OLIVEIRA, C., JEUDY, V., Particle Detection with Geometrically-Metastable type I Superconducting Detectors, *Proceedings of the Applied Superconductivity*, Spain, 14-17 September 1999, *Inst. Phys. Conf. Ser. n°. 167* (2000) 691-694.

GOMES, M.J., GIRARD, T.A., OLIVEIRA, C., JEUDY, V., Measurements of the  $^{187}\text{Re}$  Beta Decay Spectrum with a Geometrically-Metastable Superconducting Detector, *Proc. 8<sup>th</sup> Int. Conf. on Calorimetry in High Energy Physics*, eds. G. Barreira, B. Tomé, A. Gomes, A. Maio and M.J. Varanda, World Scientific, Singapore, 2000, pp. 753.

### *Accepted for publication or in press*

CHAVES TRINDADE, A., RODRIGUES, P., ALVES, C., CHAVES, A., LOPES, M.C., OLIVEIRA, PERALTA, L., Monte Carlo Simulations of Electron Beams for Radiotherapy – EGS4, MCNP4b and Geant3 Intercomparison, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000, eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

GIRARD, T.A., VALKO, P., GOMES, M.R., OLIVEIRA, C., Direct Neutrino Mass Measurement with a Superconductive Detector, *Proc. Carolina Symposium on Neutrino Physics*, 12-14 March 2000, Columbia, SC USA, in press.

GONÇALVES, I.F., RAMALHO, A.G., GONÇALVES, I.C., SALGADO, J., MCNP Calculations for the Shielding Design of a Beam Tube to be Installed at the Portuguese Research Reactor, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000,

eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

OLIVEIRA, C., FERREIRA, L.M. SALGADO, J. Monte Carlo Studies of the Portuguese Gamma Irradiation Facility. The Irradiator Geometry and its Influence on Process Parameters, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications, MC2000*, Lisbon, 23-26 Oct. 2000, eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

VALKO, P., GOMES, M. R., GIRARD, T. A., OLIVEIRA, C., Measurements of the  $^{187}\text{Re}$  Beta Spectrum, *Proc. International Workshop on Non-Accelerator New Physics in Neutrino Observations* Dubna Russia, 19-22 July 2000, in press.

### **Communications**

ALVES, C., CHAVES, A., FRAGOSO, LOPES, M., C., LOURENÇO, L., OLIVEIRA C., PERALTA, L., RODRIGUES, P., SECO, J., AND TRINDADE, A., Simulação Monte Carlo em Radioterapia Externa 12<sup>a</sup> Conf. Nac. de Física, Figueira da Foz, 2000.

ALVES, C., LOPES, M.C. CHAVES, A., PERALTA, L., RODRIGUES, P., TRINDADE, A.C., OLIVEIRA, C., Buildup Measurements and Calculations for Photon Beams – Search of the Effective Point of Measurement for Pinpoint and Markus Chambers, Medical Radiation Physics and Engineering – MeRPE 2000, Lisboa, Nov. 2000.

CHAVES TRINDADE, A., RODRIGUES, P., ALVES, C., CHAVES, A., LOPES, M.C., OLIVEIRA, C., PERALTA, L., Monte Carlo Simulations of Electron Beams for Radiotherapy – EGS4, MCNP4b and Geant3 Intercomparison, *International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000 (oral).

CHAVES, A., ALVES, C., LOPES, M.C., OLIVEIRA, C., RODRIGUES, P., TRINDADE, A., FRAGOSO, M., SECO, J.E., PERALTA L., Caracterização de um Acelerador Linear de Electrões usando o Método de Monte Carlo, *VII Jornadas Portuguesas de Protecção contra Radiações*, Lisbon, 2000 (oral).

CHAVES, A., LOPES, M.C., ALVES, C., OLIVEIRA, C., RODRIGUES, P., TRINDADE, A., PERALTA, L., Monte Carlo Calculations for Output Factors of Radiosurgery Narrow Beams, *International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000.

GONÇALVES, I.F., MARTINHO, E., SALGADO, J., Monte Carlo Calculation of Resonance Self-Shielding Factors for Epithermal Neutron Spectra Varying as

E<sup>(1- $\alpha$ )</sup>, 8<sup>th</sup> Int. Symp. on Radiat. Phys., Praga, 5-9 Jun 2000.

GONÇALVES, I.F., RAMALHO, A.G., GONÇALVES, I.C., SALGADO, J., MCNP Calculations for the Shielding Design of a Beam Tube to be Installed at the Portuguese Research Reactor, International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000, Lisbon, 23-26 Oct. 2000 (oral).

OLIVEIRA, C., SALGADO, J., Isodose Distributions and Dose Uniformity in the Portuguese Gamma Irradiation Facility Calculated using the MCNP Code, 8<sup>th</sup> Int. Symp. on Radat. Phys., Praga, 5-9 Jun 2000.

OLIVEIRA, C., FERREIRA, L.M., SALGADO, J., Monte Carlo Studies of the Portuguese Gamma Irradiation Facility. The Irradiator Geometry and its Influence on Process Parameters, International Conference on Advanced Monte Carlo for Radiation

Physics, Particle Transport Simulation and Applications - MC2000, Lisbon, 23-26 Oct. 2000.

OLIVEIRA, C., GIRARD, T.A., JEUDY, V., COLLAR, J.I., LIMAGNE, D., WAYSAND, G., A Monte Carlo Study of the Electron Response of a Metastable Superconducting Detector, International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000, Lisbon, 23-26 Oct. 2000.

## Theses

### Lic.

LINA MARIA REI CERDEIRAL

*Estudo de Fontes Lineares de Ir-192 usadas em Braquiterapia*

FCT-UNL, Lisboa

Supervisor: Carlos Oliveira .

## ◆ Radiation Technologies: Processes and Products

### Communications

ANDRADE, M.E., BOTELHO, M.L., Quality Improvement of Cork Stoppers by Radiation, *Congreso Mundial del Alcornoque y Corcho*, CCB, Lisbon Portugal, 19 July 2000. (oral)

### Internal Reports

BOTELHO, M.L., CABO VERDE, S., RIBEIRO, R., MARCOS, H.M., MARQUES, A.P., Biocontamination Evaluation of the Environmental of the Operation Theatre, *Report presented to D. Estefânia Hospital*, Lisbon, Portugal, July 2000.

BOTELHO, M.L., CABO VERDE, S., RIBEIRO, R., MARCOS, H.M., MARQUES, A.P., Study Case to Gamma Radiation Determination of Sterilization Dose for Terricil, *Report presented to OFTALDER/SINDEPEDIP*, Lisbon, Portugal, August 2000.

CABO VERDE, S., Growth Kinetic of Natural Contaminants Strains Lyomer Product, *Internal Report*, October 2000.

RIBEIRO, R., Inactivation Curves of Lyfilt 3a strain, *Internal Report*, December 2000.

## New Materials and Compounds

### ◆ Nuclear Solid State Physics using Ion Beams

#### Journals

##### Published

ALVES, E., ALVES, L.C., DA SILVA, M.F., MELO, A.A., SOARES, J.C., SCAFFIDI-ARGENTINA, F., Influence of Temperature and Pressure on the Beryllium Pebble Bed Electrical Resistivity, *Fusion Technology* **38** (2000) 320-325.

ALVES, E., DA SILVA, M.F., SOARES, J.C., MONTEIRO, T., SOARES, J., SANTOS, L., Effect of Crystal Orientation on Defect Production and Optical Activation of Er Implanted Sapphire, *Nucl. Instr. Meth.* **B166-167** (2000) 183.

ALVES, E., MCHARGUE, C., SILVA, R.C., JESUS, C., CONDE, O., DA SILVA, M.F., SOARES, J.C., Structural and Magnetic Studies of Fe Implanted  $\alpha$ -Al<sub>2</sub>O<sub>3</sub>, *Surface Coatings & Technology* **128-129** (2000) 434-439.

ALVES, L.C., BREESE, M.B.H., ALVES, E., PAÚL, A., DA SILVA, M.R., DA SILVA, M.F., SOARES, J.C., Micron-Scale Analysis of SiC/SiC<sub>f</sub> Composites Using the New Lisbon Nuclear Microprobe, *Nucl. Instr. and Meth. B* **161-163** (2000) 334-338.

ALVES, L.C., PAÚL, A., ALVES, E., DA SILVA, M.F., SOARES, J.C., REBOUTA, L., LA BARBERA, A., RICCARDI, B., CENTENO, M.A., ODRIEZOLA, J.A., Surface Studies of SiC/SiC<sub>f</sub> Composites Exposed to Relevant Fusion Reactor Conditions, *Surf. Interface Anal.* **30** (2000) 98-100.

BARRADAS, N.P., KHAN, R.U.A., ANGUITA, J.V., SILVA, S.R.P., KREISSIG, U., GRÖTZSCHEL, R., MÖLLER, W., Growth and Characterisation of Amorphous Carbon Films Doped with Nitrogen, *Nucl. Instrum. Methods* **B161-163** (2000) 969-974.

BARRADAS, N.P., PARASCANDOLA, S., SEALY, R., GRÖTZSCHEL, B.J., KREISSIG, U., Simultaneous and Consistent Analysis of NRA, RBS, and ERDA Data with the IBA Data Furnace, *Nucl. Instrum. Methods* **B161-163** (2000) 308-313.

BARRADAS, N.P., VIEIRA, A., Artificial Neural Network Algorithm for Analysis of Rutherford Backscattering Data, *Phys. Rev. E* **62** (2000) 5818-5829.

BEHAR, M., ALVES, E., AZEVEDO, G.M., GRANDE, P.L., DA SILVA, M.F., SOARES, J.C., Molecular H<sub>2</sub> and H<sub>3</sub> Stopping Power Measurements Along  $\langle 100 \rangle$  Si Channeling Direction, *Nucl. Inst. and Meth.* **B161/163** (2000) 168.

CARDOSO, S., FERREIRA, R., FREITAS, P.P., WEI, P., SOARES, J.C., Influence of Ta Antidiffusion Barriers on the Thermal Stability of Tunnel Junctions, *Appl. Phys. Lett.* **76** (2000) 3792.

CARDOSO, S., FREITAS, P.P., DE JESUS, C., SOARES, J.C., High Thermal Stability Tunnel Junctions, *J. Appl. Phys.* **87** (2000) 6058.

CORREIA, J.G., ARAÚJO, J.P., LOUREIRO, S.M., TOULEMONDE, P., LE FLOCHE, S., BORDET, P., CAPPONI, J.J., GATT, R., TRÖGER, W., CTORTECKA, B., BUTZ, T., HAAS, H., MARQUES, J.G., SOARES, J.C., Local Probing of Hg Neighborhood in Oxygen and Point Defects Probing in HgBa<sub>2</sub>CuO<sub>4+δ</sub>, *Physica C* **341** (2000) 1969-1972.

CORREIA, J.G., ARAÚJO, J.P., LOUREIRO, S.M., TOULEMONDE, P., LE FLOCHE, S., BORDET, P., CAPPONI, J.J., GATT, W., TRÖGER, R., CTORTECKA, B., BUTZ, T., HAAS, H., MARQUES, J.G., SOARES, J.C., Local Oxygen Probing in the HgBa<sub>2</sub>CuO<sub>4+δ</sub> high-T<sub>C</sub> Superconductor, *Physical Review B* **61** (2000) 11 769 - 11 775.

CORREIA, J.G., ARAÚJO, J.P., MARQUES, J.G., RAMOS, A.R., LOUREIRO, S.M., AMARAL, V., GALINDO, V., SENATEUR, J.P., WEISS, F., WAHL, U., MELO, A.A., SOARES, J.C., SOUSA, J.B., AND THE ISOLDE COLLABORATION, Electron-Gamma Perturbed Angular Correlation Studies on High-T<sub>C</sub> Superconductors, *Hyperfine Interactions* **129** (1/4) (2000) 461-473.

CORREIA, J.G., ARAÚJO, J.P., MARQUES, J.G., RAMOS, A.R., MELO, A.A., SOARES, J.C., AND THE ISOLDE COLLABORATION, Electron-Gamma PAC: New Possibilities for NQI Studies, *Zeitschrift für Naturforschung* **55a** (2000) 3.

FREITAS, P.P., WEI, P., BARRADAS, N.P., SOARES, J.C., ALMEIDA, B., SOUSA, J.B., Magnetoresistance Enhancement in Specular, Bottom-Pinned, Mn<sub>83</sub>Ir<sub>17</sub> Spin Valves with Nano-oxide Layers, *Appl. Phys. Lett.* **77** (2000) 1020.

JEYNES, C., BARRADAS, N.P., RAFLA-YUAN, HICHWA, B.P., CLOSE, R., Accurate Depth Profiling of Complex Optical Coatings, *Surf. Interface Analysis* **30** (2000) 237-242.

JEYNES, C., BARRADAS, N.P., WILDE, J.R., GREER, A.L., Composition of TaNiC Thick Films using Simulated Annealing Analysis of Elastic Backscattering Spectrometry Data, *Nucl. Instr. and Meth.* **B161/163** (2000) 168.

*Methods* **B161-163** (2000) 287-292.

KLING, A., DA SILVA, M.F., SOARES, J.C., Redistribution and Incorporation of Iridium Implanted into Lithium Niobate, *Nucl. Instr. Meth.* **B166/167** (2000) 280.

KLING, A., DA SILVA, M.F., SOARES, J.C., FREITAS, P.P., BAPTISTA, D.L., ZAWISLAK, F.C., Investigation of an 18Å Al<sub>2</sub>O<sub>3</sub> Layer in a Magnetic Multilayer System by Rutherford and Resonant Scattering, *Nucl. Instrum. Methods B* **161** (2000) 549.

LORENZ, K., VIANDEN, R., DA SILVA, M.F., SOARES, J.C., ALVES, E., RBS/Channeling Study of Er Doped GaN Films Grown by MBE on (111) Si Substrates, *Nucl. Inst. and Meth.* **B161/163** (2000) 946.

MARQUES, C. DA SILVA, R.C., FALCÃO, A., ALVES, E., Annealing Behaviour of Natural Topaz Implanted with W and Cr Ions, *Nucl. Instr. Meth.* **B166-167** (2000) 204-208.

MCHARGUE, C., HUNN, J.D., ALVES, E., DA SILVA, M.F., SOARES, J.C., Influence of Oxygen Ion Implantation on the Damage and Annealing Kinetics of Iron-Implanted Sapphire, *Nucl. Instr. Meth.* **B166-167** (2000) 188.

PRUDÊNCIO, L.M., DA SILVA, R.C., DA SILVA, M.F., SOARES, J.C., CONDE, O., VILAR, R., Modification and Characterisation of Al Surfaces Implanted with Cr Ions, *Surface and Coatings Technology* **128-129** (1-3) (2000) 166-169.

RAMOS, A.R. *et al.*, Channeled Ion Beam Synthesis of HfSi<sub>2</sub>, *Nucl. Instr. and Methods*, **B161-163** (2000) 909-912.

RAMOS, A.R., *et al.*, Ion Beam Synthesis of Chromium Silicide on Porous Silicon, *Nucl. Instr. and Methods* **B161-163** (2000) 926-930.

REBOUTA, L., TAVARES, C., AIMO, R., WANG, Z., PISCHOW, K., ALVES, E., ROJAS, T.C., ODRIZOZOLA, Hard Nanocomposite Ti-Si-N Coatings Prepared by dc Reactive Magnetron Sputtering, *Surf. Coat. Technol.* **133-134** (2000) 234-239.

RODRIGUEZ, A., GONZÁLEZ, C., RODRIGUEZ, T., KLING, A., DA SILVA, M.F., SOARES, J.C., RBS Characterization of the Iridium Diffusion in Silicon, *Nucl. Instr. and Meth.* **B161/163** (2000) 663-667.

SELLIN, P. J., BREESE, M.B.H., KNIGHTS, A. P., ALVES, L. C., SUSSMANN, R. S., WHITEHEAD, A.J., Imaging of Charge Transport in Polycrystalline Diamond using Ion Beam Induced Charge Microscopy, *App. Phys. Lett.* **77** (2000) 913.

SZILÁGY, E., BECZE-DEÁK, T., BOTTYÁN, L., KOCSONYA, A., KÓTAI, E., NAGY, D.L., KLING, A., BATTISTIG, G., KHAN, N.Q., POLGÁR, K., Lattice Site Determination of Co in Low Doped Congruent LiNbO<sub>3</sub> Single Crystal Using PIXE/Channeling, *Solid State Commun.* **115** (2000) 535.

TAVARES, C.J., REBOUTA, L., ALVES, E.J., Structure Determination of (Ti,Al)N/Mo Multilayers, *Thin Solid Films* **373** (2000) 287.

