

NEW MATERIALS AND COMPOUNDS

Inorganic and Organometallic Chemistry

Publications in Journals

1. CAMPELLO, M.P.C., CALHORDA, M.J., DOMINGOS, A., GALVÃO, A. LEAL, J.P., PIRES de MATOS, A., SANTOS, I., "Hydrocarbyl Derivatives of $[UCl_2\{HB(pz)_3\}_2]$: Synthesis, Characterization and Reactivity Studies Towards Protic Substrates and Ketones", *J. Organomet. Chem.* **538** (1997) 223.
2. TRIFONOV, A.A., VAN DE WEGHE, P., COLLIN, J., DOMINGOS, A., SANTOS, I., "Synthesis of Lanthanide Complexes Coordinated by an Asymmetric Cyclopentadienyl Ligand", *J. Organomet. Chem.* **527** (1997) 225.
3. MARÇALO, J., PIRES DE MATOS, A., EVANS, W.J., "Reactivity of Lanthanide, Group 2, and Group 3 Metal and Metal Oxide Cations with Pentamethylcyclopentadiene: Gas Phase Synthesis of Cyclopentadienyl Cations", *Organometallics* **16** (1997) 3845.
4. MARÇALO, J., LEAL, J. P., PIRES DE MATOS, A., MARSHALL, A.G., "Gas Phase Actinide Ion Chemistry: FT-ICR/MS Study of the Reactions of Thorium and Uranium Metal and Oxide Ions with Arenes", *Organometallics* **16** (1997) 4581.
5. NUNES, D., DOMINGOS, A., PAULO, A., PATRÍCIO, L., SANTOS, I., CARVALHO, M.F.N.N., POMBEIRO, A.J.L., "Synthesis, Characterization and Study of the Redox Properties of Rhenium(V) Diolates", *Inorg. Chim. Acta*, in press.
6. CARRETAS, J.M. , BRANCO, J., MARÇALO, J., WAERENBORGH, J.C., MARQUES, N., PIRES DE MATOS, A. "The Dissolution" of Europium and Ytterbium in Alcohols", *J. Alloys Comp.*, in press.

Special Publications, Book Chapters, Others

1. MARÇALO, J., "A Espectrometria de Massa de Ressonância Ciclotrónica de Iões com Transformada de Fourier", *Química* **66** (1997) 32.

Internal Reports

1. CACHATA, V.M.C.C., "Synthesis, Characterization and Determination of the Enthalpies of Formation of Alkaline Metal Cyclopentadienyls", ITN, 1997.
2. IGLÉSIAS, S.C.A., "Synthesis and Characterisation of Lanthanide Alkoxides by an Ammoniacal Synthetic Route", ITN, 1997.

Communications to Conferences

1. DOMINGOS, A., LOPES, I., MARQUES, N., PIRES DE MATOS, A., SILVA, M., "Organocompounds of *f*-Elements with Hydrotris(pyrazolyl)borates", *3º Encontro de Química Inorgânica da Soc. Portuguesa de Química*, Fátima, Portugal, March 1997, LC4.
2. DOMINGOS, A., MARQUES, N., CARRETAS, J. M., "Crystal Structure of the Complex $\{YbCl_3[HB(3,5-Me_2Pz)_3]\}(Me_2PzH_2)$ ", *3º Encontro de Química Inorgânica da Soc. Portuguesa de Química*, Fátima, Portugal, March 1997, P39.
3. PAULO, A., DOMINGOS, A., REDDY, K. R., MARÇALO, J., SANTOS, I., "Reactions of Rhenium (V) Oxocomplexes with Poly(pyrazolyl)borates", *3º Encontro de Química Inorgânica da Soc. Portuguesa de Química*, Fátima, Portugal, March 1997, O8.
4. CAMPELLO, M. P. C., DOMINGOS, A., PIRES DE MATOS, A., SANTOS, I., "Chemical and Structural Aspects of Uranium Compounds with the Fragment $U\{B(pz)_4\}_2$ ", *3º Encontro de Química Inorgânica da Soc. Portuguesa de Química*, Fátima, Portugal, March 1997, P35.
5. PAULO, A., DOMINGOS, A., REDDY, K. R., SANTOS, I., "Synthesis and Characterization of *trans*- $[Re^V O_2\{B(pz)_4\}L_2]$ e *trans*- $[Re^V O_2\{B(pz)_4\}(P^{\wedge}P)]$ ", *3º Encontro de Química Inorgânica da Soc. Portuguesa de Química*, Fátima, Portugal, March 1997, P37.
6. ASCENSO, J., PAULO, A., SANTOS, I., "NMR Studies of Re(III) and Re(V) Polihydrides with Modified Poly(pyrazolyl)borates", *3º Encontro de Química Inorgânica da Soc. Portuguesa de Química*, Fátima, Portugal, March 1997, P36.
7. DOMINGOS, A., SANTOS, I., PAULO, A., GALVÃO, A., "Structural Preferences of Rhenium Hydrides with Modified Poly(pyrazolyl)borates", *3º Encontro de Química Inorgânica da Soc. Portuguesa de Química*, Fátima, Portugal, March 1997, P38.
8. OLIVEIRA, M.C., ALMOSTER FERREIRA, M.A., VIEIRA, M.C., MARÇALO, J., "Formation of Transition Metal Oxide Ions by FTMS", *4th European Workshop on FTMS*, Pont-à-Mousson, France, April 1997, B15.
9. VIEIRA, M. C., MARÇALO, J., PIRES DE MATOS, A., "Reactions of M^+ Ions ($M = Ln, An$) with $Fe(CO)_5$: Gas Phase Synthesis of MFe^+ Ions", *4th European Workshop on FTMS*, Pont-à-Mousson, France, April 1997, B17.
10. PIRES DE MATOS, A., BRANCO, J., CARRETAS, J.M., "Carboxylation of Methanol to Dimethyl Carbonate using CO_2 as Starting Material", *3º Encontro da Divisão de Catálise da SPQ*, IST, Lisboa, Portugal, May 1997.