VAZ, F., REBOUTA, L., GOUDEAU, P., PACAUD, J., GAREM, H., RIVIERE, J.P., CAVALEIRO, A., ALVES, E., Characterisation of Ti<sub>1-x</sub>Si<sub>x</sub>N<sub>y</sub> Coatings, *Surf. Coat. Technol.* **133-134** (2000) 307-313.

VIEIRA, A., BARRADAS, N.P., Neural Network Analysis of Rutherford Backscattering Data; *Nucl. Instrum. Methods* **B170** (2000) 235-238.

WAHL, U., VANTOMME, A., LANGOUCHÉ, G., ARAÚJO, J.P., PERALTA, L., CORREIA, J.G., Lattice Location and Stability of Ion Implanted Cu in Si, *Phys. Rev. Lett.* **84** (2000) 1495-1498.

WAHL, U., VANTOMME, A., LANGOUCHÉ, G., ARAÚJO, J.P., PERALTA, L., CORREIA, J.G., and the ISOLDE collaboration, Emission Channeling Studies of Pr in GaN, *Journal of Applied Physics* **88** (2000) 1319-1324.

WAHL, U., VANTOMME, A., LANGOUCHÉ, G., CORREIA, J.G., and the ISOLDE collaboration, Lattice Location of ion Implanted Cu in Si, *Physical Review Letters* **84** (2000) 1495-1498.

WAHL, U., VANTOMME, A., LANGOUCHÉ, G., CORREIA, J.G., Emission Channeling Studies of Pr in GaN, *J. Appl. Phys.* **88** (2000) 1319-1324.

WEI, P., CARDOSO, S., DE JESUS, C.M., SOARES, J.C., FREITAS, P.P., DA SILVA, M.F., RBS study of the interdiffusion effect between CoFe/MnIr layers in tunnel junctions, *Nucl. Instr. Methods* **B170** (2000) 205.

ZALDO, C., CARVAJAL, J., SOLÉ, R., DÍAZ, F., BRAVO, D., KLING, A., Influence of impurities on the optical damage of KTiOPO<sub>4</sub> crystals, *J. Appl. Phys.* **88** (2000) 3242.

#### Accepted for publication or in press

ALVES, E., SEQUEIRA, A.D., FRANCO, N., DA SILVA, M.F., SOARES, J.C., SOBOLEV, N.A., CARMO, M.C., Coherent Amorphization of Ge/Si Multilayers with Ion Beams, *Nucl. Instr. and Meth.*, in press.

ALVES, L.C., ALVES, E., DA SILVA, M.F., SOARES, J.C., PAÚL, A., LA BARBERA, A., RICCARDI, B., Study of Solid State Reactions of SiC/SiC<sub>f</sub> Composites Using Microbeams, accepted for publication in *Nucl. Instr. and Meth.*

ARAÚJO, J.P., CORREIA, J.G., AMARAL, V.S., TAVARES, P.B., LENCART-SILVA, F., LOURENÇO, A.A.C.S., SOUSA, J.B., VIEIRA, J.M., SOARES, J.C., and the ISOLDE Collaboration, Hyperfine Fields at the Cd Site in  $\text{La}_{0.67}\text{Cd}_{0.25}\text{MnO}_3$  CMR Manganites, accepted for publication in *Hyperfine Interactions*.

ARAÚJO, J.P., CORREIA, J.G., LOUREIRO, S.M., TOULEMONDE, P., LE FLOCH, S., BORDET, P., CAPPONI, J.J., TRÖGER, W., CTORTECKA, B., HAAS, H., GATT, R., MARQUES, J.G., SOARES, J.C., Local Oxygen and Point Defects Probing in  $\text{Hg}-1201$  High- $T_C$  Superconductors, *Physica C*, in press.

BARRADAS, N.P., VIEIRA, A., ALVES, E., Artificial Neural Network analysis of RBS data of Er-implanted sapphire, accepted for publication in *Nucl. Instrum. Meth. B*.

BARRADAS, N.P., WEI, P., DA SILVA, M.F., SOARES, J.C., KREISSIG, U., ARNOLDBIK, W., CARDOSO, S., FREITAS, P.P., High Resolution IBA Analysis of Complex Ultra-Thin Magnetic Systems: Potential and Limitations; *IAEA TECDOC*, Vienna, in press.

BREESE, M.B.H., ALVES, L.C., HOECHBAUER, T., NASTASI, M., A Study of the Crystalline Quality of Exfoliated Surfaces in Hydrogen-Implanted Silicon, accepted for publication in *App. Phys. Lett.*

KLING, A., DA SILVA, M.F., SOARES, J.C., FICHTNER, F.P.F., AMARAL, L., ZAWISLAK, F., FÖLDVÁRI, I., PÉTER, Á., Formation of Nanoclusters in Au-Implanted Bismuth Tellurite, accepted for publication in *Nucl. Instr. Meth. B*.

KLING, A., DA SILVA, M.F., SOARES, J.C., FICHTNER, P.F.P., AMARAL, L., ZAWISLAK, F., Defect Evolution and Characterization in He-Implanted  $\text{LiNbO}_3$ , *Nucl. Instr. Meth. B*, accepted for publication.

KLING, A., DA SILVA, M.F., SOARES, J.C., SANZ-GARCÍA, J.A., GARCÍA-SOLÉ, J., Change of Uranium Lattice Site in  $\text{LiNbO}_3$  Induced by Thermal Reduction Treatment, accepted for publication in *Radiation Effects and Defects in Solids*.

LIU, C., ALVES, E., SEQUEIRA, A.D., FRANCO, N., DA SILVA, M.F., SOARES, J.C., Fe Ion Implantation in GaN: Damage, Annealing and Lattice Site Location, *J. Appl. Phys.*, in press.

LIU, C., WENZEL, A., RAUSCHENBACH, B., ALVES, E., SEQUEIRA, A.D., FRANCO, N., DA SILVA, M.F., SOARES, J.C., FAN, X.J., Amorphization of GaN by ion implantation. *Nucl. Instr. and Meth.*, in press.

MARQUES, C., CRUZ, M.M., DA SILVA, R.C., ALVES, E., Study of New Surface Structures Created

on Sapphire by Co Ion Implantation, *Nucl. Instr. Meth. B*, accepted for publication.

RAMOS, A.R., PÁSZTI, F., KOTAI, E., VÁZSONYI, É., CONDE, O., DA SILVA, M.R., DA SILVA, M.R., SOARES, J.C., Synthesis of Cobalt Silicide on Porous Silicon by High Dose Ion Implantation, accepted for publication in *Nucl. Instr. and Meth. B*.

TELBIZOVA, T., PARASCANDOLA, S., PROKERT, F., BARRADAS, N.P., RICHTER, E., MÖLLER, W., Ion Nitriding of Al: Growth Kinetics and Characterisation of the Nitride Layer, accepted for publication in *Surface and Coatings Technology*.

VIEIRA, A., BARRADAS, N.P., Composition of NiTaC films on Si using neural networks analysis of elastic backscattering data, accepted for publication in *Nucl. Instrum. Meth. B*.

VIEIRA, A., BARRADAS, N.P., JEYNES, C., Error performance analysis of Artificial Neural Networks applied to Rutherford backscattering data; accepted for publication in *Surf. Interface Analysis*.

WAHL, U., VANTOMME, A., LANGOUCHE, G., ARAÚJO, J.P., PERALTA, L., CORREIA, J.G., and the ISOLDE collaboration, Lattice location of implanted Cu in highly-doped Si, *Appl. Phys. Lett.*, in press.

## Conference Proceedings

### Accepted for Publication or in press

ALVES, E., LIU, C., DA SILVA, M.F., SOARES, J.C., MONTEIRO, T., Doping of GaN by Ion Implantation, *Proceedings of the Materials Research Society - Boston 2000*, Boston, USA, 27 Nov. - 1 Dec. 2000, in press.

PEREIRA, S., CORREIA, M.R., PEREIRA, E., ALVES, E., ALVES, L.C., TRAGER-COWAN, C., O'DONNELL, K.P., Strain and Compositional Analysis of InGaN/GaN Layers, *Proceedings of the Materials Research Society - Boston 2000*, Boston, USA, 27 Nov. - 1 Dec. 2000, in press.

ALVES, L.C., ALVES, E., PAÚL, A., DA SILVA, M.F., SOARES, J.C., LA BARBERA, A., RICCARDI, B., Surface Reactions of  $\text{SiC}/\text{SiC}_f$  Composites Studied with Microbeams, *Proceedings of the 4<sup>th</sup> IEA International workshop on SiC/SiC Ceramic Matrix Composites for Fusion Structural Applications*, Roma, Italy, 12-13 October 2000, in press.

CORREIA, M.R., PEREIRA, S., PINHO, N., MONTEIRO, T., PEREIRA, E., ALVES, E., Raman Spectroscopy Studies in InGaN/GaN Wurtzite Epitaxial Films, *Proceedings of the Materials Research Society - Boston 2000*, Boston, USA, 27 Nov. - 1 Dec. 2000, in press.

KLING, A., DA SILVA, M.F., SOARES, J.C., FICHTNER, F.P.F., AMARAL, L., ZAWISLAK, F., FÖLDVÁRI, I., PÉTER, Á., Gold Nanoclusters Formed by Ion-Implantation into  $\text{Bi}_2\text{TeO}_5$ , *Proceedings of the MRS 2000 Fall Meeting*, Boston, MA, USA, November 27 – December 1, 2000, in press.

KLING, A., MARQUES, J.G., RAMALHO, A.J.G., Monte Carlo Simulations for the Estimation of Dose Rates During Handling of Spent Fuel at the Portuguese Research Reactor, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000, eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

MARQUES, C., MCHARGUE, C., DA SILVA, M.F., SOARES, J.C., ALVES, E., Optical and Structural Changes of Fe Implanted Sapphire, *Proceedings of the Materials Research Society - Boston 2000*, Boston, USA, 27 Nov. - 1 Dec. 2000.

## Communications

ALVES , E., LIU, C., DA SILVA , M.F., SOARES, J.C., MONTEIRO, T., Doping of GaN by Ion Implantation, *Materials Research Society - Boston 2000*, Boston, USA, 27 Nov. - 1 Dec. 2000. (oral)

ALVES, E., LIU, C., WAERENBORGH, J.C., DA SILVA, M.F., SOARES, J.C., Study of  $\text{Fe}^+$  implanted GaN, *Ion Beam Modification of Materials - IBMM2000*, Canela, Brasil, 3 - 7 September 2000. (poster)

ALVES, E., LIU, C., SEQUEIRA, A.D., FRANCO, N., WAERENBORGH, J.C., DA SILVA, M.F., SOARES, J.C., Study of Fe Implanted GaN, *12<sup>th</sup> International Conference on Ion Beam Modification of Materials, IBMM 2000*, Canela, Rio Grande do Sul, Brazil, Sept. 3-8, 2000. (oral)

ALVES, E., MARQUES, J.G., GONÇALVES, A.P., Ion beam and Perturbed Angular Correlation Studies of Uranium Films and Compounds, *6<sup>th</sup> Workshop on Magnetism and Intermetallics*, Chemistry Dept., ITN, Sacavém, Portugal, November 16-17, 2000. (oral)

ALVES, E., MARQUES, J.G., DA SILVA, M.F., SOARES, J.C., BARTELS, J., VIANDEN, R., Heavy Ion Implantation in GaN Epilayers, *International Conference on Defects in Insulating Materials - ICDIM2000*, Johannesburg, 3 - 7 April 2000. (poster)

ALVES, E., MONTEIRO, T., SOARES, J., SANTOS, L., DA SILVA, M.F., SOARES, J.C., LOJKOWSKI, W., High Temperature Annealing of Er Implanted GaN, Kolesnikov , D., Vianden, R., Correia, J.G., *European Materials Research Society 2000 - EMRS2000*, Strasbourg, France, 30 May - 3 June 2000. (oral)

ALVES, E., SEQUEIRA, A.D., FRANCO, N., DA SILVA, M.F., SOARES, J.C., SOBOLEV, N.A., CARMO, M.C., Coherent Amorphization of Ge/Si Multilayers with Ion Beams, *European Materials Research Society 2000 - EMRS2000*, Strasbourg, France, 30 May - 3 June 2000. (poster)

ALVES, L.C., ALVES, E., DA SILVA, M.F., SOARES, J.C., PAÚL, A., LA BARBERA, A., RICARDI, B., Study of Solid State Rections of Sic/SiCf Composites Using Microbeams, *7<sup>th</sup> International Conference on Nuclear Microprobe Technology and Applications*, Bordeaux, France, September 10-15, 2000.

ALVES, L.C., ALVES, E., PAÚL, A., DA SILVA, M.F., SOARES, J.C., LA BARBERA, A., RICCARDI, B., Surface Reactions of SiC/SiCf Composites Studied with Microbeams, *4<sup>th</sup> IEA International workshop on SiC/SiC Ceramic Matrix Composites for Fusion Structural Applications*, Roma, Italy, 12-13 October 2000. (oral)

BARRADAS, N.P., VIEIRA, A., ALVES, E., Artificial Neural Network Analysis of RBS Data of Er-Implanted Sapphire, *12<sup>th</sup> International Conference on Ion Beam Modification of Materials - IBMM-2000*, Gramado-Canela, RS, Brazil, September 3-8, 2000 (poster)

CORREIA, M.R., PEREIRA, S., PINHO, N., MONTEIRO, T., PEREIRA, E., ALVES, E., Raman Spectroscopy Studies in InGaN/GaN Wurtzite Epitaxial Films, *Materials Research Society - Boston 2000*, Boston, USA, 27 Nov. - 1 Dec. 2000. (poster)

KLING, A., DA SILVA, M.F., SOARES, J.C., FICHTNER, F.P.F., AMARAL, L., ZAWISLAK, F., FÖLDVÁRI, I., PÉTER, Á., Formation of Nanoclusters in Au-Implanted Bismuth Tellurite, *12<sup>th</sup> International Conference on Ion Beam Modification of Materials - IBMM-2000*, Gramado-Canela, RS, Brazil, September 3-8, 2000 (poster)

KLING, A., DA SILVA, M.F., SOARES, J.C., FICHTNER, F.P.F., AMARAL, L., ZAWISLAK, F., FÖLDVÁRI, I., PÉTER, Á., Gold Nanoclusters Formed by Ion-Implantation into  $\text{Bi}_2\text{TeO}_5$ , *MRS 2000 Fall Meeting*, Boston, MA, USA, November 27 – December 1, 2000. (poster)

KLING, A., DA SILVA, M.F., SOARES, J.C., FICHTNER, P.F.P., AMARAL, L., ZAWISLAK, F., Defect Evolution and Characterisation in He-Implanted  $\text{LiNbO}_3$ , *12<sup>th</sup> International Conference on Ion Beam Modification of Materials - IBMM-2000*, Gramado-Canela, RS, Brazil, September 3-8, 2000. (oral)

KLING, A., DA SILVA, M.F., SOARES, J.C., SANZ-GARCÍA; J.A., GARCÍA-SOLÉ, J., Change of Uranium Lattice Site in  $\text{LiNbO}_3$  Induced by Thermal Reduction Treatment, *International Conference on Defects in Insulating Materials - ICDIM 2000*,

Johannesburg-Midrand, South Africa, April 3- 7, 2000. (oral)

LIU, C., FAN, X.J., WENZEL, A., GERLACH, J.W., RAUSCHENBACH, B., ALVES, E., DA SILVA, M.F., SOARES, J.C., Amorphization of GaN by ion Implantation, *European Materials Research Society 2000 - EMRS2000*, Strasbourg, France, 30 May - 3 June 2000.

MARQUES, C., CRUZ, M.M., DA SILVA, R.C., ALVES, E., Study of New Surface Structures Created on Sapphire by Co Ion Implantation, *Ion Beam Modification of Materials - IBMM2000*, Canela, Brasil, 3 - 7 September 2000. (poster)

MARQUES, C., MCHARGUE, C., DA SILVA, M.F., SOARES, J.C., ALVES, E., Optical and Structural Changes of Fe Implanted Sapphire, *Materials Research Society - Boston 2000*, Boston, USA, 27 Nov. - 1 Dec. 2000. (oral)

MARQUES, C., FALCÃO, A. N., DA SILVA, R. C., ALVES, E., Implantation of Transition Metals in Colourless Topaz, *XII National Physics Conference - "FISICA 2000"*, Figueira da Foz, Sept. 2000. (oral)

PAÚL, A., ELMRABET, S., ALVES, L.C., DA SILVA, M. F., SOARES, J.C., ODRIOZOLA, J.A., Ion Microprobe Study of the Scale Formed During High Temperature Oxidation OF High Silicon En 1-4301 Stainless Steel, *7th International Conference on Nuclear Microprobe Technology and Applications*, Bordeaux, France, September 10-15, 2000.