11. DOMINGOS, A., MARQUES, N., SILVA, M., “X-Ray Structure of the Lanthanide (III) Complex $[\text{YbCl}_2(\text{THF})_2](\mu\text{-Cl})_2\text{Li}(\text{THF})_2]$ ”, *Seventeenth European Crystallographic Meeting*, Lisboa, August 1997, P2.8-10.
12. CARRETAS, J. M., MARÇALO, J., PIRES DE MATOS, A., MARSHALL, A. G., “Gas Phase Reactions of Lanthanide Ions with Alcohols”, *14th International Mass Spectrometry Conference*, Tampere, Finland, August 1997, MoPo008.
13. MARÇALO, J., PIRES DE MATOS, A., EVANS, W.J., “Reactivity of Lanthanide Cations with Indene: Gas Phase Synthesis of Metal(Indenyl)⁺ Ions”, *14th International Mass Spectrometry Conference*, Tampere, Finland, August 1997, TuPo011.
14. MARÇALO, J., PIRES DE MATOS, A., CORNEHL, H. H., HEINEMANN, C., HORNUNG, G., SCHWARZ, H., “Gas Phase Reactivity of Lanthanide Oxide Cluster Ions”, *14th International Mass Spectrometry Conference*, Tampere, Finland, August 1997, WePo087.
15. VIEIRA, M. C., MARÇALO, J., PIRES DE MATOS, A. “Gas Phase Synthesis and Reactivity of MFe^+ Ions (M = Lanthanide, Actinide)”, *14th International Mass Spectrometry Conference*, Tampere, Finland, August 1997, ThPo044.
16. CARRETAS, J. M., PIRES DE MATOS, A., MARÇALO, J., PISSAVINI, M., SALICIS, S., DECOUZON, M., HUBERT-PFALZGRAF, L., GÉRIBALDI, S. “Gas Phase Reactivity of Rare Earth Cations with Phenols: Competitive Activation of C–O, O–H and C–H bonds”, *14th International Mass Spectrometry Conference*, Tampere, Finland, August 1997, TuOr23.
17. OLIVEIRA, M.C., MARÇALO, J., VIEIRA, M.C., ALMOSTER FERREIRA, M.A., “Reactivity in the Gas Phase of Transition Metal Oxide Cluster Ions”, *14th International Mass Spectrometry Conference*, Tampere, Finland, August 1997, ThPo040.
18. CARRETAS, J. M., MARÇALO, J., PIRES DE MATOS, A., MARSHALL, A. G., “Gas Phase Reactions of Lanthanide and Actinide Ions with Methanol and Ethanol”, *3º Encontro Nacional de Espectrometria de Massa*, Lisboa, September 1997, O3.
19. OLIVEIRA, M.C., MARÇALO, J., VIEIRA, M.C., ALMOSTER FERREIRA, M.A., “Reactivity in the Gas Phase of Transition Metal Oxide Cluster Ions”, *3º Encontro Nacional de Espectrometria de Massa*, Lisboa, September 1997, O12.
20. CARVALHO, M.R.L., LEAL, J.P., DUARTE, M.F., FERNANDEZ, M.T., “Chemical Ionization Mass Spectrometry Study of Some Monoterpenes”, *3º Encontro de Espectrometria de Massa da SPQ*, Lisboa, Portugal, September 1997. P07.
21. VIEIRA, M. C., MARÇALO, J., PIRES DE MATOS, A., “Gas Phase Synthesis and Reactivity of MFe^+ Ions (M = Lanthanide, Actinide)”, *3º Encontro Nacional de Espectrometria de Massa*, Lisboa, September 1997, P18.
22. CARRETAS, J. M., BRANCO, J., MARÇALO, J., WAERENBORGH, J.C., MARQUES, N., PIRES DE MATOS, A., “The “Dissolution” of Europium and Ytterbium in Alcohols”, *3rd International Conference on f Elements*, Paris, September 1997, P6/7-55.

23. BRANCO, J., CARRETAS, J. M., CARVALHO, A., DOMINGOS, A., DUARTE, M. T., MARÇALO, J., MARQUES, N., PIRES DE MATOS, A., WAERENBORGH, J. C., PISSAVINI, M., GERIBALDI, S., "Syntheses of Lanthanide Aryloxides", *3rd International Conference on f Elements*, Paris, September 1997, C6/7-9.
24. CARRETAS, J. M., MARÇALO, J., PIRES DE MATOS, A., MARSHALL, A. G., "Gas Phase Reactions of Thorium and Uranium Ions with Alcohols", *Actinides '97 International Conference*, Baden-Baden, Germany, September 1997, T3-A5.
25. DIAS, A. A., CARRAPA, R., ALMEIDA GASCHE, T., TEODORO, O.M.N.D., VASCONCELOS, M.H., COSTA, M.L., MOUTINHO, A.M.C., "Adsorption of Azides on Ag (111)", *17th European Conference on Surface Science*, Enschede, The Netherlands, September 1997, FrP14.
26. CARRAPA, R., LOURENÇO, J.M.C., ALMEIDA GASCHE, T., TEODORO, O. M.N.D., MOUTINHO, A.M.C. "XPS Analysis of Krytox Liquid Film", *III Reunião Ibérica do Vácuo e Suas Aplicações/2nd European Topical Conference on Hard Coatings*, Lisboa, September 1997, VA-OR.19.
27. LEITÃO, C. M. M., ALMEIDA GASCHE, T., BONFAIT, G., TEODORO, O. M. N.D., MOUTINHO, A.M.C., "Ultra High Vacuum Sample Holder", *III Reunião Ibérica do Vácuo e Suas Aplicações/2nd European Topical Conference on Hard Coatings*, Lisboa, September 1997, VA-PO.15.
28. DOMINGOS, A., LOPES, I., MARQUES, N., SILVA, M., "Hydrotris(pyrazol-1-yl)borate Ligands in f-Element Chemistry", *5th Chemical Congress of North America*, Cancun, Mexico, November 1997, 10-645.
29. LEAL, J.P., CACHATA, V., "Standard Enthalpy of Formation of Lithium, Sodium, and Potassium Cyclopentadienyls", *3^o Encontro Nacional de Química-Física da Sociedade Portuguesa de Química*, Monte de Caparica, Portugal, November 1997, P61.
30. LEAL, J.P., "Energetics of Compounds of Alkaline and Alkaline-Earth Metals", *3^o Encontro Nacional de Química-Física da Sociedade Portuguesa de Química*, Monte de Caparica, Portugal, November 1997, C6.

Nuclear Solid State Physics Using Ion Beams

Publications in Journals

1. CALZADA, M.L., MARTÍN, M.J., RAMOS, P., MENDIOLA, J., SIRERA, R., SILVA, M.F., SOARES, J.C., “Effect of Composition and Annealing Conditions of the Properties of Sol-Gel Prepared Calcium Modified Lead Titanate Thin Films”, *J. Phys.Chem. Sol.* **58** (1997) 1033-1039.
2. KLING, A., MARQUES, J.G., SOARES, J.C., SILVA, M.F., DIEGUEZ, E., AGULLÓ-LÓPEZ, F., “Valence Effect on the Incorporation of Tungsten Implanted into Lithium Niobate”, *Nucl. Instr. and Methods* **B127/128** (1997) 520-523.
3. MCHARGUE, C.J., HUNN, J.D., JOSLIN, D.L., ALVES, E., SILVA, M.F., SOARES, J.C., “Etching of Amorphous Al₂O₃ Produced by Ion Implantation”, *Nucl. Instr. and Methods* **B127/128** (1997) 596-598.
4. CORREIA, J.G., MARQUES, J.G., ALVES, E., FORKEL-WIRTH, D., JAHN, S.G., RESTLE, M., DALMER, M., HOFSSASS, H., BHARUTH-RAM, K., “Microscopic Studies of Implanted As-73 in Diamond”, *Nucl. Instr. and Methods* **B127/128** (1997) 723-726.
5. AGER, F.J., RESPALDIZA, M.A., SOARES, J.C., SILVA, M.F., ODRIOZOLA, J.A., “Sputtering Studies During Lanthanum Implantation in Stainless Steels”, *Nucl. Instr. and Methods* **B127/128** (1997) 791-795.
6. VAN DEN HOVEN, G.N., POLMAN, A., ALVES, E., SILVA, M.F., MELO, A.A., SOARES, J.C., “Lattice Site and Photoluminescence of Erbium Implanted in α -Al₂O₃”, *Journal of Materials Research* **12** (1997) 1401-1404.
7. SOCHINSKII, N.V., MUNOZ, V., BELLANI, V., VINA, L., DIEGUEZ, E., ALVES, E., SILVA, M.F., SOARES, J.C., BERNARDI, S., “Substrate Effect on CdTe Layers Grown by Metalorganic Vapor Phase Epitaxy”, *Applied Physics Letters* **70** (1997) 1314-1316.
8. REBOUTA, L., SILVA, M.F., SOARES, J.C., SERRANO, D., DIEGUEZ, E., AGULLÓ-LÓPEZ, F., TORNERO, J., “Nonaxial Sites for Er in LiNbO₃”, *Applied Physics Letters* **70** (1997) 1070-1072.
9. LI, S.X., FREITAS, P.P., CARDOSO, S., SOARES, J.C., ALMEIDA, B., SOUSA, J.B., “[FeTa_n/Ta_n]_n Soft Multilayers for Write Head Pole Pieces”, *Journal of Magnetism and Magnetic Materials* **165** (1997) 363-366.
10. LI, S.X., FREITAS, P.P., ROGALSKI, M.S., AZEVEDO, M., SOUSA, J.B., DAI, J.N., SOARES, J.C., MATSAKAWA, N., SAKAKIMA, H., “Magnetic Properties and Structure of a new Multilayer [FeTa_n/Ta_n]_n for Recording Heads”, *Journal of Applied Physics* **81** (1997) 4501-4503.
11. RODRIGUEZ, A., RODRIGUEZ, T., SANZ-HERVAS, A., KLING, A., SILVA, M.F., BALLESTEROS, C., GWILLIAM, R.M., “Strain Compensation by Heavy Boron Doping in Si_{1-x}Ge_x Layers Grown by Solid Phase Epitaxy”, *Journal of Materials Research* **12** (1997) 1698-1705.

12. SOCHINSKII, N.V., MUNOZ, V., BERNARDI, S., ESPESO, JL, ALVES, E., SILVA, M.F., SOARES, J.C., MARIN, C., DIEGUEZ, E., “Selective Area Vapor-Phase Epitaxy and Structural Properties of $\text{Hg}_{1-x}\text{Cd}_x\text{Te}$ on Sapphire”, *Journal of Crystal Growth* **179** (1997) 585-591.
13. WAHL, U., VANTOMME, A., DEWACHTER, J., MOONS, R., LANGOUCHE, G., MARQUES, J.G., CORREIA, J.G., “Direct Evidence for Tetrahedral Interstitial Er in Si”, *Physical Review Letters* **79** (1997) 2069-2072.
14. MARTIN, M.J., ZALDO, C., SILVA, M.F., SOARES, J.C., DIAZ, F., AGUILO, M. “Diffusion of Nd, Er and Nb in Potassium Titanyl Phosphate”, *Journal of Physics - Condensed Matter* **9** (1997) L465-L469.
15. AZEVEDO, M.M.P. , SOUSA, J.B. , MENDES, J.A., ALMEIDA, B.G. ROGALSKI, M.S., POGORELOV, Y.G., BIBICU, I., REDONDO, L.M., SILVA, M.F., JESUS, C.M., MARQUES, J.G., SOARES, J.C., “Magnetization and Magnetoresistance in Fe-Ion-Implanted Cu and Ag Thin Films”, *Journal of Magnetism and Magnetic Materials* **173** (1997) 230-240.
16. RODRIGUEZ, A., RODRIGUEZ, T., KLING, A., SOARES, J.C., SILVA, M.F., BALLESTEROS, C., “Strain and Defects Depth Distributions in Undoped and Boron-doped $\text{Si}_{1-x}\text{Ge}_x$ Layers Grown by Solid Phase Epitaxy”, *Journal of Appl. Phys.* **82** (1997) 2887-2895.
17. SPRIANO, S., ANTONIONE, C., DOGLIONE, R., BATTEZZATI, L., CARDOSO, S., SOARES, J.C., SILVA, M.F., “Crystallisation and Mechanical Behaviour of Bulk Zr-Ti-Ni-Cu-Be Metallic Glasses”, *Philosophical Magazine B* **76** (4) (1997) 529-540.
18. CARVALHO, D., CARDOSO, S., VILAR, R., “Amorphisation of $\text{Zr}_{60}\text{Al}_{15}\text{Ni}_{25}$ Surface Layers by Laser Processing for Corrosion Resistance”, *Scripta Materialia* **37** (1997) 523-527.
19. BLANCO RODRÍGUEZ, P., MARTÍN SÁNCHEZ, A., VERA TOMÉ, F., FERRERO CALABUIG, J.L., COLDÁN GARCIA, C., JUANES BARBER, D., AGER, F.G., SILVA, M.F., SOARES, J.C., “Characterization of Alpha Sources Prepared by Direct Evaporation Using Rutherford Backscattering Spectrometry”, *Nucl. Instr. and Methods* **B132** (1997) 501-504.
20. MARQUES, J.G., KLING, A., REBOUTA, L., SILVA, M.F., MELO, A.A., SOARES, J.C., SERRANO, M.D., DIÉGUEZ, E., AGULLÓ-LÓPES, F., “Lattice Location of Hf in Near-Stoichiometric LiNbO_3 : RBS/Channeling and PAC Studies”, *Materials Science Forum* **248-249** (1997) 395-398.
21. ALVES, E., BOLLMANN, J., DEICHER, M., CARMO, M.C., HENRY, M.O., KNOFF, M.H.A., LEITÃO, J.P., MAGERLE, R., MCDONAGH, C.J., “The Photoluminescence of Pt-Implanted Silicon”, *Mat. Sci. Forum* **258-263** (1997) 473.
22. BURCHARD, A., CORREIA, J.C., DEICHER, M., FORKEL-WIRTH, D., MARGELE, R., PROSPERO, A., STÖZLER, A., and ISOLDE Collaboration, “Acceptor-Hydrogen Interaction in InAs”, *Mat. Sci. Forum* **258-263** (1997) 1223.