PAÚL, A., RAMOS, A.R.L., RIJNERS, L., DA SILVA, M.F., SOARES, J.C., Measurement of (P,P) Elastic Cross-Sections for  $^{14}\text{N}$  and  $^{27}\text{Al}$  at Laboratory Angles of 178° and 140° in the Range 0.5 2.5 Mev, *International Symposium on Nitrides - ISNT III*, Sevilla, Spain, 5-7 July 2000.

PEREIRA, S., CORREIA, M.R., PEREIRA, E., ALVES, E., ALVES, L.C., TRAGER-COWAN, C., O'DONNELL, K.P., Strain and Compositional Analysis of InGaN/GaN Layers, *Materials Research Society - Boston 2000*, Boston, USA, 27 Nov. - 1 Dec. 2000. (poster)

PRUDÊNCIO, L., Effects of Cr ion implantations in light metals, *International Conference PEH2000*, Lille, France, 19-23 June, 2000. (poster)

RAMOS, A.R., CONDE, O., PÁSZTI, F., KOTAI, E., BATTISTIG, G., VAZSONUI, É, DA SILVA, M.R., DA SILVA, M.F., SOARES, J.C., Formação de Silicetos de Crómio e de Cobalto em Silício Poroso por Implantação Iônica, *XII National Physics Conference - "FISICA 2000"*, Figueira da Foz, Sept. 2000. (oral)

RAMOS, A.R., CONDE, O., PÁSZTI, F., KOTAI, E., BATTISTIG, G., VÁZSONYI, É., DA SILVA, M.R., DA SILVA, M.F., SOARES, J.C., Ion Beam Synthesis of Chromium and Cobalt Silicides on Porous Silicon, *Physique en Herbe, Conférence Internationale d'Étudiants de Physique*. (poster)

RAMOS, A.R., PÁSZTI, F., KOTAI, E., VÁZSONYI, É., CONDE, O., DA SILVA, M.R., DA SILVA, M.R., SOARES, J.C., Synthesis of Cobalt Silicide on Porous Silicon by High Dose Ion Implantation, *European Materials Research Society 2000 - EMRS2000*, Strasbourg, France, 30 May - 3 June 2000.

RAMOS, A.R., PAÚL, A., RIJNERS, L., DA SILVA, M.F., SOARES, J.C., Medições das Secções Eficazes de Dispersão Elástica (P,P) para o C, N, O, Si, Al, *XII National Physics Conference - "FISICA 2000"*, Figueira da Foz, Sept. 2000. (poster)

VILARIGUES, M., Microprobe depth profiling of long range diffusion of Cr in Ti, *7<sup>th</sup> International Conference on Nuclear Microprobe Technology and Applications - ICNMTA2000*, Bordeaux, France, 10-15 September, 2000. (poster)

## Theses

### PhD

ANA RITA RAMOS

*Preparação de Silicetos Metálicos para Aplicação em Microelectrónica*

Lisbon University, Lisbon.

Supervisor: J.C. Soares

## ◆ Condensed Matter Physics

### Journals

#### Published

MARGAÇA, F.M.A., FALCÃO, A.N., SALGADO, J.F., CARVALHO, F.G., Multichannel Collimation for SANS Instruments, *Physica B* **276-278** (2000) 189.

MARGAÇA, F.M.A., PINHÃO, N.R., SEQUEIRA, A.D., Design Optimisation of a High-Temperature X-ray diffractometer for *in situ* Residual Stress Analysis and Lattice Mismatch Determination, *Materials Science Forum* **321-324** (2000) 168-173.

MARQUES, C., SANTOS, L., FALCÃO, A. N., DA SILVA, R. C. AND ALVES, E., Luminescence Studies in Colour Centres Produced in Natural Topaz, *Journal of Luminescence* **87-89** (2000) 583.

MIRANDA SALVADO, I.M., SANTOS SOUSA, J., MARGAÇA, F.M.A., TEIXEIRA, J., Structure of SiO<sub>2</sub> Gels Prepared with Different Water Contents, *Physica B* **276-278** (2000) 388.

MISHEVA, M., DJOURELOV, N., MARGAÇA, F.M.A., MIRANDA SALVADO, I.M., Positronium decay study of zirconia-silica sol-gels, *J. Non-Cryst. Solids* **272** (2000) 209.

SEQUEIRA, A.D., MORETTO, P., BRESSERS, J., Residual Stress and Microstructure of CoNiCrAlY coated SRR-99 upon Thermo-mechanical Fatigue, *Materials Science Forum* **321-324** (2000) 748-753.

#### Accepted for publication or in press

FRANCO, N., SEQUEIRA, A.D., Software Package for the Remote Control and Data Acquisition from a High-temperature X-ray Diffractometer The Hotbird, *Mat. Sci. Forum* 6pp., Accepted for publication.

MISHEVA, M., DJOURELOV, N., MARGAÇA, F.M.A., MIRANDA SALVADO, I.M., Positronium decay study of porous structure of sol-gel prepared SiO<sub>2</sub>: influence of Ph, *J. Non-Cryst. Solids*, in press.

PEREIRA, S., CORREIA, M.R., MONTEIRO, T., PEREIRA, E., ALVES, E., SEQUEIRA, A.D.,

FRANCO, N., Compositional Dependence of the Strain Free Optical Band Gap in In<sub>x</sub>Ga<sub>1-x</sub>N Layers, *Appl. Phys. Letters*, in press.

SEQUEIRA, A.D. , FRANCO, N., NEVES., J., High-Resolution and High-Temperature Double-Crystal X-ray Diffractometer for *in-situ* Studies - the Hotbird, *Mat. Sci. Forum*, 6pp., in press.

### Communications

CANDEIAS, A.J.E., RIBEIRO CARROTT, M.M.L., CARROTT, P.J.M., UNGER, K.K., SEQUEIRA, A.D., Adsorção de Azoto e de Compostos Orgânicos em MCM-41, *XXV Reunión Ibérica de Adsorción*, Pamplona, 18-20 September 2000. (oral)

FALCÃO, A.N., MARGAÇA, F.M.A., SALGADO, J.F., CARVALHO, F.G., A Contribution to the Development and Practical Utilisation of the Small Angle Neutron Scattering Technique, 1<sup>st</sup> Research Co-ordination Meeting of the IAEA CPR "Development and Practical Utilisation of Small Angle Neutron Scattering (SANS) Applications", IAEA Headquarters, Vienna, 13-16 November, 2000. (oral)

FRANCO, N., SEQUEIRA, A.D., Software Package for the Remote Control and Data Acquisition from a High-temperature X-ray Diffractometer, The Hotbird, *EPDIC-7*, Barcelona, Spain, 20-24 May 2000. (poster)

MARQUES, C., CARRAPIÇO, M., SANTOS, L., FALCÃO, A. N., DA SILVA, R. C., ALVES, E., Production of Colour Centres in Topaz by Gamma-Ray and Neutron Irradiation, *XII<sup>th</sup> National Physics Conference – "FISICA 2000"*, Figueira da Foz, Sept. 2000. (poster)

PINHÃO, N.R., RIIHIMÄKI, I., SEQUEIRA. A.D., Geometrical Analysis of Double Crystal Diffractometers – Extension of the Classical Formalism to X-ray Sources, *XII National Physics Conference – "FISICA 2000"*, Figueira da Foz, Portugal, Sept. 2000. (poster)

SEQUEIRA, A.D., FRANCO, N., NEVES, J., High-Resolution and High-Temperature Double-Crystal X-ray Diffractometer for *in-situ* Studies - the Hotbird. *EPDIC-7* Barcelona, Spain, 20-24 May 2000. (poster)

## ◆ Solid State

### Journals

#### Published

BEIERLEIN, U., HESS, C., SCHLENKER, C., DUMAS, J., BUDER, R., GROULT, D., STEEP, E., VIGNOLLES, D., BONFAIT, G., Charge Density Wave Instabilities and Quantum Transport in the Monophosphate Tungsten Bronzes  $(\text{PO}_2)_4(\text{WO}_3)_{2m}$  with  $m=5$  Alternate Structure, *European Journ. Phys. B* **17** (2000) 215.

CARDOSO, C., CATARINO, I., GONÇALVES, A.P., WAERENBORGH, J.C., CRUZ, M.M., BONFAIT, G., KUZNIECZ, M., ALMEIDA, M., GODINHO, M., Evolution of Magnetism in the  $\text{UFe}_x\text{Al}_{12-x}$  Intermetallic Series, *Physica B* **284-288** (2000) 1339-1340.

CASACA, A., BONFAIT, G., DUBOURDIEU, C., WEISS, F., SÉNATEUR, J.P., Hall Effect in Unidirectionally Twinned  $\text{YBaCuO}$  Thin Films, *Physica B* **284-288** (2000) 1013.

CASACA, A., BONFAIT, G., GALINDO, V., SÉNATEUR, J.P., FEINBERG, D., Angular Dependence of the Anisotropy Parameter in YBCO/PBCO Multilayers, *Physica B* **284-288** (2000) 601.

CATARINO, I., BONFAIT, G., Simple Specific Heat Apparatus based on Gifford-MacMahon cryocooler, *Physica B* **284-288** (2000) 2020.

CRUZ, M.M., CARVALHO, M.D., WATTIAUX, A., CASACA, A., BONFAIT, G., COSTA, F.M.A., GODINHO, M., Magnetic Properties of Lanthanum Nickelates, *Physica B* **284-288** (2000) 1477.

DUMAS, J., HESS, C., SCHLENKER, C., BONFAIT, G., GOMEZ MARIN, E., GROULT, D., MARCUS, J., Localisation Effects in the Charge Density Wave State of the quasi-two Dimensional Monophosphate Tungsten Bronzes  $(\text{PO}_2)_4(\text{WO}_3)_{2m}$  ( $m=7,8,9$ ), *European Journ. Phys. B* **14** (2000) 73.

ESTRELA, P., NAKA, T., DE VISSER, A., DE BOER, F.R., PEREIRA, L.C.J., ALMEIDA, M., Resistivity of non-Fermi-liquid  $\text{U}_2\text{Pt}_2\text{In}$  under Pressure, *Physica B*, **281 & 282** (2000) 381-383.

GAMA, V., BELO, D., RABAÇA, S., SANTOS, I.C., ALVES, H., DUARTE, M.T., WARENBORGH, J.C., HENRIQUES, R.T., Crystal Structure and Magnetic Behavior of the Decamethylferrocenium and Decamethylchromocenium Salts of Nyckel-bis(ethylenedithiolate),  $[\text{M}(\text{Cp}^*)_2][\text{Ni}(\text{edt})_2]$ , Magnetic

Anisotropy and Metamagnetic behaviour of  $[\text{Fe}(\text{Cp}^*)_2][\text{Ni}(\text{edt})_2]$ , *Eur. J. Inor. Chem.* **9** (2000) 2101-2110.

GONÇALVES, A.P., PEREIRA, L.C.J., KUZNIECZ, M., ALMEIDA, M., SILVA, P.A.S., GODINHO, M., Depression of Superconducting and Antiferromagnetic States in the Dy-rich  $(\text{U}_{1-x}\text{Dy}_x)\text{Ni}_2\text{B}_2\text{C}$ , *Physica B* **281 & 282** (2000) 1007-1009.

GONÇALVES, A.P., PEREIRA, L.C.J., SILVA, P.A.S., GODINHO, M., ALMEIDA, M., KUZNIECZ, M., Directional frustration of Magnetic Moments in  $(\text{U}_{0.50}\text{Dy}_{0.50})\text{Ni}_2\text{B}_2\text{C}$ , *J. Magn. Magn. Mat.* **210** (2000) 88-92.

PAIXÃO, J.A., RAMOS SILVA, M., SØRENSEN, S.A., LEBECH, B., LANDER, G.H., BROWN, J.P., LANGRIDGE, S., TALIK, E., GONÇALVES, A.P., Neutron-scattering Study of the Magnetic Structure of  $\text{DyFe}_4\text{Al}_8$  and  $\text{HoFe}_4\text{Al}_8$ , *Physical Review B* **61** (2000) 6176.

SALAMAKHA, P., SOLOGUB, O., WAERENBORGH, J.C., GONÇALVES, A.P., GODINHO, M., ALMEIDA, M. Systematic Investigation of the Y-Fe-Al Ternary System. Part I. Single Crystal Studies of the  $\text{YFe}_x\text{Al}_{12-x}$  Compound, *J. Alloys and Compounds* **296** (2000) 98-102.

SHLYK, L., ESTRELA, P., WAERENBORGH, J.C., DE LONG, L.E., DE VISSER, A., ROJAS, D.P., GANDRA, F., ALMEIDA, M., Crystal Structure and Physical Properties of  $\text{U}_3\text{T}_3\text{Sn}_4$  ( $\text{T}=\text{Ni}$  and  $\text{Cu}$ ) Single Crystals", *Physica B* **292** (2000) 89-96.

SHLYK, L., WAERENBORGH, J.C., ALMEIDA, M., Growth Crystal Structure, and Thermopower of Single-Crystals of  $\text{UNi}_{1.9}\text{Sn}$ , *Journal of Solid State Chemistry* **149** (2000) 120-122.

SOLOGUB, O., SALAMAKHA, P., NÖEL, H., POTEL, M., ALMEIDA, M., GODART, C., New Structure Type of Ternary Intermetallic Borides  $\text{CePt}_2\text{B}$ , *Journal of Alloys and Compounds* **307** (2000) 40-44.

WAERENBORGH, J.C., SALAMAKHA, P., SOLOGUB, O., GONÇALVES, A.P., CARDOSO, C., SÉRIO, S., GODINHO, M., ALMEIDA, M., Influence of Thermal Treatment and Crystal Growth on the Final Composition and Magnetic Properties of the  $\text{YFe}_x\text{Al}_{12-x}$  ( $4 \leq x \leq 4.2$ ) Intermetallics, *Chemistry of Materials* **12** (6) (2000) 1743-1749.

**Accepted for publication or in press**

BELO, D., ALVES, H., DUARTE, M.T., GAMA, V., HENRIQUES, R.T., ALMEIDA, M., RIBERA, E., ROVIRA, C., VECIANA, J., Gold Complexes, Based on dithiophene ligands; A Metal Based on a Neutral Molecule, *Chemistry A European Journal*, in press.

CATARINO, I., BONFAIT, G., A Simple Calorimeter for Fast Adiabatic Heat Capacity Measurements from 15 K to 300 K Based on Closed Cycle Cryocooler, *Cryogenics*, in press.

CATARINO, I., CARDOSO, C., WAYERENBORGH, J.C., GONÇALVES, A.P., CRUZ, M.M., KUZNIETZ, M., BONFAIT, G., ALMEIDA, M., GODINHO, M., Magnetism of the Series UFe<sub>x</sub>Al<sub>12-x</sub>, *J. Magn. Magn. Mater.*, in press.

CATARINO, I., PEREIRA, L.C.J., WAYERENBORGH, J.C., ALMEIDA, M., GODINHO, M., BONFAIT, G., The Effect of Th Substitution in (U<sub>1-x</sub>Th<sub>x</sub>)<sub>2</sub>Pt<sub>2</sub>In Solid Solutions, *J. Magn. Magn. Mat.*, in press.

CRUZ, M.M., CARVALHO, M.D., CASACA, A., BONFAIT, G., COSTA, F.M., GODINHO, M., Ruddlesden-Popper Versus Perovskite Phases in Manganites, *Journ. Magn. Magn. Mat.*, in press.

GONÇALVES, A.P., GODINHO, M., NÖEL, H., Synthesis, Crystal Structure and Magnetic Properties of UFe<sub>5</sub>Sn, *J. Solid State Chem.*, in press.

GONÇALVES, A.P., KUZNIETZ, M., GODINHO, M., ALMEIDA, M., 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.*, in press.

PAIXÃO, J.A., RAMOS SILVA, M., WAYERENBORGH, J.C., GONÇALVES, A.P., LANDER, G.H., BROWN, P.J., GODINHO, M., BURLET, P., Study of the Magnetic Structures of MFe<sub>4+δ</sub>Al<sub>8-δ</sub>, M = Lu, Y, *Phys. Rev. B*, in press.

PEREIRA, L.C.J., WAYERENBORGH, J.C., CATARINO, I., BONFAIT, G., GODINHO, M., ALMEIDA, M., The Effect of Th Substitution for U in the Heavy Fermion U<sub>2</sub>Pt<sub>2</sub>In, *J. Alloys Comp.*, in press.

RABAÇA, S., MEIRA, R., SOARES, J., DUARTE, T., GAMA, V., Structural and Magnetic Characterisation of [Fe(Cp\*)<sub>2</sub>][DR-DCNQI], R=Me and Ph, accepted for publication in *Synthetic Metals* (2000).