23. WAHL, U., CORREIA, J.G., LANGOUCHE, G., MARQUES, J.G., VANTOMME, A., ISOLDE Collaboration, "Direct Evidence for Stability of Tetrahedral Interstitial Er in Si up to 900°C", *Mat. Sci. Forum* **258-263** (1997) 1503.
24. KLING, A., SOARES, J.C., SILVA, M.F., "Computer Simulation of Channeling Spectra with the CASSIS Program", *Radiation Effects and Defects in Solids* **141** (1997) 53.
25. REBOUTA, L., SILVA, M.F., SOARES, J.C., SERRANO, D., DIÉGUEZ, E., AGULLÓ-LÓPEZ, F., TORNERO, J., "Thermal Oxidation of Ti_{1-x}Al_xN Coatings in Air", *J. European Ceramic Society* **17** (15-16) (1997).
26. KLING, A., SOARES, J.C., SILVA, M.F., "Platinum Implanted Lithium Niobate – Annealing Behaviour and Dopant Redistribution", *Nucl. Instr. and Methods* (in press).
27. ALVES, E., SILVA, M.F., MARQUES, J.G., SOARES, J.C., FREITAG, K., "Chemical Effects on the Amorphization of Sapphire", *Nucl. Instr. and Methods* (in press).
28. SILVA, R.C., ALVES, E., REDONDO, L.M., FROMKNECHT, R., MEYER, O., "Lattice Site Location and Annealing Behaviour of W Implanted TiO₂", *Nucl. Instr. and Methods* (in press).
29. ALVES, E., SILVA, R.C., SILVA, M.F., SOARES, J.C., VAN DEN HOVEN, G., POLMAN, A., "Solubility and Damage Annealing of Er Implanted Single Crystalline α -Al₂O₃", *Nucl. Instr. and Methods* (in press).
30. KLING, A., SOARES, J.C., SILVA, M.F., SANZ-GARCÍA, J.A., DIÉGUEZ, E., AGULLÓ-LÓPEZ, F., "Lattice Site Determination of Cr in Low Doped Lithium Niobate Single Crystals Using PIXE/Channeling", *Nucl. Instr. and Methods* (in press).
31. MARQUES, J.G., KLING, A., SOARES, J.C., REBOUTA, L., SILVA, M.F., DIÉGUEZ, E., AGULLÓ-LÓPEZ, F., "Lattice Site Location of Hf in LiNbO₃: Influence of Dopant Concentration and Crystal Stoichiometry", *Nucl. Instr. and Methods* (in press).
32. FICHTNER, P.F.P., KASCHNY, J.R., KLING, A., TRINKAUS, H., YANKOV, R.A., MÜCKLICH, A., SKORUPA, W., ZAWISLAK, F.C., AMARAL, L., SILVA, M.F., SOARES, J.C., "Nucleation and Growth of Platelet Bubble Structures in Helium Implanted Silicon", *Nucl. Instr. and Methods* (in press).
33. ALVES, E., SILVA, M.F., SOARES, J.C., HENRY, M.O., GWILLIAM, R., SEALY, B.J., FREITAG, K., VIANDEN, R., STIEVENARD, A., "Lattice Site Location of Tu and Er Implanted GaAs", *Nucl. Instr. and Methods* (in press).
34. ALMENDRA, A., SERRANO, J.J., KLING, A., RODRÍGUEZ, T., BLANCO, J.M., SILVA, M.F., AGUILAR, M., SANZ-MAUDES, J., SOARES, J.C., "RBS and SIMS Study of the Simultaneous Phase Growth of Iridium Silicides Formed by RTA in Vacuum", *Nucl. Instr. and Methods* (in press).
35. WAHL, U., CORREIA, J.G., CARDOSO, S., MARQUES, J.G., VANTOMME, A., LANGOUCHE, G., and the ISOLDE Collaboration, "Electron Emission Channeling with Position-Sensitive Detectors", *Nucl. Instr. and Methods* (in press).

36. MARQUES, J.G., KLING, A., JESUS, C.M., SILVA, M.F., SOARES, J.C., DIÉGUEZ, E., AGULLÓ-LÓPEZ, F., “Annealing Recovery of Neutron Irradiated $\text{LiNbO}_3\text{:Hf}$ Single Crystals”, *Nucl. Instr. and Methods* (in press).
37. AGER, F.J., RESPALDIZA, M.A., PAÚL, A., ODRIOZOLA, J.A., SILVA, M.F., REDONDO, L.M., SOARES, J.C., “Analysis of the Elements Sputtered During the Lanthanum Implantation in Stainless Steels”, *Nucl. Instr. and Methods* (in press).
38. AGER, F.J., RESPALDIZA, M.A., PAÚL, A., ODRIOZOLA, J.A., SILVA, M.F., SOARES, J.C., “Oxide Scale Depth Profiling on Lanthanum-Deposited AISI304: an Ion Beam Analysis”, *Nucl. Instr. and Methods* (in press).
39. REDONDAS, X., GONZÁLEZ, P., LEÓN, B., PÉREZ-AMOR, M., SOARES, J.C., SILVA, M.F., “Structural and Compositional Studies of A-Si, C:H Thin Films Obtained by Excimer Lamp-CVD from Acetylene and Silane”, *J. Vac. Sci. Technology* (in press).
40. SOTO, R., GONZÁLEZ, P., REDONDAS, X., PARADA, E.G., POU, J., LEÓN, B., PÉREZ-AMOR, M., SILVA, M.F., SOARES, J.C., “Growth and Characterization of Carbon Nitride Thin Films Prepared by Laser Ablation”, *Nucl. Instr. and Methods* (in press).
41. AMARAL, V.S., CORREIA, J.G., LOURENÇO, A.A., MARQUES, J.G., MENDES, J.A., BAPTISTA, M.A., ARAÚJO, J.P., MOREIRA, J.M., SOUSA, J.B., ALVES, E., SILVA, M.F., SOARES, J.C., and the ISOLDE Collaboration, “Microscopic Studies of Radioactive Hg Implanted in $\text{Yb}_2\text{Cu}_3\text{O}_{6+x}$ Superconducting Thin Films”, *J. Magn. Magn. Mat.* (in press).
42. ALVES, E., SILVA, M.F., SOARES, J.C., SOCHINSKII, N.V., BERNARDI, S., “Ion Beam Studies of CdTe Films Epitaxially Grown on Si, GaAs and Sapphire Substrates”, *Nucl. Instr. and Methods* (in press).
43. REDONDO, L.M., JESUS, C.M., MARQUES, J.G., SILVA, M.F., SOARES, J.C., PEREIRA DE AZEVEDO, M.M., MENDES, J.A., ROGALSKI, M.S., SOUSA, J.B., “High Flux $^{56}\text{Fe}^+$ and $^{57}\text{Fe}^+$ Implantations for GMR Applications”, *Nucl. Instr. and Methods* (in press).
44. REDONDAS, X., GONZÁLEZ, P., SOTO, R., LEÓN, B., PÉREZ-AMOR, M., SILVA, M.F., SOARES, J.C., “Modification of Silicon-carbon Film Properties Under High Energy Ion Beam Irradiation”, *Nucl. Instr. and Methods* (in press).
45. RODRÍGUEZ, A., RODRÍGUEZ, T., KLING, A., SOARES, J.C., SILVA, M.F., BALLESTEROS, C., “Determination of the Strain Depth Profile in Solid-phase Epitaxially Grown SiGe Layers Using RBS/Channeling”, *Nucl. Instr. and Methods* (in press).
46. TAVARES, C.J., REBOUTA, L., ALVES, E.J., ALMEIDA, B., BESSA E SOUSA, J., SILVA, M.F., SOARES, J.C., “Interfacial Roughness of Multilayered TiN/ZrN Coatings”, *Nucl. Instr. and Methods* (in press).
47. VAZ, F., REBOUTA, L., RAMOS, S., CAVALEIRO, A., SILVA, M.F., SOARES, J.C., “Physical and Mechanical Properties of $\text{Ti}_{1-x}\text{Si}_x\text{N}$ Films”, *Surf. and Coat. Technology* (in press).

48. FERRERO, J.L., MARTÍN, A., ROLDÁN, C., VERA, F., SILVA, M.F., SOARES, J.C., JUANES, D., “Semipermeable Membrane to Retain Platinum Atoms in the Electrodeposition Process of Alpha Spectrometry Sources”, *Appl. Radiat. Isot.* (in press).
49. FERRERO, J.L., VERA, F., MARTÍN, A., ROLDÁN, C., SILVA, M.F., SOARES, J.C., AGER, F.J., JUANES, D., RUBIO, P., “Ion Beam Analysis and Alpha Spectrometry of Sources Electrodeposited on Several Backings”, *Nucl. Instr. and Methods* (in press).
50. BUTZ, T., FLAGMEYER, R.-H., JANKUHN, ST., REINERT, T., SILVA, M.F., SOARES, J.C., TRÖGER, W., “RBS Studies of the Intercalation Compound Hg_xTiS_2 : Morphology and Staging”, *Nucl. Instr. and Methods* (in press).
51. DAI, Z., SOARES, J.C., SILVA, M.F., “RBS/Channeling Characterization of GaSb and Ion-Implanted GaSb after Several Treatments”, *Nucl. Instr. and Methods* (in press).
52. DAI, Z., SOARES, J.C., SILVA, M.F., “The Potentiality of PIXE to Measure Multilayer Film Thickness Through Computer Simulation”, *Nucl. Instr. and Methods* (in press).
53. HARBSMEIER, F., SILVA, M.R., BOLSE, W., SILVA, M.F., SOARES, J.C., “Epitaxial Regrowth of C- and N-implanted Silicon and α -Quartz”, *Nucl. Instr. and Methods* (in press).
54. CORREIA, J.G., “Radioactive Ion Beams and Techniques for Solid State Research”, *Nucl. Instr. and Methods* (in press).

Conference Proceedings

1. HENRY, M.O., DALY, S.E., FREEHIL, C.A., MCGLYNN, E., DONAGH, C.MC., ALVES, E., SOARES, J.C., FORKEL, D., “A Photoluminescence Study of Gold and Platinum Related Defects in Silicon Using Radioactive Transformations”, ICPS_23 Berlin'96 (in press).
2. MARQUES, J.G., KLING, A., SOARES, J.C., SILVA, M.F., DIÉGUEZ, E., AGULLÓ-LOPEZ, “Thermal Neutron Irradiation of $LiNbO_3$ Crystals Doped with Hf and Hf,Mg”, *Mat. Res. Symp. Proc.* **Vol. 439** (1997) 645-650.
3. PARADA, E.G., GONZÁLEZ, P., LEÓN, B., PÉREZ-AMOR, M., SILVA, M.F., SOARES, J.C., FERNÁNDEZ, A., GONZÁLEZ-ELIPE A.R., “Changes in Structure and Composition of Silicon Oxide Thin Films Induced by Ultraviolet Illumination”, *Mat. Res. Soc. Symp. Proc.* **Vol. 441** (1997) 211.
4. WAHL, U., CORREIA, J.G., DE WACHTER, J., LANGOUCHE, G., MARQUES, J.G., MOONS, R., VANTOMME, A., and the ISOLDE Collaboration, “Lattice Sites and Damage Annealing of Implanted Tm and Er in Si”, *Mat. Res. Soc. Symp. Proc.* **469** (1997) 407-412.
5. WAHL, U., CORREIA, J.G., LANGOUCHE, G., VANTOMME, A., and the ISOLDE Collaboration, “Lattice Sites and Stability of Implanted Er in FZ and CZ Si”, *Mat. Res. Soc. Symp. Proc.* (in press).

- ZAWISLAK, F.C., GARCIA, I.T.S., SAMIOS, D., BAPTISTA, D.I., FICHTNER, P.F.P., ALVES, E., SILVA, M.F., SOARES, J.C., "Improving the Thermal Stability of Photoresist Films by Ion Beam Irradiation", *Mat. Res. Soc. Symp. Proc.* (in press).
- JESUS, C.M., MARQUES, J.G., SOARES, J.C., REDONDO, L.M., SILVA, M.F., PEREIRA DE AZEVEDO, M.M., "Giant Magnetoresistance in Iron and Cobalt Implanted Silver Thin Films", *Mat. Res. Soc. Symp. Proc.* (in press).

Special Publications, Book Chapters, Others

- AGER, F.J., RESPALDIZA, M.A., PAÚL, A., ODRIOZOLA, J.A., LUNA, C., BOTELLA, J., SOARES, J.C., SILVA, M.F., "The Oxidation Behaviour of Lanthanum Implanted Stainless Steels", in *Advances in Surface Engineering*, Vol. I: Fundamentals of Coatings, eds. P.K. Datta and J.S. Burnell-Gray, The Royal Society of Chemistry, 1997, pp. 19-31.
- CORREIA, J.G., MARQUES, J.G., BURCHARD, A., MAGERLE, R., DEICHER, M., FORKEL-WIRTH, D., and the ISOLDE Collaboration, "Microscopic Studies of the Hydrogen Passivation in n-type Silicon: A New Application of the $^{73}\text{As } \gamma\text{-e}^-$ PAC Technique", in *Shallow Level Centers in Semiconductors*, Eds. C.A.J. Ammerlaan and B. Pajot, World Scientific, Singapore, 1997, pp. 363-368.

Communications to Conferences

- VAZ, F., REBOUTA, L., ANDRITSCHKY, M., RAMOS, S., SILVA, M.F., SOARES, J.C., "The Effect of the Addition of Al and Si on the Physical and Mechanical Properties of Titanium Nitride", *International Conference on Advanced Materials and Processing Technologies – AMPT'97*, Guimarães, Portugal, 21-25 July 1997.
- VAZ, F., REBOUTA, L., SILVA, R.M.C., SILVA, M.F., SOARES, J.C., "Characterization of Titanium Silicon Nitride Films Deposited by PVD", *2nd European Topical Conference on hard Coatings*, Lisbon, Portugal, 22-24 September 1997.
- CARDOSO, S., FREITAS, P.P., SILVA, M.F., SOARES, J.C., "Correlation Between Interface Roughness of the Electrodes Estimated by Rutherford Backscattering and Transport Properties in Spin-Dependent Tunneling Junctions", *13th International Conference on Ion Beam Analysis – IBA-13*, Lisbon, Portugal, 27th July – 1st August.
- FERRER, I.J., FERNÁNDEZ, J.F., SOARES, J.C., SILVA, M.F., SÁNCHEZ, c., "Structure and Composition of FeS₂ Thin Films", *13th International Conference on Ion Beam Analysis – IBA-13*, Lisbon, Portugal, 27th July – 1st August.

Condensed Matter Physics

Publications in Journals

1. MARGAÇA, F.M.A., MIRANDA SALVADO, I.M., TEIXEIRA, J., “A SANS Study of $ZrO_2.SiO_2$ Gels”, *Journal of Non-Crystalline Solids* **209** (1997) 143-148.
2. SEQUEIRA, A.D., KOSTORZ, G., PEDERSEN, J.S., “Small-angle Neutron Scattering from Single Crystalline Materials”, *Journal of Applied Cryst.* **30** (1997) 575-579.
3. CARVALHO, F.G., “Report on the Lisbon Meeting on Neutron Beam Research”, *Neutron News*, in press.
4. SEQUEIRA, A.D., BRESSERS, J., “The Evolution of the Microstructure and Crack Propagation of CoNiCrAlY Coated Superalloys upon Thermo-mechanical Fatigue”, submitted to *EuroMat98*.