ROVIRA, C., LE MOUSTARDER, S., BELO, D., VECIANA, J., ALMEIDA, M., GAMA, V., DUARTE, M.T., BET-TTF (bisethylenethio-tetrathiafulvalene) Donor as Building Block of Organic Metals, *Synth Met.*, in press.

SALAMAKHA, P., SOLOGUB, O., GONÇALVES, A.P., Single-crystal Investigation of the Binary NdB<sub>4</sub> Compound, *J. Alloys Comp.*, in press.

SÉRIO, S., WAYERENBORGH, J.C., GONÇALVES, A.P., ALMEIDA, M., FRUCHART, D., GODINHO, M., Effect of Interstitial Elements on UFe<sub>12-x</sub>Al<sub>x</sub>, *Journal of Alloys and Compounds*, in press.

WAYERENBORGH, J.C., SALAMAKHA, P., SOLOGUB, O., GONÇALVES, A.P., SÉRIO, S., GODINHO, M., ALMEIDA, M., <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.*, in press.

WAYERENBORGH, J.C., SALAMAKHA, P., SOLOGUB, O., SÉRIO, S., GODINHO, M., GONÇALVES, A.P., ALMEIDA, M., Y-Fe-Al Ternary System: Partial Isothermal Section at 1070 K. Powder X-ray Diffraction and Mössbauer Spectroscopy Study, *J. Alloys Comp.*, in press.

**Books and Book Chapters**

HALEVY, I., STERER, E., AIZENSHTAIN, M., KIMMEL, G., REGEV, D., PEREIRA, L.C.J., GONÇALVES, A.P., High Pressure Studies of a New Ternary Actinide Compound: UV<sub>2</sub>Al<sub>20</sub>, in *Science and Technology of High Pressure*, Vol. I, M.H. Manghnani, W.J. Nellis, M.F. Nicol (Eds.), University Press (2000).

**Communications**

ALMEIDA GASHE, T., GONÇALVES, A.P., PIRES DE MATOS, A., BRANCO, J.B., Selective Isoprene Hydrogenation over AnNi<sub>2</sub> (An = Th, U) Intermetallic Compounds, *4<sup>th</sup> International Conference on f Elements- ICFE'4*, Madrid, Spain, September 17-21, 2000. (poster)

ALMEIDA M., Molecular Materials: from 1D Conductors to Spin Ladders – I & II, *Workshop on Electronic and Magnetic Properties of Low-Dimensional Materials*, Évora, September 13-16, 2000. (Invited oral)

ALVES, H., BELO, D., SIMÃO, D., NOVAIS, H.M., LOPES, E.B., GAMA, V., HENRIQUES, R.T., ALMEIDA, M., DUARTE, M.T., Synthesis and Characterisation of the Mixed Valence Salts [n-Bu<sub>4</sub>N]<sub>2</sub>[M(dcbdt)<sub>2</sub>]<sub>5</sub>, M=Au and Ni, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (poster)

ALVES, H., SIMÃO D., LOPES E. B., BELO D., GAMA V., DUARTE M. T., NOVAIS H., HENRIQUES R. T., ALMEIDA M., Structure and Physical Properties of (n-Bu<sub>4</sub>N)<sub>2</sub> [Au(dcbdt)<sub>2</sub>]<sub>5</sub>, *International Conference on Science and Technology of Synthetic Metals - ICSM 2000*, Gastein Austria July 15-21, 2000. (poster).

BELO, D., ALVES, H., LOPES, E.B., GAMA, V., DUARTE, M.T., HENRIQUES, R.T., ALMEIDA, M., PEREZ-BENITEZ, A., ROVIRA, C., VECIANA,

- J., Electrical and Magnetic Properties of Charge Transfer Salts with Metal Bisdithiolatetraphene Complexes, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (oral)
- BELO, D., ALVES, H., LOPES, E.B., GAMA, V., HENRIQUES, R.T., ALMEIDA, M., PÉREZ-BENÍTEZ, A., ROVIRA, C., VECIANA, J., Electrical and Magnetic Properties of  $\text{TTF}_3[\text{Ni}(\alpha\text{-tpdt})_2]$ , *International Conference on Science and Technology of Synthetic Metals - ICSM 2000*, Gastein Austria July 15-21, 2000. (poster)
- BELO, D., ALVES, H., LOPES, E.B., GAMA, V., HENRIQUES, R.T., DUARTE, M.T., ALMEIDA, M., RIBERA, E., ROVIRA, C., VECIANA, J., Novos Complexos de Metais de Transição com Ligandos Tiofénicos: o Seu Uso como Percursos de Novos Materiais Moleculares, *XVII Encontro Nacional de Química*, IST Lisboa, Portugal, March 1-3, 2000. (poster)
- BELO, D., ALVES, H., LOPES, E.B., GAMA, V., HENRIQUES, R.T., DUARTE, M.T., ALMEIDA, M., PEREZ-BENITEZ, A., ROVIRA, C., VECIANA, J., New Dithiothiophene Complexes for Conducting and Magnetic Materials, *International Conference on Science and Technology of Synthetic Metals - ICSM 2000*, Gastein Austria July 15-21, 2000. (Invited Oral).
- BRANCO, J.B., GONÇALVES, A.P., PIRES DE MATOS, A., ALMEIDA GASHE, T., Selective isoprene hydrogenation over  $\text{LnNi}$  ( $\text{Ln} = \text{Pr}, \text{Gd}, \text{Tm}$ ) intermetallic compounds, *4<sup>th</sup> International Conference on f Elements- ICFE'4*, Madrid, Spain, September 17-21, 2000. (poster)
- CASACA, A., BONFAIT, G., GALINDO, V., SENATEUR, J.P., FEINBERG, D., Decomposed Vortex Lattice in YBCO/PBCO Multilayers, *6<sup>th</sup> International Symposium on Research in High Magnetic Fields - RHMF'2000*, Porto, Portugal, July 30- August 3, 2000. (poster)
- CATARINO, I., BONFAIT, G., SÉRIO, S., GONÇALVES, A.P., ALMEIDA, M., GODINHO, M., Specific Heat of the  $\text{UFe}_{4+x}\text{Al}_{8-x}$  Family", *6<sup>th</sup> Workshop on Magnetism and Intermetallics*, Chemistry Dept., ITN, Sacavém, Portugal, November 16-17, 2000. (Oral).
- CRUZ, M.M., CARVALHO, M.D., CASACA, A., BONFAIT, G., COSTA, F.M., GODINHO, M., Ruddlesden-Popper Versus Perovskite Phases in manganites, *International Conference on Magnetism*, Recife, Brazil, August 6-11, 2000. (poster)
- FIGUEIREDO, F.M., WAERENBORGH, J.C., GRANJA, C., KHARTON, V.V., NÄFE, H., FRADE, J.R., Structure and Oxygen Permeation of  $\text{CaTi}_{1-x}\text{Fe}_x\text{O}_{3-\delta}$ , *7<sup>th</sup> Euroconference on Science and Technology of Ionics*, Calcatoggio, Corsica, France October 1-7, 2000. (poster)
- GODINHO, M., CARDOSO, C., CRUZ, M.M., CATARINO, I., WAERENBORGH, J.C., GONÇALVES, A.P., KUZNIETZ, M., BONFAIT, G., ALMEIDA, M., Magnetism of the Series  $\text{UFe}_x\text{Al}_{12-x}$ , *International Conference on Magnetism*, Recife, Brazil, August 6-11, 2000. (oral)
- GONÇALVES, A.P., ESTRELA, P., LOPES, E.B., GODINHO, M., ALMEIDA, M., Preparation and Characterisation of  $\text{UZn}_{12}$  Single Crystals, *30<sup>ièmes Journées des Actinides</sup>*, Dresden, Germany, May 4-6, 2000. (oral)
- GONÇALVES, A.P., PEREIRA, L.C.J., ALMEIDA, M., Preparação e Crescimento Cristalino de Materiais Intermetálicos Contendo Urânio ou Terras Raras, *XVII Encontro Nacional de Química*, IST Lisboa, Portugal, March 1-3, 2000. (poster)
- GONÇALVES, A.P., ALVES, E., DA SILVA, M.R., CONDE, O., ROSA, M.A., DIEGO, M., GODINHO, M., ALMEIDA, M., Sputtering Deposition of Uranium Thin Films, *4<sup>th</sup> International Conference on f-Elements - ICFE'4*, Madrid, Spain, September 17-21, 2000.
- GONÇALVES, A.P., ALVES, E., DA SILVA, M.R., ROSA, M.A., GODINHO, M., ALMEIDA, M., Deposição de Filmes Finos de Urânio por Pulverização Catódica, *XII National Physics Conference - Física 2000, Figueira da Foz, Portugal*, September 27-30, 2000. (poster)
- GONÇALVES, A.P., ALVES, E., DA SILVA, M.R., ROSA, M.A., GODINHO, M., ALMEIDA, M., Projecto e Instalação de um Sistema de Pulverização Catódica Dedicado à Deposição de Compostos Contendo Urânio, *XII National Physics Conference - Física 2000, Figueira da Foz, Portugal*, September 27-30, 2000. (poster)
- GONÇALVES, A.P., KUZNIETZ, M., GODINHO, M., ALMEIDA, M., Magnetic Features of the  $(\text{U}_{0.5}\text{Tm}_{0.5})\text{Ni}_2\text{B}_2\text{C}$  Solid Solution, *4<sup>th</sup> International Conference on f Elements- ICFE'4*, Madrid, Spain, September 17-21, 2000. (poster)
- GONÇALVES, A.P., NÖEL, H., Study of the U-Fe-Sn Ternary System, *XVII Encontro Nacional de Química*, IST Lisboa, Portugal, March 1-3, 2000. (poster)
- GONÇALVES, A.P., SALAMAKHA, P., SOLOGUB, O., ALMEIDA, M., Single Crystal Investigation of the Binary  $\text{NdB}_4$  Compound, *4<sup>th</sup> International Conference on f Elements- ICFE'4*, Madrid, Spain, September 17-21, 2000. (poster)
- LOPES, E.B., AUBIN-SENZIER, P., JEROME, D., RIBERA, E., PEREZ-BENITEZ, A., ROVIRA, C., VECIANA, J., HENRIQUES, R.T., ALMEIDA, M.,

Pressure Effect on the Electrical Properties on the Ladder Compounds  $(DT-TTF)_2 M(mnt)_2$ ,  $M=$ Au, Ni, Pt and the 1D System  $(TTDM-ttf)[Au(mnt)2]$ , *Workshop on Molecular Conductors and Magnets*, Lisbon, Portugal, 19-21 Oct. 2000.

MARTINEZ-FERRERO, E., CLEMENTE-LEON, M., GALAN-MASCAROS, J. R., GIMENEZ-SAIZ, C., GOMEZ-GARCIA, C.J., LOPES, E.B., ALMEIDA, M., CORONADO, E., Hybrid Salts of Polyoxometalates with Perylene and BEDT-TTF Radicals, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (oral)

MAS-TORRENT, M., TURNER, S.S., WURST, K., VIDAL-GANCEDO, J., VECIANA, J., ALMEIDA, M., ROVIRA, C., DAY, P., A New Family of Conducting and Magnetic Charge Transfer Salts based on BMDT-TTF Donor, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (poster)

NASRAOUI, M., WAERENBORGH, J.C., Fe Speciation in Weathered Pyrochlores by  $^{57}\text{Fe}$  Mössbauer Spectroscopy, *Carbonatite Workshop*, Saint Etienne, France, February 21-22, 2000. (poster)

PEREIRA L. C. J., CATARINO I., BONFAIT G., WAERENBORGH J. C., GODINHO M., ALMEIDA M., Heavy Fermion Properties of  $\text{U}_2\text{Pt}_2\text{In}$ ; Effect of Th Substitution for U, *30èmes Journées des Actinides*, Dresden, Germany, May 4-6, 2000. (poster)

PEREIRA, L.C.J., CATARINO, I., BONFAIT, G., WAERENBORGH, J.C., ALMEIDA, M., GODINHO, M., The Effect of Th Substitution in  $(\text{U}_{1-x}\text{Th}_x)_2\text{Pt}_2\text{In}$  Solid Solutions, *International Conference on Magnetism*, Recife, Brazil, August 6-11, 2000. (poster)

PEREIRA, L.C.J., WAERENBORGH, J.C., CATARINO, I., BONFAIT, G., GODINHO, M., ALMEIDA, M., The effect of Th Substitution for U in the Heavy Fermion  $\text{U}_2\text{Pt}_2\text{In}$ , *13<sup>th</sup> International Conference on Solid Compounds of Transition Elements - Stresa*, Italy, April 4-7, 2000. (poster)

PROKEŠ, K., BARTASHEVICH, M.I., GOTO, T., NAKOTTE, H., HAANAPPEL, E.G., SYSCHENKO, A., DE BOER, F.R., LACERDA, A., PEREIRA, L.C.J., SECHOVSKÝ, V., Metamagnetic Transition in  $\text{U}_2\text{Pd}_2\text{In}$ , *6<sup>th</sup> International Symposium on Research in High Magnetic Fields - RHMF'2000*, Porto, Portugal, July 30- August 3, 2000. (poster).

RABAÇA S., BELO D., MEIRA R., SOARES J., DUARTE M. T., GAMA V., Ferrimagnetic Behavior in Decamethylmetallocenium Salts of Bis-benzenedithiolate Ni and Pt Anionic Complexes, *VII<sup>th</sup> International Conference on Molecule-Based Magnets - ICMM2000*, San Antonio, Texas, USA, September 16-21, 2000. (poster)

RABAÇA, S., BELO, D., ALVES, H., MEIRA, R., DUARTE, M.T., GAMA, V., Materiais Magnéticos baseados em Decametylmetalocenos e em Aceitadores Planares, *XVII Encontro Nacional de Química*, IST Lisboa, Portugal, March 1-3, 2000. (poster)

RABAÇA, S., BELO, D., DUARTE, M.T., GAMA, V., Supramolecular Organisation of Metamagnetic Linear Chain Electron Tranfer Salts Based on Metallocenium and Metal-bis-dichalcogenates, *Dalton Discussion 3, Inorganic Crystal Engineering*, University of Bologna, Italia, September 9-11, 2000. (poster)

RABAÇA, S., BELO, D., MEIRA, R., SANTOS, I.C., PEREIRA, L.C.J., DUARTE, M.T., GAMA, V., Ferrimagnetism in Electron Transfer Salts Based on Metallocenium Donors and Bis-benzenedithiolate Anionic Acceptors, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (poster).

RABAÇA, S., BELO, D., PEREIRA, L.C.J., SANTOS, I.C., DUARTE, M.T., GAMA, V., Magnetic Behaviour of the Decamethylmetallocenium Salts of Metal Bis-(trifluoromethyl)ethylenediselenates, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (oral)

RABAÇA, S., BELO, D., PEREIRA, L.C.J., SANTOS, I.C., DUARTE, M.T., GAMA, V., Linear Chain Electron Transfer Salts Based on Metallocenium and Metal Bis-dichalcogenates, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (poster)

RABAÇA, S., et al, Magnetic Behaviour of the Decamethylmetallocenium Salts of Metal bis-(trifluoromethyl)ethylenediselenates, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, 19-21 Oct, 2000. (oral)

RABAÇA, S., GAMA, V., et al., Ferromagnetic Behavior in Decamethylmetallocenium Salts of Bis-benzenedithiolate Ni and Pt Anionic Complexes, *VII<sup>th</sup> International Conference on Molecule-Based Magnets - ICMM2000*, San Antonio, Texas, USA, September 16-21, 2000.

RABAÇA, S., MEIRA, R., GAMA, V., DUARTE, M.T., Structural and Magnetic Characterisation of  $[\text{Fe}(\text{Cp}^*)_2][\text{DMe-DCNQI}]$ , *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (poster)

RABAÇA, S., MEIRA, R., SOARES, J., DUARTE, M.T., GAMA, V., Structural and Magnetic Characterisation of  $[\text{Fe}(\text{Cp}^*)_2][\text{DR-DCNQI}]$ , R = Me and Ph, *International Conference on Science and Technology of Synthetic Metals - ICSM 2000*, Gastein Austria July 15-21, 2000. (poster)

- ROSA, M. A., GONÇALVES, A.P., ALVES, E., DA SILVA M.R., GODINHO, M., ALMEIDA, M., Sputtering Deposition and Structural Characterisation of Uranium Films, *6<sup>th</sup> Workshop on Magnetism and Intermetallics*, Chemistry Dept., ITN, Sacavém, Portugal, November 16-17, 2000. (oral)
- ROVIRA, C., RIBERA, E., PEREZ-BENITEZ, A., VIDAL-GANCEDO, J., MOUSTARDER, S. E., MOLINS, E., MATA, I., ROUSSEAU, R., CANADELL, E., VECIANA, J., MORGADO, J., HENRIQUES, R., ALMEIDA, M., SCOEFFEL, J-P., POUGET, J-P., ARCON, D., LAPPAS, A., MARGADONNA, S., PRASSIDES, K., Electrical and Magnetic Properties of Radical Ion Salts derived from multisulfur TTF derivatives and [M(mnt)<sub>2</sub>] (M=Au, Ni, Pt, Fe, Co) anions, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (oral)
- SANTOS, I.C., RABAÇA, S., BELO, D., LOPES, E.B., DUARTE, M.T., GAMA, V., HENRIQUES, R.T., M. ALMEIDA, Structure and Properties of the New Compounds Based on Ni(dcdmp)<sub>2</sub>, *Workshop on Molecular Conductors and Magnets*, Lisboa, Portugal, Outubro 19-21, 2000. (poster)
- SÉRIO, S., GODINHO, M., GONÇALVES, A.P., WAERENBORGH, J.C., ALMEIDA, M., Preparation and study of UFe<sub>12-x</sub>Al<sub>x</sub>H<sub>y</sub> Compounds - Pressure effect, *6<sup>th</sup> Workshop on Magnetism and Intermetallics*, Chemistry Dept., ITN, Sacavém, Portugal, November 16-17, 2000. (oral)
- FRUCHART, D., Effect of Interstitial Elements on UFe<sub>12-x</sub>Al<sub>x</sub> for 4.5 < x < 5, *International Conference on Magnetism*, Recife, Brazil, August 6-11, 2000. (poster)
- SÉRIO, S., GONÇALVES, A.P., WAERENBORGH, J.C., ALMEIDA, M., FRUCHART, D., GODINHO, M., Effect of Interstitial Elements on UFe<sub>12-x</sub>Al<sub>x</sub>, *13<sup>th</sup> International Conference on Solid Compounds of Transition Elements - Stresa*, Italy, April 4-7, 2000. (poster)
- SÉRIO, S., WAERENBORGH, J.C., GONÇALVES, A.P., ALMEIDA, M., FRUCHART, D., GODINHO, M., Preparation and Study of UFe<sub>12-x</sub>Al<sub>x</sub>H<sub>y</sub> (x = 4.5 and 4.7) Compounds, *30ièmes Journées des Actinides*, Dresden, Germany, May 4-6, 2000. (oral)

# Cultural Heritage and Sciences

## Journals

### Published

GOUVEIA, M.A., PRUDÊNCIO, M.I., New Data on Sixteen Reference Materials Obtained by INAA. *Journal of Radioanalytical and Nuclear Chemistry*, **245** (1) (2000) 105-108.

NASRAOUI, M., BILAL, E., The Pyrochlore, a Geochemical Memory of Different Alteration Stages of the Lueshe Ore Deposit (NE ex-Zaire), *Journal of Asian Earth Sciences* **18** (2000) 237-251.

NASRAOUI, M., TOULKERIDIS, T., CLAUER, N., BILAL, E., Differentiated Hydrothermal and Meteoric Alterations of the Lueshe Carbonatite Complex (Democratic Republic of Congo) Identified by REE Study Combined with a Sequential Acid-Leaching Experiment, *Chemical Geology* **165** (2000) 109-132.

PRUDÊNCIO, M.I., SOARES, A.M., ARAÚJO, M.F., GOUVEIA, M.A., DIAS, M.I., WAERENBORGH, J.C., ALVES, L.C., Ciências Aplicadas à Arqueologia: Trabalho Desenvolvido no Instituto Tecnológico e Nuclear, *Trabalhos de Arqueologia da EAM*, Portugal, **Vol. 4/5** (2000) 8 pp.

RICHTER, D., WAIBLINGER, J., RINK, W.J., WAGNER, G.A., Thermoluminescence, Electron Spin Resonance and <sup>14</sup>C-Dating of the Late Middle and Early Upper Palaeolithic Site Geißenklösterle Cave in Southern Germany, *Journal of Archaeological Science* **27** (2000) 71-89.

### Accepted for publication or in press

ROCHAS, E., NASRAOUI, M., SOUBIES, F., BILAL, E., Evolution Géochimique du pyrochlore au cours de l'altération météorique du gisement de Catalão II (Goiás, Brésil), *Compte Rendus de l'Académie des Sciences Paris* (2000), in press.

## Books and Book Chapters

KIESELBACH, P., KIND, C.-J., MILLER, A.M., RICHTER, D., Siebenlinden 2. Ein mesolithischer Lagerplatz bei Rottenburg am Neckar, Kreis Tübingen. Materialhefte zur Archäologie in Baden-Württemberg 51, Konrad Theiss Verlag, Stuttgart, (2000) 235p.

## Conference Proceedings

### Published

DIAS, M.I., PRUDÊNCIO, M.I., GONÇALVES, M.A., SEQUEIRA BRAGA, M.A., GOUVEIA, M.A., Geochemical and Mineralogical Diversity of Clay

Materials in Fornos de Algodres Region (Central Portugal) and its Implications on Provenance Studies of Ancient Ceramics, *Proceedings of the 1<sup>st</sup> Latin American Clay Conference*, Funchal 2000, Vol II (2000) 237-244.

DIAS, M.I., PRUDÊNCIO, M.I., PRATES, S., GOUVEIA, M.A., VALERA, A.C., Tecnologias de Produção e Proveniência de Matéria-Prima das Cerâmicas Campaniformes da Fraga da Pena (Fornos de Algodres – Portugal), *Actas do 3º Congresso de Arqueologia Peninsular*, V.Real, Portugal, vol IV (2000) 253-268.

DIAS, M.I., ROCHA, F., PRATES, S., Fibrous Clay Minerals from a Tertiary Continental Deposit (Malpica do Tejo, Portugal) - Mineralogical and Statistical Analysis, *Proceedings of the 1<sup>st</sup> Latin American Clay Conference*, Funchal 2000, Vol II (2000) 49-56.

PRUDÊNCIO, M.I., M.A. GOUVEIA, M.A., FREITAS, M.C., CHAVES, L., MARQUES, M.A., Soil Versus Lichen Analysis on Elemental Dispersion Studies (north of Portugal), *Proceedings of the International Workshop "Biomonitoring of Atmospheric Pollution (with emphasis on trace elements)- BIOMAP*, IAEA- TECDOC-1152, (2000) 91-99.

PRUDÊNCIO, M.I., NASRAOUI, M., TRINDADE, M. J., SEQUEIRA BRAGA, M.A., FIGUEIREDO, M.O., Secondary Phosphate Phases in Altered Trachyte from S. Miguel Island (Azores, Portugal) – a Possible Contribution to the Stone Degradation. *Proceedings of the IX International Congress on Stone*, Venice, Elsevier eds., Vol 1 (2000) 165-170.

ROMÃO, P., PRUDÊNCIO, M.I., FIGUEIREDO, M.O., TRINDADE, M.J., NASRAOUI, M., GOUVEIA, M.A., SILVA, T., The São Sebastião Church of Terceira Island (Azores, Portugal) – Characterisation of the Stones and their Biological Colonisation, *Proceedings of the IX International Congress on Stone*, Venice, Elsevier Eds., Vol 1 (2000) 493-497.

SEQUEIRA BRAGA, M.A., DELGADO RODRIGUES, J., ALVES, C.A., COSTA, D., SILVA, T., TRINDADE, M.J., WAERENBORGH, J.C., NASRAOUI, M., GOUVEIA, M.A., Trachyte Stones in Monuments of the São Miguel and Terceira Islands, Azores (Portugal), *Proceedings of the 9<sup>th</sup> International Congress on Deterioration and Conservation of Stone*, Ed. Vasco Fassina, Elsevier, Amsterdam, The Netherlands, Vol.1, 2000, pp. 235-245.

*Accepted for publication or in press*

DIAS, M.I., PRUDÊNCIO, M.I., GOUVEIA, M.A., VALERA, A.C., SEQUEIRA BRAGA, M.A., ALVES, C.A., Pottery Production Technology Through out the 3<sup>rd</sup> Millennium BC on a Local Settlement Network in Central Portugal: Comparing Results from Castro de Santiago and Fraga da Pena Sites, *Proceedings of the 32<sup>nd</sup> International Symposium of Archaeometry*, Mexico, in press.

DIAS, M.I., PRUDÊNCIO, M.I., VALERA, A.C., SEQUEIRA BRAGA, M.A., GOUVEIA, M.A., Provenance and Technology of Pre-Historic Pottery from Fornos de Algodres (Portugal): the Fraga da Pena Archaeological Site, *Proceedings of the EMAC'99*, Athens, in press.

OLIVEIRA, F., PRUDÊNCIO, M.I., SEQUEIRA BRAGA, M.A., DELGADO, M., GOUVEIA, M.A., MARTINS, M., The "Bracarense" Ceramics from Roman Settlements of the North of Portugal and Galiza (Spain), *Proceedings of the 32<sup>nd</sup> International Symposium of Archaeometry*, Mexico, in press.

POLVORINOS DEL RIO, A., DIAS, M.I., GÓMEZ MORÓN, M.A., SEQUEIRA BRAGA, M.A., VALERA, A.C., PRUDÊNCIO, M.I., GOUVEIA, M.A., ALVES, C.A., Archaeometry of the Pre-Historical Fraga da Pena Fortified Settlement (Central Portugal): Morphometric, Mineralogical and Chemical Analyses of Ceramics, *Proceedings of the 32<sup>nd</sup> International Symposium of Archaeometry*, Mexico, in press.

RICHTER, D., WAGNER, G.A., RINK, W.J., FREUND, G., WEISMÜLLER, W., REISCH, L. AND BÖHNER, U., Luminescence Ages for the Middle Palaeolithic Sequences of the 'Sesselfelsgrotte' and the 'Abri I Schulerloch', Bavaria, Southern Germany. In: *Wissenschaftliche Veröffentlichungen des Neanderthalmuseums*, 2000, in press.

RICHTER, D., Thermoluminescence Dating of Heated Flint. Method and Application. *Proceedings of the VIII International Flint Symposium*, in press.

## Communications

DIAS, M.I., Caracterização Química de Cerâmica Arqueológica. Produção e Proveniência, *Workshop Ciências Aplicadas à Arqueologia*, 14 April 2000, Sacavém, Portugal. (oral)

DIAS, M.I., PRUDÊNCIO, M.I., GONÇALVES, M.A., SEQUEIRA BRAGA, M.A., GOUVEIA, M.A., Geochemical and Mineralogical Diversity of Clay Materials in Fornos de Algodres Region (Central Portugal) and its Implications on Provenance Studies of Ancient Ceramics, *1<sup>st</sup> Latin American Clay Conference*, Funchal, Portugal, September 2000. (poster)

DIAS, M.I., PRUDÊNCIO, M.I., GOUVEIA, M.A., VALERA, A.C., SEQUEIRA BRAGA, M.A., ALVES, C.A., Pottery Production Technology Through Out the 3<sup>rd</sup> Millennium BC on a Local Settlement Network in Central Portugal: Comparing results from Castro de Santiago and Fraga da Pena Sites, *32<sup>nd</sup> International Symposium of Archaeometry*, Cidade do México, México, May 2000. (poster)

DIAS, M.I., ROCHA, F., PRATES, S., Fibrous Clay Minerals from a Tertiary Continental Deposit (Malpica do Tejo, Portugal) - Mineralogical and Statistical Analysis, *1<sup>st</sup> Latin American Clay Conference*, Funchal, Portugal (2000). (poster)

OLIVEIRA, F., PRUDÊNCIO, M.I., SEQUEIRA BRAGA, M.A., DELGADO, M., GOUVEIA, M.A., MARTINS, M., The "Bracarense" Ceramics from Roman Settlements of the North of Portugal and Galiza (Spain), *32<sup>nd</sup> International Symposium of Archaeometry*, Cidade do México, México, May 2000. (poster)

POLVORINOS DEL RIO, A., DIAS, M.I., GÓMEZ MORÓN, M.A., SEQUEIRA BRAGA, M.A., VALERA, A.C., PRUDÊNCIO, M.I., GOUVEIA, M.A., ALVES, C.A., Archaeometry of the Pre-Historical Fraga da Pena Fortified Settlement (Central Portugal): Morphometric, Mineralogical and Chemical Analyses of Ceramics, *32<sup>nd</sup> International Symposium of Archaeometry*, Cidade do México, México, May 2000. (poster)

PRUDÊNCIO, M.I., NASRAOUI, M., TRINDADE, M. J., SEQUEIRA BRAGA, M.A., FIGUEIREDO, M.O., Secondary Phosphate Phases in Altered Trachyte from S. Miguel Island (Azores, Portugal) – a Possible Contribution to the Stone Degradation, *IX International Congress on Stone*, Venice, Italy, June 2000. (oral)

PRUDÊNCIO, M.I., SEQUEIRA BRAGA, M.A., PAQUET, H., WAERENBORGH, J.C., PEREIRA, L.C.J., GOUVEIA, M.A., Clay Mineral Assemblages in Weathering Basalt Profiles from Central and Southern Portugal: Climatic Significance, *Weathering 2000*, Belfast, U.K, June 2000. (poster)

RICHTER, D., ZINK, A.J.C., PRUDÊNCIO, M.I. Luminescence Dating in Archaeology and the New Laboratory at ITN, *6<sup>th</sup> Annual meeting European Archaeologists Association*, 10-17 September 2000, Lisbon, Portugal. (poster)

ROMÃO, P., PRUDÊNCIO, M.I., FIGUEIREDO, M.O., TRINDADE, M.J., NASRAOUI, M., GOUVEIA, M.A., SILVA, T., The São Sebastião Church of Terceira Island (Açores, Portugal) – Characterisation of the Stones and their Biological Colonisation, *IX International Congress on Stone*, Venice, Italy, June 2000 (poster).

SEQUEIRA BRAGA, M.A., DELGADO RODRIGUES, J., ALVES, C.A., COSTA, D., SILVA, T., TRINDADE, M.J., WAERENBORGH, J.C., NASRAOUI, M., GOUVEIA, M.A., Trachyte Stones

in Monuments of the São Miguel and Terceira Islands, Azores (Portugal). *IX International Congress on Stone*, Venice, Italy, June 2000. (oral)

VISOCEKAS, R., ZINK, A.J.C., Comparing Fading in Feldspars by the Bir Spectral Analysis, *Annual UK Luminescence Workshop*, 10-12 July 2000, Oxford, UK (oral).

ZINK, A.J.C., Multiplicité des méthodes de datation par luminescence: inconvénient ou avantage? *XXI Rencontre Internationales d'Archéologie et d'Histoire d'Antibes - Datation*, 19-21 October 2000, Antibes, France. (poster)

ZINK, A.J.C., RICHTER, D., PRUDÊNCIO, M.I., Setting-up of a New Luminescence Dating Lab (ITN, Sacavém, Portugal), *Annual UK Luminescence Workshop*, 10-12 July 2000, Oxford (UK). (poster).

ZINK, A.J.C., TL/OSL I-Méthodologie. *Workshop Ciências Aplicadas à Arqueologia*, April 2000, Sacavém, Portugal. (oral)

## Internal Reports

ZINK, A.J.C., Luminescence dating - A New Research Tool in ITN, *Internal report ITN/SQ-N-2000/1*, Sacavém (2000).

## Theses

### MSc.

A. GOMES

*Cerâmicas pintadas da época romana: tecnologia, tipologia e cronologia*

Univ. Minho, 2000

Co-supervisor: M. Isabel Prudêncio

A. GASPAR

*Contribuição para o estudo de cerâmicas dos séc. V-VI DC de Braga*

Univ. Minho, 2000

Co-supervisor: M. Isabel Prudêncio

# Inorganic Chemistry, Radiochemistry and Radiopharmacy

## ◆ Inorganic and Organometallic Chemistry

### Journals

#### Published

BARREIRA, T., LEAL, J.P., Standard Molar Enthalpies of Formation of Mg and Ca Alkoxides, *Eur. J. Inorg. Chem.* (2000) 987-991.

CARVALHO, A., DOMINGOS, A., ISOLANI, P. C., MARQUES, N., PIRES DE MATOS, A., VICENTINI, G., Synthesis, Luminescence Studies and Crystal Structures of Two Europium(II) hydrotris(pyrazol-1-yl)borate Complexes: Eu(HBpz<sub>3</sub>)<sub>2</sub>.2DPSO and Eu(HBpz<sub>3</sub>)<sub>2</sub>.2BPMU, *Polyhedron* **14** (2000) 1707-1712.