Conference Proceedings

1. MARGAÇA, F.M.A., MIRANDA SALVADO, I.M., TEIXEIRA, J., “Microstructure of Silicate Gels by SANS”, in *Proceedings of the IAEA Technical Committee Meeting on Neutron Beam Research*, Edited by F.G. Carvalho and F.M.A. Margaça (Lisbon, Portugal, September 10-12, 1997) pp. 50-55.
2. SEQUEIRA, A.D., “Small-Angle Neutron Scattering as a Tool for the Study of Decomposition Processes in Single Crystalline Superalloys”, in *Proceedings of the IAEA Technical Committee Meeting on Neutron Beam Research*, Edited by F.G. Carvalho and F.M.A. Margaça (Lisbon, Portugal, September 10-12, 1997) pp. 126-133.
3. CARVALHO, F.G., SALGADO, J.F., MARGAÇA, F.M.A., FALCÃO, A.N., SEQUEIRA, A.D., “Neutron Beam Work at Sacavém and the ITN Group of Condensed Matter Physics”, in *Proceedings of the IAEA Technical Committee Meeting on Neutron Beam Research*, Edited by F.G. Carvalho and F.M.A. Margaça (Lisbon, Portugal, September 10-12, 1997) pp. 159-162.

Special Publications

1. CARVALHO, F.G., MARGAÇA, F.M.A., Editors, *Proceedings of the IAEA Technical Committee Meeting on Neutron Beam Research*, Edited by F.G. Carvalho and F.M.A. Margaça (Lisbon, Portugal, September 10-12, 1997).
2. SEQUEIRA, A.D., BRESSERS, J., “Imaging of Three Dimensional Properties of Cracks on CoNiCrAlY coated SRR-99 Using Scanning Electron Microscopy “ *Materials Challenge* **12**, JRC Bulletin, European Commission, edited by E. Bullock (1997) in press.
3. SEQUEIRA, A.D., BRESSERS, J., “Nanoscale Mapping of Internal Strains in Crystalline Materials by Convergent-Beam Electron Diffraction” *Materials Challenge* **12**, JRC Bulletin, European Commission, edited by E. Bullock (1997) in press.

Internal Reports

1. SEQUEIRA, A.D., "Thermo-mechanical fatigue of CoNiCrAlY coated SRR-99 - Microstructure and Internal Stresses", Internal Report of the Institute for Advanced Materials, Joint Research Centre of the European Commission. December 1997, 150 pp.

Communications to Conferences

1. MARGAÇA, F.M.A., "Investigation of the Microstructure of Silica Gels Using Neutron Beams", The State of Glass in Portugal, *1st National Meeting of the Portuguese Glass Association*, Marinha Grande, June 27, 1997 (in Portuguese)
2. FALCÃO, A.N., MARGAÇA, F.M.A., SALGADO, J., CARVALHO, F.G., "Neutron Scattering Instruments at the Portuguese Research Reactor", *Seventeenth European Crystallographic Meeting ECM-17*, Lisbon, August 24-28, 1997.
3. MARGAÇA, F.M.A., SILVA GUERREIRO, A.R.N., DUARTE de ALMEIDA, M.S., BARROS MARQUES, M.I. and ALVES MARQUES, M., "The Structure and Dynamics of Ionic Solutions", *25th International Conference on Solution Chemistry*, Vichy, France, August 26-31, 1997.
4. MARGAÇA, F.M.A., SILVA GUERREIRO, A.R.N., DUARTE de ALMEIDA, M.S., BARROS MARQUES, M.I. and ALVES MARQUES, M., "The Structure and Dynamics of Concentrated Aqueous Solutions of Aluminium and Magnesium Salts", *IAEA Technical Committee Meeting on Neutron Beam Research*, Lisbon, September 10-12, 1997.
5. CARVALHO, F.G., "Notes on the Neutron Scattering Scene in Portugal", *8th European Neutron Scattering Association Committee Meeting*, Delft, Holland, December 8-9, 1997.

Solid State Chemistry and Physics

Publications in Journals

- ESTRELA, P., GONÇALVES, A. P., GODINHO, M., ALMEIDA, M., SPIRLET, J. C., "Single Crystal Magnetisation of $\text{UFe}_{10}\text{Mo}_2$ ", *Journal of Magnetism and Magnetic Materials*, **167** (1997) L185-188.
- KOLBERT, A. C., VEREL, R., DE GROOT, H., ALMEIDA, H., "Determination of the Spin Density Distribution in the Organic Conductor $\text{DMTM}(\text{TCNQ})_2$ with ^{13}C Magic Angle Spinning", *Molecular Physics* **91** (4) (1997) 725-729.
- MORGADO, J., DUARTE, M. T., ALCÁCER, L., SANTOS, I. C., HENRIQUES, R. T., ALMEIDA, M., "New compounds based on Tetrathiafulvalene and $\text{Au}(\text{pds})_2^-$, $\text{pds}=\text{pyrazine-2,3-diselenolate}$ ", *Synthetic Metals* **86** (1997) 2187-2188.
- LOPES, E. B., MATOS, M. J., HENRIQUES, R. T., ALMEIDA, M., DUMAS, J., "Charge Density Wave Dynamics in Quasi-one-dimensional Conductors $(\text{Perylene})_2\text{Pt}(\text{mnt})_2$, $\text{M}=\text{Au}$ and Pt ", *Synthetic Metals* **86** (1997) 2163-2164.
- MORGADO, J., CHRISTENSEN, J. B., HENRIQUES, R. T., ALCÁCER, L., ALMEIDA, M., "Electrical and Magnetic Properties of the New conductors: $(\text{TMTDP})_2\text{AsF}_6$ and $(\text{TMDOP})_2\text{AsF}_6$ ", *Synthetic Metals* **86** (1997) 1967-1970.
- MATOS, M. J., ALMEIDA, M., ALCÁCER, L., HENRIQUES, R.T., "EPR Study of $(\text{per})_2\text{M}(\text{mnt})_2$, $\text{M}=(\text{Au}, \text{Pt})$ and their Alloys", *Synthetic Metals* **86** (1997) 2089-2090.
- GONÇALVES, A.P., ESTRELA, P., GODINHO, M., WAERENBORGH, J.C., PAIXÃO, J.A., ALMEIDA, J.A., SPIRLET, J.C., "Crystallographic and Magnetic Properties of $\text{UFe}_{5.8}\text{Al}_{6.2}$ ", *Journal of Magnetism and Magnetic Materials*, submitted.
- SANTOS, I.C., ALMEIDA, M., MORGADO, J., DUARTE, M.T., ALCÁCER, L., "Crystal Structure of $\text{Perilo}(1,2\text{-b,c,d})\text{thiophene}$ ", *Acta Crystallographica C* **53** (1997) 1640-1642.
- MORGADO, J., SANTOS, I.C., VEIROS, L.F., HENRIQUES, R.T., DUARTE, M.T., ALMEIDA, M., ALCÁCER, L., "Perylene Derivative Charge Transfer Salts: Synthesis, Crystal Structure and Characterisation of $(\text{pet})_3[\text{Ni}(\text{mnt})_2]_2$ ", *Journal of Materials Chemistry* **7** (1997) 2387-2392.
- SANTOS, I.C., AYLLON, J.A., HENRIQUES, R.T., ALMEIDA, M., ALCÁCER, L., DUARTE, M.T., "A New Perylene Salt: Dyperpylenium (1+) bis [1,4-dihydro-2,3-quinoxalinedithionato(2)S,S']cuprate(III)", *Acta Crystallographica C* **53** (1997) 1768-1770.
- ROVIRA, C., VECIANA, J., RIBERA, E., TARRÉS, J., CANADELL, E., ROUSSEAU, R., MAS, M., MOLINS, E., ALMEIDA, M., HENRIQUES, R.T., MORGADO, J., SCHOEFFEL, J.-P., POUGET, J.-P., "An Organic Spin-Ladder Molecular Material", *Angewandte Chemie* **36** (1997) 2324-2326.
- HESS, C., SCHLENKER, C., BONFAIT, G., OHM, T., PAULSON, C., DUMAS, J., GREENBLATT, M., MARCUS, J., ALMEIDA, M., "CDW State and Superconductivity