CARVALHO, A., GARCIA-MONTALVO, V., DOMINGOS, A., CEA-OLIVARES, R., MARQUES, N., PIRES DE MATOS, A., Synthesis and Characterization of Thorium and Uranium Tetraphenylimidophosphinate Complexes. Crystal and Molecular Structures of Th(tpip)<sub>4</sub>, U(tpip)<sub>4</sub> and UCl(tpip)<sub>3</sub>, *Polyhedron* **19** (2000) 1699-1705.

MARCHANDÉ, N., BRETON, S., GÉRIBALDI, S., CARRETAS, J. M., PIRES DE MATOS, A., MARÇALO, J., Gas Phase Reactivity of Rare Earth Metal Cations with Trialkylorthoformates: Synthesis of Neutral Rare Earth Alkoxides, *Int. J. Mass Spectrom.* **195/196** (2000) 139-148.

SILVA, M., DOMINGOS, A., PIRES DE MATOS, A., MARQUES, N., TROFIMENKO, S., Hydrotris(mesitylpyrazol-1-yl)borate U(IV) Compounds: Synthesis, Structure, and Ligand Isomerization, *J. Chem. Soc., Dalton Trans.* (2000) 4628-4634.

#### Accepted for publication or in press

CARRETAS, J. M., BRANCO, J., MARÇALO, J., ISOLANI, P. C., DOMINGOS, A., PIRES DE MATOS, A., Synthesis and Characterization of Polynuclear Lanthanide Aryloxides, *J. Alloys Comp.*, in press.

BRANCO, J. B., ALMEIDA GASCHE, T., GONÇALVES, A. P., PIRES DE MATOS, A., Selective Isoprene Hydrogenation over LnNi (Ln=Pr, Gd, Tm) Intermetallic Compounds, *J. Alloys Comp.*, in press.

CARVALHO, A., CACHATA, V., LEAL, J.P., Standard Molar Enthalpies of Formation of Li, Na, K

and Tl Cyclopentadienyls, *Eur. J. Inorg. Chem.*, in press.

LOPES, I., HILLIER, A.C., LIU, S.Y.; DOMINGOS, A., ASCENSO, J., GALVÃO, A., SELLA, A., MARQUES, N., Solid State Structure and Solution Behaviour of Eight-Coordinate Sm(III) Poly(pyrazolyl)-borate Compounds, *Inorg. Chem.*, in press.

PIRES DE MATOS, A., FREITAS, M., MARSHALL, A., MARQUES, N., CARVALHO, A., ISOLANI, P. C., VICENTINI, G., FTICR Studies of Polypyrazol-1-yl Borates of Europium (II) Adducts, *J. Alloys Comp.*, in press.

### Communications

ALMEIDA GASCHE, T., BRANCO, J. B., GONÇALVES, A. P., PIRES DE MATOS, A., Selective Isoprene Hydrogenation over AnNi<sub>2</sub> (An=Th, U) Intermetallic Compounds, *4<sup>th</sup> International Conference on f-Elements - ICFE'4*, Madrid, Spain, September 2000. (poster)

BRANCO, J. B., ALMEIDA GASCHE, T., GONÇALVES, A. P., PIRES DE MATOS, A., Selective Isoprene Hydrogenation over LnNi (Ln=Pr, Gd, Tm) Intermetallic Compounds, *4<sup>th</sup> International Conference on f-Elements - ICFE'4*, Madrid, Spain, September 2000. (poster)

CARRETAS, J. M., BRANCO, J., MARÇALO, J., ISOLANI, P. C., DOMINGOS, A., PIRES DE MATOS, A. P., Synthesis and Characterisation of Polynuclear Lanthanide Aryloxides, *4<sup>th</sup> International Conference on f-Elements - ICFE'4*, Madrid, Spain, September 2000. (poster)

LEAL, J. P., RAMINHOS, H., Enthalpies of Formation of Potassium, Rubidium and Caesium Phenolates, *XVII Encontro Nacional da Sociedade Portuguesa de Química*, Lisboa, Portugal, March 2000. (poster)

LOPES, I., DIAS, R., DOMINGOS, A., MARQUES, N., Synthesis of a New Class of Mixed-Ligand Yb(II) Complexes, *XVII Encontro Nacional da Sociedad Portuguesa de Química*, Lisboa, March 2000. (poster)

LOPES, I., DOMINGOS, A., MARQUES, N., Hydrotris(3-Mesitylpyrazolyl)borate Ytterbium (II) Derivatives, *4<sup>th</sup> International Conference on f-elements*, Madrid, Spain, Sep.2000. (poster)

LOPES, I., DOMINGOS, A., MARQUES, N., Hydrotris(3-Mesylpyrazolyl)borate Ytterbium (II) Derivatives, *4<sup>th</sup> International Conference on f-elements*, Madrid, Spain, September 2000. (poster)

OLIVEIRA, M.C., MARÇALO, J., ALMOSTER FERREIRA, M. A., Gas-Phase Reactions of Methanol with Manganese and Iron Oxide Cluster Cations, *15<sup>th</sup> International Mass Spectrometry Conference*, Barcelona, Spain, August 2000. (poster)

PIRES DE MATOS, A., FREITAS, M. A., MARSHALL, A. G., MARQUES, N., CARVALHO, A., ISOLANI, P. C., VICENTINI, G., FTICR Studies of Polypyrazol-1-yl Borates of Europium (II) Adducts, *4<sup>th</sup> International Conference on f-elements*, Madrid, Spain, September 2000. (poster)

PIRES DE MATOS, A., MARÇALO, J., FREITAS, M. A., MARSHALL, A. G., CHOPPIN, G. R., Uranium Speciation Studies in Aqueous Solutions by FTICR Mass Spectrometry: Evidence for Uranyl Perchlorate Species, *15<sup>th</sup> International Mass Spectrometry Conference*, Barcelona, Spain, August 2000. (poster)

PIRES DE MATOS, A., MARÇALO, J., FREITAS, M. A., MARSHALL, A. G., CHOPPIN, G. R., Uranium Speciation Studies in Aqueous Solutions by FTICR Mass Spectrometry: Evidence for Uranyl Perchlorate Species, *15<sup>th</sup> International Mass Spectrometry Conference*, Barcelona, Spain, August 2000. (poster)

## Theses

### *Lic.*

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*Termoquímica de Fenóxidos e Amidetos de Metais Alcalinos*

Faculdade de Ciências da Universidade de Lisboa  
Supervisor: J.P. Leal

## Other publications

RAMOS, M.A.F.A.C., AMADOR LOUÇA, P., LEAL, J.P., Análise do Programa "Le Chat 2"; *Química* (2000) 79.

## ◆ Inorganic and Radiopharmaceutical Chemistry

### Journals

#### *Published*

COLLIN, J., MARIA, L., SANTOS, I., Uranium Iodides as Catalysts for Diels-Alder Reactions, *Journal of Molecular Catalysis A: Chemical*, **160** (2000) 263-267.

CORREIA, J.D.G., DOMINGOS, Â., SANTOS, I., Neutral Trichlorooxorhenium(V) Complexes Containing New Heterofunctionalized Phosphine Ligands of the Type PN<sub>2</sub> and PNO, *Eur. J. Inorg. Chem.* (2000) 1523-1529.

CORREIA, J.D.G., DOMINGOS, Â., PAULO, A., SANTOS, I., Novel Six-co-ordinate Oxorhenium Complexes with Ligands Containing PN<sub>2</sub> and PNO Donor Atom Sets: Syntheses and Structural Characterization, *J. Chem. Soc., Dalton Trans.* (2000) 2477-2482.

GARCIA, R., PAULO, A., DOMINGOS, A., SANTOS, I., ORTNER, K., ALBERTO, R., Re and Tc Complexes Containing B-H...M Agostic Interactions as Building Blocks for the Design of Radiopharmaceuticals, *J. Am. Chem. Soc.* **122** (2000) 11240-11241.

GIUSEPPONE, N., COLLIN, J., SANTOS, I., Enantioselective Diels-Alder Reactions Catalyzed by Samarium Iodo Binaphthoxides, *Tetrahedron Letters* **41** (2000) 639-642.

MARQUES, F., CRESPO, M. E., SILVA, Z. I., BICHO, M., Insulin and High Glucose Modulation of Phosphatase and Reductase Enzymes in the Human Erythrocytes: a Comparative Analysis in Normal and Diabetic States, *Diabetes Research and Clinical Practice*, **47** (2000) 191-198.

PAULO, A., DOMINGOS, A., GARCIA, R., SANTOS, I., Cationic Re(V) Oxo Complexes with Poly(pyrazolyl)borates: Synthesis, Characterization, and Stability, *Inorg. Chem.* **39** (2000) 5669-5674.

RAPOSINHO, P.D., BROQUA, P., HAYWARD, A., AKINSANYA, K., GALYEAN, R., SCHTEINGART, C., JUNIEN, J.-L., AUBERT, M.L., Stimulation of the Gonadotropin Axis by the Neuropeptide Y receptor-Y1 antagonist /Y4 Agonist 1229U91 in the Male Rat, *Neuroendocrinology* **71** (2000) 2-7.

RAPOSINHO, P.D., CASTILLO, E., D'ALLEVES, V., BROQUA, P., PRALONG, F.P., AUBERT, M.L., Chronic Blockade of the Melanocortin 4 Receptor Subtype Leads to Obesity Independently of Neuropeptide Y Action, with no Adverse Effects on the Gonadotropic and Somatotropic Axes, *Endocrinology* **141**(2000) 4419-27

SANTOS, M.A., GRAZINA, R., NETO, A.Q., CANTINHO, G., GANO, L., PATRÍCIO, L., Synthesis, Chelating Properties Towards Gallium and Biological Evaluation of Two N-substituted 3-hydroxy-4-pyridinones, *J. of Inorganic Biochemistry* **78** (2000) 303-311.

SILVA, M.C. MELO, PATRÍCIO, L., GANO, SÁ E MELO, L.M.L., INOHAE, E., MATAKA, S., THIEMANN, T., Synthesis and Biological Evaluation of Two New Radiolabelled Estrogens [<sup>125</sup>I](E)-3-methoxy-17 $\alpha$ -iodovinylestra-1,3,5(10),6-tetraen-17 $\beta$ -ol and [<sup>125</sup>I](Z)-3-methoxy-17 $\alpha$ -iodovinylestra-1,3,5(10),6-tetraen-17 $\beta$ -ol, *Appl. Radiat. Isotopes.* **54** (2) (2000) 227-239.

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

CORREIA, J.D.G., DOMINGOS, Â., SANTOS, I., BOLZATI, C., REFOSCO, F., TISATO, F., Synthesis and Structural Analysis of Mono-Oxo Re(V) Complexes with Phosphino-Carboxylato Ligands, *Inorg. Chim. Acta*, in press.

### Conference Proceedings

SANTOS, M.A., GRAZINA, R., NETO, A. Q., CANTINHO, G., GANO, L., PATRÍCIO, L., Synthesis, Chelating Properties Towards Fe(III), Al(III), Ga(III) and and Biological Evaluation of Two N-substituted 3-hydroxy-4-pyridinones, Proceedings of the *6<sup>th</sup> International Symposium on Metal Ions in Biology and Medicine*, San Juan, Puerto Rico, USA, 7-10 May, 2000, pp. 613-615.

### Communications

CORREIA, J.D.G., Specific Radiopharmaceuticals of Re and Tc: Synthesis of New Ligands of the PNO, PNS and PN2 Type; Chemical and Radiochemical Studies, Conference in the Chemistry Department, ITN, July, 2000. (oral)

FERNANDES, C., DOMINGOS, A., CAMPELLO, M. P., CANTINHO, G., LISBOA, S., MOREIRA, R., PATRÍCIO, L. PENA, H., SANTOS, I., Synthesis, Characterization and Biodistribution Studies of  $^{99m}$ Tc-Peptides, *XVII Encontro Nacional da Sociedade Portuguesa de Química*, Lisboa, Portugal, March, 2000. (poster)

GARCIA, R., PAULO, A., DOMINGOS, A., SANTOS, I., Rhenium(I) Tricarbonyl Complexes with poly(methimazolyl)borates, *XVII Encontro Nacional da SPQ*, Lisbon, March 2000. (poster)

GANO, L., Ensino e Actividades de I&D em Radiofarmácia, *Congresso Ibero-Americano de Medicina Nuclear. VIII SPMN- XVII ALASBIMN* Porto, Portugal, 17-20 October, 2000. (invited)

INOHAE, E., THIEMANN, T., UMENO, K., MATAKA, S., MELO E SILVA, M. C., PATRÍCIO, L., MARUJO MARQUES, F., Synthesis and Evaluation of C-7 Substituted estra-1,3,5(10),6 tetraenes as Diagnostica for Estrogen Positive Human Breast Cancer, Abstract Book of the 78<sup>th</sup> Annual Spring Meeting of the Chemical Society of Japan, Chiba, Japan, 2000 (2PB-065, pp. 1366).

MARIA, L., DOMINGOS, A., SANTOS, I., Chemistry of U(III) Dihydrobis(pyrazolyl)borates, *XVII Encontro Nacional da Sociedade Portuguesa de Química*, Lisboa, Portugal, March, 2000. (poster)

MARIA, L., DOMINGOS, A., GALVÃO, A., SANTOS, I., Synthesis and Structure of U(III) Complexes with [HB(iPr<sub>2</sub>-pz)<sub>3</sub>], 4<sup>th</sup> International Conference on f-Elements, Madrid, Spain, September, 2000. (poster)

RAPOSINHO, P.D., PEDRAZZINI, T., TOMMASELLI, G., AUBERT, M.L., The Neuropeptide Y Y1 Antagonist/Y4 Agonist 1229U91 Stimulates LH Secretion through NPY Y4 Receptors: Assessment using NPY Y1-deficient Mice, *The Endocrine Society 82<sup>nd</sup> Annual Meeting* (Juin), Toronto. (poster)

SANTOS, I., Re and Tc Complexes with Boron Containing Ligands for Specific Radiotracers, *University of Paris- Sud, Orsay*, France, February, 2000. (invited)

SANTOS, I., Rhenium Organocompounds: Synthesis, Characterization and Potential Applications, 5<sup>th</sup> International Symposium on Organo-Metal Complexes and Catalysis, Baoding, China, August, 2000. (invited)

SANTOS, I., Re and Tc Complexes with Heterofunctionalized Phosphines for in vivo Assessment of Biological Functions, *Montréal University*, Montréal, Canada, November, 2000. (invited)

SANTOS, M.A., GRAZINA, R., NETO, A.Q., CANTINHO, G., GANO, L., PATRÍCIO, L. Synthesis, Chelating Properties Towards Fe(III), Al(III), Ga(III) and and Biological Evaluation of two N-substituted 3-hydroxy-4-pyridinones, Abstract Book of the 6<sup>th</sup> International Symposium on Metal Ions in Biology and Medicine, San Juan, Puerto Rico, USA, 7-10 May, 2000. (poster )

UMENO, K., THIEMANN, T., INOHAE, E., MATAKA, S., MELO E SILVA, M.C., PATRÍCIO, L., GANO, L., SANTOS, A.C., MARUJO MARQUES, F., C-7 substituted estra-1,3,5(10),6-tetraenes as New Radioligands for the Estrogen Receptor ER $\alpha$ , Abstract Book of the XI International Symposium on Supramolecular Chemistry, Acros Fukuoka, Fukuoka, Japan, 30 July - 4 August, 2000. (poster)

## Internal Reports

CORREIA, J.D.G., Re Chemistry with Relevance for Labelling Biomolecules with  $^{99m}$ Tc and  $^{186/188}$ Re for Imaging and Therapy, ITN, February, 2000.

CORREIA J.D.G., *Final Report to M.C., COST Action B12*, May, 2000.

FERNANDES, C., *Final Report to M.C., COST Action B12*, July, 2000.

GANO, L., PATRÍCIO, L., Development of Tc-99m Labelled Somatostatin Analogues and Evaluation of Their Radiochemical and Biological Behaviour, Final Report on IAEA-CRP *Technetium-99m labelled peptides for imaging of peripheral receptors* (IAEA-TECDC).

SILVA, M.C.M., Steroid Receptor-Based Radiotracers for Imaging Breast Tumours, *Monography*, February 2000.

## Theses

### PhD

L. GANO

*Antibodies and Peptides labeled with  $^{99m}$ Tc*  
Faculdade de Farmácia, Universidade de Lisboa,  
Supervisor: Luciana Catela Patrício

### Researcher

M.C.M. SILVA

*Potential Imaging Agents for Estrogen Receptor-Positive Breast Tumours – Synthesis and Characterisation of Estrogen Derivatives*  
ITN, Sacavém  
Supervisor: Thies Thieman

## ❖ Production and Application of Radioisotopes

### Journals

#### *Published*

NEVES, M., DORMEHL, I., KILIAN, E., LOW, W.K.A., LALAOUI, K., PEDROSO DE LIMA, J.J., Evaluation in the Baboon Model of  $^{99m}$ Tc-Biguanide as a Tracer for Renal Imaging, *Nuclear Medicine & Biology* **27** (6) (2000) 593-597.

NEVES, M., KLING, A., LAMBRECHT, R.M., Utilization of low power reactors for therapeutic radiopharmaceuticals, IAEA-CSP-4/C (2000), ISSN 1562-4153.

### Communications

NEVES, M., PEREIRA, N., GANO, L., COSTA, MC, COSTA, MR, ROSADO, M., FAUSTO, R., Synthesis, Characterization and Biodistribution of  $^{153}$ Sm-Bisphosphonates, XVII Congresso da Asociacion Latino-Americana de la Sociedad de Biología y Medicina Nuclear - ALASBIMN 2000.

PRATA, M.I., SANTOS, A.C., NEVES, M., GERALDES, C.F.G.C., PEDROSO DE LIMA, J.J., Complexes of  $^{153}\text{Sm}^{3+}$  and  $^{111}\text{In}^{3+}$  with two DTPA Derivatives with High Hepatic Specificity: *in vivo* and *in vitro* studies, VIII Congresso da Sociedade Portuguesa de Medicina Nuclear, Porto, Portugal, 17-21 October 2000:

## Environmental Sciences

### ❖ Health and Environmental Studies Using Ion Beams

#### Journals

##### Published

CARVALHO, M.L., CASACA, C., PINHEIRO, T., MARQUES, J. P., CHEVALLIER, P., CUNHA, A.S., Analysis of Human Teeth and Bones from the Chalcolithic Period by X-ray Spectrometry, *Nucl. Instr. and Meth B* **168** (2000) 559-565.

##### Accepted for publication or in press

CARVALHO, M.L., CASACA, C., MARQUES, J.P., PINHEIRO, T., CUNHA, A.S., CHEVALLIER, P., Human Teeth Elemental Profiles by Synchrotron Radiation: Dietary Habits and Environmental Influence, *X-ray Spectrom.*, in press.

PINHEIRO, T., ALVES, L.C., PALHANO, M.J., BUGALHO DE ALMEIDA, A., Mobilisation of Toxic Elements in the Human Respiratory System, *Nucl. Instr. and Meth*, in press.

SEIXAS, S.B., PINHEIRO, T., REIS, C.S., Study of Lead in Octopus (*Octopus vulgaris*) in Portugal, *Mar. Poll. Bull.*, in press.

#### Communications

SEIXAS, S.B., PINHEIRO, T., REIS, C.S., Lead in Octopus (*Octopus vulgaris*) in Portugal - A Preliminary Study, CIAC 2000, Aberdeen, UK, June 2000. (poster)

BARREIROS, M.A., PINHEIRO, T., ARAÚJO, M.F., COSTA, M.M., PALHA, M., SILVA, R.C., Quality Assurance in Nuclear Related Analytical Techniques,

European Conference on Analytical Chemistry *EUROANALYSIS XI*, Lisbon, Portugal 3-9 September, 2000. (poster)

BARREIROS, M.A., COSTA, M.M., PINHEIRO, T., ARAÚJO, M.F., PALHA, M., SILVA, R.C., TXRF, PIXE and EDXRF: A First Step Towards Normalization of X-ray Spectrometry for Chemical Analysis, *8<sup>th</sup> International Conference on Total Reflection X-ray Spectrometry*, Vienna, Austria, 23-27 September 2000. (oral)

PINHEIRO T., Nuclear Techniques for Toxicology and Environmental Health Studies, *NATO Advanced Research Workshop, on Monitoring of Natural and Man-made Radionuclides and Heavy Metal Waste in Environment*, Dubna, Russia, 3-6 October 2000. (invited)

SANTOS, M.C., PINHEIRO, T., RAIMUNDO, N., MONTEIRO, C., PINTO, R.E., Evidence for an Effect of Selenium Supplementation on the Concentration of Rubidium in Several Rats Tissues, "Congresso Nacional de Bioquímica", Póvoa do Varzim, Portugal, 28-30 September 2000. (poster)

#### Theses

##### Lic.

NUNO FILIPE V.N. RAIMUNDO

*Efeito da Suplementação com Selenito sobre a Acção da Dietilonitrosamina em Tecidos de Rato*

FC-UL (Biochemistry)

Supervisors: Cristina Santos (FC-UL) and Teresa Pinheiro (ITN).

## ◆ Atmospheric Elemental Dispersion

### Journals

#### *Published*

FREITAS, M.C., REIS, M.A., MARQUES, A.P., WOLTERBEEK, H.TH., Dispersion of Chemical Elements in an Industrial Environment Studied by Biomonitoring using *Parmelia sulcata*, *Journal of Radioanalytical Nuclear Chemistry* **244** (2000) 109-113.

JESUS, A.P., REIS, M.A., ALVES, L.C., Anomalous X-ray Yields from Insulating Samples Bombarded by Ion Beams, *Nucl. Instr. and Methods* **B161-163** (2000) 120-124.

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

FARINHA, M.M., FREITAS, M.C., ALMEIDA, S.M., REIS, M.A., Some Improvements on Air Particulate Matter Analysis by INAA, *Radiation Physics and Chemistry*, accepted for publication.

FREITAS, M.C., REIS, M.A., MARQUES, A.P., WOLTERBEEK, H.TH., Use of Lichen Transplants in Atmospheric Deposition Studies, *Journal of Radioanalytical and Nuclear Chemistry, Articles*, accepted for publication.

PACHECO, A.M.G., FREITAS, M.C., BARROS, L.I.C., FIGUEIRA, R., Investigating Tree Bark as an Air-Pollution Biomonitor by Means of Neutron Activation Analysis, *Journal of Radioanalytical and Nuclear Chemistry, Articles*, accepted for publication.

REIS, M.A., ALVES, L.C., FREITAS, M.C., VAN OS, B., De GOEIJ, J., WOLTERBEEK, H.TH., Calibration of Lichen Transplants Considering Faint Memory Effects, *Environmental Pollution*, accepted for publication.

### Books and Book Chapters

FREITAS, M.C., REIS, M.A., ALVES, L.C., WOLTERBEEK, H.TH., Nuclear Analytical Techniques in Atmospheric Trace Element Studies in Portugal, in *Trace Elements in the Environment – their Distribution and Effects*, eds. Markert and Friese, Elsevier Science B.V., 2000, Chapter 6, pp.187-213.

### Conference proceedings

#### *Published*

COSTA, C.J., FREITAS, M.C., REIS, M.A., MARQUES, A.P., ALMEIDA, S.M., Elemental Characterisation of Aerosols in Setúbal Península from 1994 to 1998, *Proceedings of the 15<sup>th</sup> International Clean Air & Environment Conference*, Sydney, Australia, 26-30 November, 2000.

REIS, M.A., ALVES; L.C., FREITAS, M.C., VAN OS, B., WOLTERBEEK, H.T., Mean Annual Response of Lichens *Parmelia sulcata* to Environmental Elemental Availability, *Proceedings of the International Workshop on Biomonitoring of Atmospheric Pollution (with emphasis on trace elements)* – BioMAP, Lisbon, Portugal, 21-24 September, 1997, IAEA TECDOC-1152, June 2000, pp.81-90.

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

FREITAS, M.C., PACHECO, A.M.G., MARQUES, A.P., BARROS, L.I.C., REIS, M.A., Application of Nuclear Analytical Techniques to Environmental Studies, *Proceedings of the 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, in press.

### Communications

ALMEIDA, S.M., FREITAS, M.C., REIS, M.A., FARINHA, M.M., Air Particulate Matter Characterisation of an Industrial Area at North from Lisbon (Comparison with Reference Values), BioMAP - 2<sup>nd</sup> International Workshop on Biomonitoring of Atmospheric Pollution, Praia da Vitória, Azores Island, Portugal, 28 August – 3 September, 2000.

ALMEIDA, S.M., FREITAS, M.C., REIS, M.A., FARINHA, M.M., Air Particulate Matter Characterisation of an Industrial Area at North from Lisbon, *Euroconference – New and Renewable Technologies for Sustainable Development*, Madeira Island, 26-29 June, 2000.

ALMEIDA, S.M., REIS, M.A., FREITAS, M.C., PIO, C.A., Accuracy and Precision Studies in INAA and PIXE in Aerosol Filters, BERM8 - 8<sup>th</sup> International Symposium on Biological and Environmental

Reference Material, Bethesda, Maryland, U.S.A., 17-22 September, 2000.

COSTA, C.J., MARQUES, A.P., FREITAS, M.C., REIS, M.A., OLIVEIRA, O.R., A Comparative Study for Results Obtained Using Biomonitor and PM10 Collector in Sado Estuary, BioMAP - 2<sup>nd</sup> International Workshop on Biomonitoring of Atmospheric Pollution, Praia da Vitória, Azores Island, Portugal, 28 August – 3 September, 2000.

FARINHA, M.M., MARQUES, A.P., ALMEIDA, S.M., FREITAS, M.C., REIS, M.A., Monitorization of the Waste Incinerator Effects in an Industrial Area in the North of Lisbon, BioMAP - 2<sup>nd</sup> International Workshop on Biomonitoring of Atmospheric Pollution, Praia da Vitória, Azores Island, Portugal, 28 August – 3 September, 2000.

HIPÓLITO, C.S., FREITAS, M.C., A Chemical Speciation Study in Aerosol Samples, III Scientific Conference on Trace Metals Effects on Organisms and Environment, Sopot/Poland, 6-8 June, 2000.

HIPÓLITO, C.S., FREITAS, M.C., A Chemical Speciation Study in Aerosol Samples, BioMAP - 2<sup>nd</sup> International Workshop on Biomonitoring of

Atmospheric Pollution, Praia da Vitória, Azores Island, Portugal, 28 August – 3 September, 2000.

MARQUES, A.P., FREITAS, M.C., OLIVEIRA, O.R., REIS, M.A., WOLTERBEEK, H.TH., Biomonitoring of Trace Element Air Pollution in Sado Estuary, BioMAP - 2<sup>nd</sup> International Workshop on Biomonitoring of Atmospheric Pollution, Praia da Vitória, Azores Island, Portugal, 28 August – 3 September, 2000.

MARQUES, A.P., FREITAS, M.C., OLIVEIRA, O.R., REIS, M.A., WOLTERBEEK, H.TH., Biological Material Analysed by PIXE and INAA: a Comparative Study, BERM8 - 8<sup>th</sup> International Symposium on Biological and Environmental Reference Material, Bethesda, Maryland, U.S.A., 17-22 September, 2000.

MATEUS, R., REIS, M.A., JESUS, A.P., RIBEIRO, J.P., Cálculo de Concentrações de Elementos Leves em Amostras Espessas, XII<sup>th</sup> National Physics Conference – “FISICA 2000”, Figueira da Foz, September, 2000.

## ◆ Environmental Analytical Chemistry

### Journals

#### Published

DRAGO, T., ARAÚJO, F., VALÉRIO, P., WEBER, O., JOUANNEAU, J.-M., Geomorphological Control of Fine Sedimentation on the Northern Portuguese Shelf, *Boletim Inst. Esp. Oceanogr.* **15** (1-4) (2000) 111-122.

MELO, A.A., ARAÚJO, M.F., Machado de Bronze de Santo Tirso, *Santo Tirso Arqueológica* **2**, 2<sup>a</sup> Série (2000).

#### Accepted for publication or in press

ARAÚJO, M.F., JOUANNEAU, J.-M., VALÉRIO, P., BARBOSA, T., GOUVEIA, A., WEBER, O., OLIVEIRA, A., RODRIGUES, A., DIAS, J.M.A., Geochemical Tracers of Northern Portuguese Estuarine Sediments on the Shelf, *Progress in Oceanography*, in press.

BARREIROS, M.A., PINHEIRO, T., ARAÚJO, M.F., COSTA, M.M., PALHA, M., SILVA, R.C., Quality Assurance of X-ray Spectrometry for Chemical Analysis. *Spectrochimica Acta, part B*, in press.

DIAS, J.M.A., JOUANNEAU, J.-M., ARAÚJO, M.F., DRAGO, T., GARCIA, C., GONZALEZ, R., OLIVEIRA, A., RODRIGUES, A., VITORINO, J., WEBER, O., Present Day Sedimentary Processes on the Northern Iberian Shelf, *Progress in Oceanography*, in press.

MARQUES, J.M., CARREIRA, P.M.M., AIRES-BARROS, L., GRAÇA, R.C., Nature and Role of CO<sub>2</sub> in some hot and cold HCO<sub>3</sub>/Na/CO<sub>2</sub>-rich Portuguese Mineral Waters: a Review and Reinterpretation, *Environmental Geology*, **40** (1) (2000), in press.

#### Books and Book Chapters

CONDESSO DE MELO, M.T.; CARREIRA, P.M.M., MARQUES DA SILVA, M.A., 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*, ed. W.M. Edmunds and C.J. Milne, Geological Society, London, Special Publications, in press.

### Conference Proceedings

ARAÚJO, M.F., MARQUES, R., ROCHA, F., Caracterização Química e Mineralógica da Fracção Silto-Argilosa de Sedimentos dos Rios Minho, Lima, Cávado, Ave e Douro, *3º Simpósio sobre a Margem Ibérica Atlântica*. Faro, (2000) pp.97-98.

BARREIROS, M.A., PINHEIRO, T., ARAÚJO, M.F., COSTA, M.M., PALHA, M., SILVA, R.C., Quality Assurance in Nuclear Related Analytical Techniques, Book of Abstracts, *EUROANALYSIS XI*, 2000, P-406.

DIAS, J.M.A., JOUANNEAU, J.-M., WEBER, O., ARAÚJO, M.F., DRAGO, T., GARCIA, C., OLIVEIRA, A., RODRIGUES, A., VITORINO, J., Processos Sedimentares Recentes na Plataforma Norte Ibérica. *3º Simpósio sobre a Margem Ibérica Atlântica*. Faro, (2000) pp. 273-274.

HUMANES, M., GONÇALVES, J., LOPES, M.T., ARAÚJO, F., ALVES DE MATOS, A.P., LEITÃO, J., Chemical and Biological Studies on *Demospongiae* from the Portuguese Coast, *3º Simpósio sobre a Margem Ibérica Atlântica*. Faro, (2000) pp. 339-340.

MELO, A.A., ARAÚJO, M.F.D., ALVES, H., The Bronze Axe of the “Quarta-Feira” Mine, *Proceedings of the 6<sup>th</sup> Annual Meeting of the European Association of Archaeologists, in Metals and Society Section*, (2000) pp. 115.

VALÉRIO P., BARBOSA, T., ARAÚJO, M.F., JOUANNEAU, J.-M., A Geochemical comparison of the sedimentary deposits off the major Iberian rivers: Tagus and Douro (Portugal), *3º Simpósio sobre a Margem Ibérica Atlântica*. Faro, (2000), pp.233-234.

### Communications

ARAÚJO, M. F., JOUANNEAU, J.-M., VALÉRIO, P., BARBOSA, T., GOUVEIA, A., WEBER, O., OLIVEIRA, A., RODRIGUES, A., DIAS, J.M.A., Geochemical Tracers of Northern Portuguese Estuarine Sediments on the Shelf, *OMEX II-II Final Workshop - The Carbon Cycle at the Iberian Margin*, Liège, Belgium, May 2000.

DIAS, J.M.A., JOUANNEAU, J.-M., ARAÚJO, M.F., DRAGO, T., GARCIA, C., GONZALEZ, R., OLIVEIRA, A., RODRIGUES, A., VITORINO, J., WEBER, O., Present Day Sedimentary Processes on the Northern Iberian Shelf, *OMEX II-II Final Workshop - The Carbon Cycle at the Iberian Margin*, Liège, Belgium, May 2000.

# Department of Radiological Protection and Nuclear Safety

## Journals Published

AMBROSI, P., FANNIZI, E., CARVALHO, A.F., DELGADO, A., LINDBORG, L., BARLETT, D.T., Procedures for Routine Individual Dose Assessment of External Radiation within EU Countries and Switzerland – Status of Harmonisation on 1 April 1999, *Radiation Protection Dosimetry* **89** (1/2) (2000) 7-51.

CARVALHO, F.P., CIVILI, F.S., Data Quality Assurance and the Monitoring of Mediterranean Sea Pollution (MEDPOL), *Intern. J. of Environmental Studies* (2000) 1-20.

COQUERY, M., CARVALHO, F.P., AZEMARD, S., BACHELEZ, M., HORVAT, M., Certification of Trace and Major Elements and Methylmercury Concentrations in a Macroalgae (*Fucus sp.*) Reference Material, AIEA-140, *Fresenius J. Anal. Chem.* **366** (2000) 792-801.