- in the Quasi-Two-Dimensional Monophosphate Tungsten Bronze $P_4W_{14}O_{50}$ ”, *Solid State Communications* **104** (1997) 663-668.
13. PAIXÃO, J.A., WAERENBORGH, J.C., ROGALSKI, M.S., GONÇALVES, A.P., ALMEIDA, M., GOUKASSOV, A., BONNET, M., SOUSA, J.B., “Magnetisation Density in $UFe_{10}Si_2$ ”, *Journal of Physics: Condensed Matter* **9** (1997).
 14. WAERENBORGH, J.C., ROGALSKI, M.S., GONÇALVES, A.P., SOUSA, J.B., ALMEIDA, M., “Mössbauer Spectroscopy Study of 3d-Magnetic Properties in $UFe_{10}Si_2$ ”, *Solid State Communications* **104** (1997) 271-276.
 15. HESS, C., SCHLENKER, C., BONFAIT, G., MARCUS, J., OHM, T., PAULSEN, C., DUMAS, J., THOLENCE, J.-L., GREENBLATT, M., ALMEIDA, M., “Superconductivity in the Charge Density Wave State of the Quasi-Two-Dimensional Monophosphate Tungsten Bronze $P_4W_{14}O_{50}$ ”, *Physica C* **282-287** (1997) 955-956.
 16. S. ZWIRNER, J. C. WAERENBORGH, F. WASTIN, J. REBIZANT, J. C. SPIRLET, W. POTZEL, G. M. KALVIUS, “Anisotropic magnetic coupling in $Np_xU_{1-x}Pd_2Al_3$ and $Np_xU_{1-x}Ru_2Si_2$ ”, *Physica B* **230-232** (1997) 80-82.
 17. PAIXÃO, J.A., LANGRIDGE, S., SØRENSEN, S.AA., LEBECH, B., GONÇALVES, A.P., LANDER, G.H., BROWN, P.J., BURLET, P., TALIK, E., “Unusual Magnetic Interactions in Compounds with the $ThMn_{12}$ Structure”, *Physica B* **234-236** (1997) 614-616.
 18. PAIXÃO, J.A., LEBECH, B., GONÇALVES, A.P., BROWN, P.J., LANDER, G.H., BURLET, P., DELAPALME, A., SPIRLET, J.C., “Magnetic Sublattice Interactions in UFe_4Al_8 ”, *Physical Review B* **55** (1997) 14370-14377.
 19. CASACA, A., BONFAIT, G., LENKENS, M., MÜLLER, G., LANDER, K., EDWARDS, J.A., “Model for the Broadening of the Resistive Transition in $YBa_2Cu_3O_{7.8}$ Thin Films”, *Superconducting. Science and Technology* **10** (1997) 75-81.
 20. HESS, C., SCHLENKER, C., BONFAIT, G., MARCUS, J., OHM, T., PAULSEN, C., DUMAS, J., THOLENCE, J.L., GREENBLATT, M., ALMEIDA, M., “Superconductivity in Charge Density Wave State of the Quasi-two-dimensional monophosphate Tungsten Bronze $P_4W_{14}O_{50}$.”, *Physica C* **282-287** (1997) 955.
 21. CASACA, A., BONFAIT, G., GETTA, M., LENKENS, M., MULLER, G., “Twin-boundary Effect on the Hall Conductivity in High T_c Superconducting Thin Films”, *Phys. Rev. B* **56** (9) (1997) 5677-5682.
 22. GAMA, V., BELO, D., SANTOS, I.C., HENRIQUES, R.T., “Ferromagnetism in Charge Transfer Salts Based on Metallocenes and Nickel bis-dithiolenes”, *Molecular Crystals and Liquid Crystals* **306** (1997) 17-24.
 23. PEREIRA, L.C.J., WASTIN, F., WINAND, J.M., KANELLAKOPOULOS, B., REBIZANT, J., SPIRLET, J.C., ALMEIDA, M., “Synthesis Crystal Structure and Physical Properties of Ternary Intermetallixc Compounds An_2T_2X ($An=Pu, Am$ $X=In, Sn$ $T=Co, Ir, Ni, Pd, Pt, Rh$)”, *Journal of Solid State Chemistry* (in press).

24. LI, G., LEE, J.S., LONG, V.C., MUSFELDT, J.L., WANG, Y.J., ALMEIDA, M. , “Far Infrared Studies of Spin-Peierls Materials in a Magnetic Field”, *Chemistry of Materials* (in press).

Special Publications, Book Chapters, Others

1. ALMEIDA, M., HENRIQUES, R.T., “Perylene Based Conductors”, in “Organic Conductive Molecules and Polymers”, H. S. Nalwa ed., vol. 1, Chapter 2, John Wiley and Sons, Chichester, 1997, pp. 87-149.