DANG DUC NHAN, CARVALHO, F.P., AM NGUYEN MAHN, TUAN NGUYEN QUOC, YEN HAI THI NGUYEN, VILLENEUVE, J.P., CATTINI, C., Chlorinated Pesticides and PCBs in Sediments and Molluscs from Freshwater Canals in the Hanoi Region, *Environmental Pollution* **70** (2000) 1-10.

MONTEIRO GIL, O., OLIVEIRA, N.G., RODRIGUES, A.S., FERREIRA, T.C., LIMBERT, E., LÉONARD, A., GERBER, G., RUEFF, J., Cytogenetic alterations and oxidative stress in thyroid cancer patients after iodine-131 therapy, *Mutagenesis* **15** (2000) 69-75.

MONTEIRO GIL, O., OLIVEIRA, N.G., RODRIGUES, A.S., FERREIRA, T.C., LIMBERT, E., LÉONARD, A., GERBER, G., RUEFF, J., No Evidence of Increased Chromosomal Aberrations and Micronuclei in Lymphocytes from Non-familial Thyroid Cancer Patients Prior to Radiotherapy, *Cancer Genetics and Cytogenetics*, **123**, 55-60 (2000).

OLIVEIRA, A.D., PEDROSO DE LIMA, J.J., Monoenergetic Approximation and Buildup Factor. A Conceptual Structure, *Radioprotecção* **1** (6/7) (2000) 26-35.

OLIVEIRA, N.G., NEVES, M., RODRIGUES, A.S., MONTEIRO GIL, O., CHAVECA, T., RUEFF, J., Assessment of the adaptive response induced by quercetin using the MNCB peripheral blood human lymphocytes assay, *Mutagenesis* **15** (2000) 77-83.

REIS, M., TRINDADE, R., BROGUEIRA, A., Meteorological Sampling Schemes on Probabilistic

Consequence Assessment of Nuclear Accidents, *Radioprotecção* **1** (6/7) (2000) 87-89.

VILLENEUVE, J.P., MORA STEPHEN, J., CATTINI, C., CARVALHO, F.P., Determination of Organochlorinated Compounds and Petroleum Hydrocarbons in Sediment Sample IAEA-408. Results from a World Wide Intercalibration Exercise, *Journal of Environmental Monitoring* **2** (2000) 524-528.

## Accepted for publication or in press

ALVES, J.G., MARTINS, M.B., AMARAL, E.M., Occupational Exposure in Portugal in 1999, *Radiat. Prot. Dosim.*, in press.

ALVES, J.G., MUÑIZ, J.L., GÓMEZ ROS, J.M., DELGADO, A., Estudo dos Detectores Termoluminescentes LiF:Mg,Ti e LiF:Mg,Cu,P para Baixas Doses de Radiação Gama: I- Estabilidade Térmica, *Radioprotecção*, in press.

BAEZA, A., BROGUEIRA, A., CARREIRO, M. C., GARCIA, E., MIRÓ C., GIL, J.M., SEQUEIRA, M.M., TEIXEIRA, M.M., 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*, in press.

BARTLETT, D.T., et al., Harmonisation and Dosimetric Quality Assurance in Individual Monitoring for External Radiation, *Radiation Protection Dosimetry*, in press.

CARVALHO, F.P., Protecção Radiológica do Homem e do Ambiente: Necessidade de um Sistema Coerente, *Radioprotecção*, in press.

FAÍSCA, M.C., New Buildings in Radon Prone Areas, *Radioprotecção*, in press.

FANTUZZI, E., et al, Present Status of Approval Procedures in the EU Member States and Switzerland, *Radiation Protection Dosimetry*, in press.

MADRUGA, M.J., BROGUEIRA, A., ALBERTO, G., CARDOSO, F., Radium-226 Bioavailability to Plants at Urgeiriça Uranium Mill Tailings, *Journal of Environmental Radioactivity*, in press.

MADRUGA, M.J., FARIA I., BROGUEIRA, A., Spatial Distribution of <sup>238</sup>U, <sup>226</sup>Ra and <sup>210</sup>Pb at Urgeiriça Uranium Mill Tailings, *Radioprotecção*, in press.

MUÑIZ, J.L., ALVES, J.G., DELGADO, A., GÓMEZ ROS, J.M., Mejoras en la Medida de Dosis con LiF:Mg,Cu,P por el uso de Métodos de Análisis por Ordenador de la Curva de Termoluminiscencia, *Radioprotección*, in press.

OLIVEIRA, A.D., O Método de Monte Carlo para Fotões de Energia entre 10 e 150 keV, *Radioprotecção*, in press.

REIS, M.J., BROGUEIRA, A.L., ROSA, R.N., BETTENCOURT, A.O., Low-level Atmospheric Aerosols Radioactivity Measurements, *Radioprotecção*, in press.

## Conference Proceedings

### *Published*

ALVES, J.G., MARTINS, M.B., AMARAL, E.M., Occupational Radiation Doses in Portugal from 1994 to 1998, *Proceedings of the 10<sup>th</sup> International Congress of the International Radiation Protection Association - IRPA-10*, Hiroshima, Japan, May 14-19, 2000, P-3b-174. (CD-ROM)

AMARAL, E.M., Natural Gamma Radiation in Air Versus Soil Nature in Portugal, *Proceedings of the 10<sup>th</sup> International Congress of the International Radiation Protection Association - IRPA-10*, Hiroshima, Japan, May 14-19, 2000, P-1a-12. (CD-ROM)

### *Accepted for publication or in press*

OLIVEIRA, A.D., PEDROSO DE LIMA, J. J., The Degradation of the Energy of Primary Photons Described Through the Entropy, *Proceedings of the International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000*, Lisbon, 23-26 Oct. 2000, eds. A. Kling, F. Barão, M. Nakagawa, L. Távora, P. Vaz, Springer Verlag, Berlin, Heidelberg, in press.

## Communications

ALVES, J.G., MARTINS, M.B., AMARAL, E.M., Occupational Exposure in Portugal in 1999, *European Workshop on Individual Monitoring of External Radiation*, Helsinki, Finland, September 4-6, 2000. (poster)

ALVES, J.G., MARTINS, M.B., AMARAL, E.M., Occupational Radiation Doses in Portugal from 1994 to 1998, *10<sup>th</sup> International Congress of the International Radiation Protection Association - IRPA-10*, P-3b-174, Hiroshima, Japan, May 14-19, 2000 (Poster).

ALVES, J.G., MUÑIZ, J.L., GÓMEZ ROS, J.M., DELGADO, A., Estudo dos Detectores Termoluminescentes LiF:Mg,Ti e LiF:Mg,Cu,P para Baixas Doses de Radiação Gama: I- Estabilidade Térmica, *VII Jornadas Portuguesas de Proteção Contra Radiações*, Lisbon, 29 November 2000. (Invited Oral)

AMARAL, E.M., Natural Gamma Radiation in Air Versus Soil Nature in Portugal, *10<sup>th</sup> International Congress of the International Radiation Protection Association - IRPA-10*, P-1a-12, Hiroshima, Japan, May 14-19, 2000. (poster)

BAEZA, A., BROGUEIRA, A., CARREIRO, M. C., GARCIA, E., MIRÓ, C., SEQUEIRA, M.M., Modelado de la Evolución Temporal del Tritio en el Embalse de Torrejón, *26<sup>a</sup> Reunión Anual de la Sociedad Nuclear Española*, León, 4-6 October 2000.

CARVALHO, AF., Safety of Radioactive Sources in Portugal, *International Conference of National Regulatory Authorities with Competence in the Safety of Radiation Sources and the Security of Radiation Materials*, IAEA, Buenos Aires, 11-15 December 2000.

CARVALHO, F.P., OLIVEIRA, J.M., Análise por Espectrometria Alfa de Radionuclídos das Famílias do Urânio e do Tório a Níveis Ambientais, *XVII Encontro Nacional de Química*, Lisbon, 1-3 March, 2000, pp.80.

CARVALHO, F.P., Proteção Radiológica do Homem e do Ambiente: Necessidade de um Sistema Coerente, *VII Jornadas Portuguesas de Proteção Contra Radiações*, Lisbon, 29 November 2000 (Abstract in English).

FAÍSCA, M.C., New Buildings in Radon Prone Areas, *VII Jornadas Portuguesas de Proteção contra Radiações*, Lisbon, 29 November 2000 (invited).

KONOPLEV, A., SMITH, J., COMANS, R., KUDELSKY, A., LAPTEV, G., MADRUGA, M.J., ZIBOLD, G., Aquifers and Surface Waters in the Chernobyl Area: Observations and Predictive Evaluation, *International Conference Radioactivity after Nuclear Explosions and Accidents*, Moscow, Russia, 24-26 April 2000. (oral)

MADRUGA, M.J., FARIA, I., Determinação da Capacidade Específica de Adsorção do Radiocésio em Sedimentos do Rio Tejo, *XIV Encontro Luso-Galego de Química*, Universidade do Minho, Braga, 22-24 de Novembro 2000. (poster)

MADRUGA, M.J., Radio caesium Distribution in Tejo River Sediments: Short-Term Prediction, *XVII Encontro Nacional da Sociedade Portuguesa de Química*, IST, Lisboa, 1-3 Março 2000. (poster)

MONTEIRO GIL, O., OLIVEIRA, N.G., RODRIGUES, A.S., FERREIRA, T.C., LIMBERT, E., LÉONARD, A., GERBER, G., RUEFF, J., Chromosomal Aberrations and Micronuclei Studies in Thyroid Cancer Patients After Iodine-131 Therapy, *30<sup>th</sup> Annual Meeting of the European Environmental Mutagen Society*, Budapest, Hungary, August, 2000. (poster)

- MONTEIRO GIL, O., OLIVEIRA, N.G., RODRIGUES, A.S., FERREIRA, T.C., LIMBERT, E., RUEFF, J., Chromosomal Aberrations and Micronuclei Formation in a Population with Thyroid Cancer Patients Under Treatment, "Ibero-American" Congress of Nuclear Medicine, Porto, Portugal, October 2000. (poster)
- MUÑIZ, J.L., ALVES, J.G., DELGADO, A., GÓMEZ ROS, J.M., Mejoras en la Medida de Dosis con LiF:Mg,Cu,P por el uso de Métodos de Análisis por Ordenador de la Curva de Termoluminiscencia, VII Congreso Nacional de Protección Radiológica, Maspalomas, Gran Canária, Espanha, September 27-29, 2000. (oral)
- OLIVEIRA, A.D., O Método de Monte Carlo para Fotões de Energia entre 10 e 150 keV, VII Jornadas Portuguesas de Proteção Contra Radiações, Lisboa, 29 November 2000. (Invited oral)
- OLIVEIRA, A.D., PEDROSO DE LIMA, J. J., The Spatial Structure of Photons Scattered in Water, Topical Meeting in Medical Radiation Physics and Engineering - TM-MERPE2000, Fundação Calouste Gulbenkian, Lisbon, 20-22 November 2000. (oral)
- OLIVEIRA, A.D., PEDROSO DE LIMA, J.J., Dynamical Analysis of Data, 5<sup>a</sup> Conferência Portuguesa de Engenharia Biomédica, Coimbra, May 2000. (poster)
- OLIVEIRA, A.D., PEDROSO DE LIMA, J.J., Parallel Perspective Representation of Three-Dimensional Points, 5<sup>a</sup> Conferência Portuguesa de Engenharia Biomédica, Coimbra, May 2000. (poster)
- OLIVEIRA, A.D., PEDROSO DE LIMA, J. J., The Degradation of the Energy of Primary Photons Described Through the Entropy, International Conference on Advanced Monte Carlo for Radiation Physics, Particle Transport Simulation and Applications - MC2000, Lisbon, 23-26 Oct. 2000. (poster)
- PEREIRA LUÍS J. H., Adaptive Response to the Ionisation Radiation: Cytogenetic Aspects, VII Jornadas Portuguesas de Proteção Contra Radiações, Lisbon, 29 November 2000. (oral)
- PEREIRA LUÍS J. H., Evaluation of Genotoxic Aggression on Occupational Health, III National Congress on Occupational Health, Póvoa de Varzim, 1 - 4 October 2000. (oral)
- PEREIRA LUÍS J.H., Lymphocytes from Portuguese Uranium Miners Workers more Highly Exposed to Radiation, Do Not Show Induction of Cytogenetic Adaptive Response to Ionising Radiation, XII National Biochemistry Congress, Póvoa de Varzim, 28 - 30 September 2000. (poster)
- REIS, M.J., BROGUEIRA, A.L., ROSA, R.N., BETTENCOURT, A.O., Low-level Atmospheric Aerosols Radioactivity Measurements, VII Jornadas Portuguesas de Proteção Contra Radiações, Lisboa, Novembro de 2000. (invited)
- TRINDADE, R., Radioactividade, Workshop "Acidentes com Matérias Perigosas", Escola Nacional de Bombeiros, Aveiro, 6 May 2000 and Coimbra, 10 June 2000, "Cadernos Coleção Comunicações" 1 (2000). (invited)
- ### Internal Reports
- AMARAL, E.M., Radiação Natural: Radiação Gama Terrestre e Radiocósmica (2000).
- FERRADOR, G., Medidas de Radioactividade em Águas da Rede de Abastecimento do Porto 1997-1998-1999. Report DPRSN-C nº1 /2000.
- FERRADOR, G., Medidas de Radioactividade em Águas da Rede de Abastecimento de Lisboa durante 1999. Report DPRSN-C nº2 /2000.
- JACOB, K., MARCELINO, C.J., OLIVEIRA, A.D., User Manual of the Data Base SGAR (2000).
- MADRUGA, M.J., AQUASCOPE- Aquifers and Surface-Waters in the Chernobyl Area-Observations and Predictive Evaluation, ERB IC15-CT98-0205. Annual Report, September 2000.
- MADRUGA, M.J., Dispersão no Ambiente de Radionuclídos Naturais Provenientes de Regiões Uraníferas, Report DPRSN-B nº2/ 2000.
- MADRUGA, M.J., O Acidente de Chernobyl: Consequências no Ambiente e Medidas Correctivas Aplicadas (2000), Report DPRSN-B nº3/ 2000.
- MARCELINO, C.J., JACOB, K., OLIVEIRA, A.D., Technical Report of the Data Base SGAR (2000).
- MARTINS, M.B., Dosimetria Individual Externa (2000).
- MARTINS, M.B., Efeitos Biológicos das Radiações (2000).
- OLIVEIRA, A.D., Basics in Radiological Protection (2000).
- OLIVEIRA, A.D., Control and Radiation Detection (2000).
- OLIVEIRA, A.D., Radiation Physics and Radiation Dosimetry, Trainee's courses at ITN, February-April 2000.
- PAIVA, I., The Study of the Actinide Polyoxometalate Systems, Mainly the Study of the Interaction of the Lacunary  $P_2W_{17}O_{61}^{10-}$  with the Actinide Di-Oxo Cation Uranyl  $UO_2^{2+}$ , Final Report of Post - Doctoral Research Work at Chemistry Department, Florida State University, July 1999 to Sep. 2000.

PORUGAL, L., FAISCA, C., Estadia do Submarino Nuclear da Marinha de França “Casablanca” no Cais Militar do Portinho da Costa de 10 a 13 de Abril de 2000, DPRSN nº02/00.

PORUGAL L., PIRES, C., CASQUINHA, R., OLIVEIRA, J., DUARTE, P., ANJOS, M., Controlo Radiológico Efectuado durante a Estadia do Navio Nuclear da Marinha dos Estados Unidos da América USS “Dwight D. Eisenhower” no Porto de Lisboa, de 4 a 8 de Agosto de 2000.

PORUGAL, L., PIRES, C., CASQUINHA, R., Controlo Radiológico Efectuado durante a Estadia do Submarino Nuclear da Marinha do Reino Unido HMS “Turbulent” no Cais Militar do Portinho da Costa de 10 a 14 de Outubro de 2000.

REIS, M., FAÍSCA, C., BROGUEIRA, A., TEIXEIRA, M., Avaliação da Exalação de  $^{222}\text{Rn}$  para a Atmosfera em Barragens de Estéreis das Minas da Urgeiriça, *Report DPRSN-A* nº 2/ 2000.

REIS, M.J., Medidas a Tomar em Caso de Emergência ou Acidente Radiológico, *Report DPRSN-B* nº 1/ 2000.

SEQUEIRA, M.M., PIRES, C., Medidas de Radioactividade Artificial em Águas Residuais da Rede de Saneamento de Lisboa durante o ano de 1999. *Report DPRSN-* nº1/2000.

### **Theses**

#### **PhD**

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*Estudo do LiF:Mg,Cu,P (GR-200) e do LiF:Mg,Ti (TLD-100) no Domínio das Baixas Doses de Radiação Gama: Estabilidade Térmica e Limites de Detecção*  
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