Communications to Conferences

1. BONFAIT, G., MATOS, M., HENRIQUES, R.T., ALMEIDA, M., “Magnetic Field Dependence of the Peierls Transition in Two Chains Compounds”, *International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, ISCOM'97*, Sesimbra, 22-27 March 1997.
2. GAMA, V., SANTOS, I.C., BELO, D., RAMOS, C., HENRIQUES, R.T., “Magnetic Anisotropy Studies of Decamethylferrocenium Nickel Bisdithiolate Salts”, *International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, ISCOM'97*, Sesimbra, 22-27 March 1997.
3. LOPES, E.B., MATOS, M., HENRIQUES, R.T., ALMEIDA, M., DUMAS, J., “CDW Nonlinear Transport in Molecular Conductors; Comparison of the $(\text{Per})_2 \text{M}(\text{mnt})_2$ Compounds with $\text{M}=\text{Au}, \text{Pt}$ ”, *International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, ISCOM'97*, Sesimbra, 22-27 March 1997.
4. MORGADO, J., SANTOS, I.C. , VEIROS, L.F., HENRIQUES, R.T., DUARTE, M.T., ALMEIDA, M., ALCÁCER, L., “Organic Conductors Based on the Perylene Derivative PET”, *International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, ISCOM'97*, Sesimbra, 22-27 March 1997.
5. MUSFELDT, J.L., LI, G., LEE, J.S., WANG, Y.J., ALMEIDA, M. , “Infrared Investigations of Organic Spin-Peierls Materials”, *International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, ISCOM'97*, Sesimbra, 22-27 March 1997.
6. RIBERA, E., TARRÉS, J., VECIANA, J., ROVIRA, C., CANADELL, E., ROUSSEAU, R., MOLINS, E., MAS, M., MORGADO, J., HENRIQUES, R.T., ALMEIDA, M. , “Comparison of the Structural, Electrical and Magnetic Properties of $(\text{BET-TTF})\text{M}(\text{mnt})_2$ and $(\text{DT-TTF})_2\text{M}(\text{mnt})_2$ ”, *International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, ISCOM'97*, Sesimbra, 22-27 March 1997.
7. RODRIGUES, C., SANTOS, I.C., BELO, D., MATOS, M.J., DUARTE, M.T., HENRIQUES, R.T., “An E.P.R. Study of Bedt-ttf Salts of Gold bis(dithiolates): $(\text{bedt-ttf})_2[\text{Au}_2(\text{i-mnt})_2]$ and $(\text{bedt-ttf})[\text{Au}(\text{cdc})_2]$ ”, *International Symposium on Crystalline Organic Metals, Superconductors and Ferromagnets, ISCOM'97*, Sesimbra 22-27 March 1997.

8. MORGADO, J., SANTOS, I.C., HENRIQUES, R.T., DUARTE, M.T., ALCÁCER, L., ALMEIDA, M., "Electrical and Magnetic Properties of Two TTF-Au(pds)₂ Conductors", *Towards Molecular Electronics-TME*, SREM, Poland, 23-28 de June 1997.
9. ALMEIDA, M., HENRIQUES, R.T., BONFAIT, G., LOPES, E.B., GAMA, V., "Unusual Physical Properties of The Two Chain Compounds (Per)₂M(mnt)₂; The Role of The Conducting and of the Localised Magnetic Chains", *International Seminar on Highly Conducting Organic Materials for Molecular Electronics, ISME '97*, Poznan, Poland, 8-12 June 1997.
10. SIMÃO, D., NOVAIS, H., GAMA, V., "Síntese de um Complexo Orgânico de Transferência de Carga", *2º Encontro Nacional de Química Orgânica*, Oeiras 17-21 September 1997.
11. WAERENBORGH, J.C., GONÇALVES, A.P., SÉRIO, S., ALMEIDA, M., GODINHO, M., "⁵⁷Fe Mössbauer Spectroscopy Study of the New UFe₄Al_{7.1}Ga_{0.9} and UFe₆Ga₆ Magnetic Intermetallics", *International Conference on the Application of Mössbauer Effect*, Rio Janeiro, Brasil, 22-27 Setembro 1997, accepted for publication in *Hyperfine Interactions*.
12. TUDORIE, F., NOGUEIRA, M.T., GONÇALVES, A.P., NUNO FERREIRA, P., "Some Preliminary Results on Cu-Ni-Al Shape Memory Alloys", *The 6th Conference on Plastic Deformation*, Galati, Romania, 4-6 Juin 1997.
13. PAIXÃO, J.A., GONÇALVES, A.P., ALMEIDA, M., "Neutron Diffraction Studies of Intermetallic Compounds with the ThMn₁₂ Type Structure", *IAEA Technical Committee Meeting on Neutron Beam Research*, Altis Park Hotel, Lisbon, September 10-12, 1997.
14. GONÇALVES, A.P., ESTRELA, P., GODINHO, M., ALMEIDA, M., "Structure and Magnetisation of UZn₁₂ Single Crystals", *International Conference on f Elements, ICFE3*, Palais de l'Unesco, Paris, France, 14 - 18 September 1997.
15. GONÇALVES, A.P., "Structural and Magnetic Properties of UFe₄Al₈C_{0.5}", *4th Workshop on Magnetism and Intermetallics*, Faculdade de Ciências da Universidade de Lisboa, 21-22 November 1997.
16. WAERENBORGH, J. C., "In-field Mössbauer Studies on a UFe₄Al₈ Single-crystal, *4th Workshop on Magnetism and Intermetallics*", Faculdade de Ciências da Universidade de Lisboa, 21-22 November 1997.

ENVIRONMENTAL SCIENCES

Applied Chemistry to the Earth and Environmental Sciences

Publications in Journals

1. PAIVA, P., JOUANNEAU, J.-M., ARAÚJO, F., WEBER, O., RODRIGUES, A., DIAS, J.M.A., “Elemental Distribution in a Sedimentary Deposit on the Shelf off the Tagus Estuary (Portugal)”, *Water, Air and Soil Pollution* **99** (1997) 507.
2. DEKOV, V.M., ARAÚJO, F., VAN GRIEKEN, R., SUBRAMANIAN, V., “Chemical Composition of Sediments and Suspended Matter from the Cauvery and Brahmaputra Rivers (India)”, *The Science of the Total Environment* **203** (1997) 51.
3. FIGUEIRAS, J., WAERENBORGH, J.C., “Detrital Chromite in the Serra Alta (south Portugal) Quartzites: Chemical and Structural Characterization and Geological Implications”, *Mineralogical Magazine* **61** (1997) 627-638.
4. FREITAS, M.C., NOBRE, A.S. , “Bioaccumulation of Heavy Metals using *Parmelia sulcata* and *Parmelia caperata* for Air Pollution Studies”, *Journal of Radioanalytical Nuclear Chemistry, Articles* **217** (1) (1997) 17-20.
5. FREITAS, M.C., REIS, M.A., ALVES, L.C. , WOLTERBEEK, H.TH., VERBURG, T., GOUVEIA, M.A., “Monitoring of Trace-Element Air Pollution in Portugal: Qualitative Survey”, *Journal of Radioanalytical Nuclear Chemistry, Articles* **217** (1) (1997) 21-30.
6. ARAÚJO, F., VALÉRIO, P., JOUANNEAU, J.-M., “Heavy Metal Assessment in Sediments of the Ave River Basin (Portugal) by Energy-Dispersive X-Ray Fluorescence Spectrometry”, *X-Ray Spectrom.* **27** (in press).
7. DEKOV, V.M., KOMY, Z., ARAÚJO, F., VAN PUT, A., VAN GRIEKEN, R., “Chemical Characterization of Sediments, Suspended Matter, River Water and Ground Water of the Nile (Aswan - Sohag traverse). *The Science of the Total Environment* (in press).
8. ARAÚJO, F., PINHEIRO, T., ALVES, L.C., VALÉRIO, P., GASPAR, F., ALVES, J., “Elemental Composition in Sediments and Water in the Trancão River Basin. A Preliminary Study”, *Nuclear Instruments and Methods-B* (in press).
9. ARAÚJO, F., CRUZ, A., HUMANES, M., LOPES, M.T., SILVA, J.A.L., FRAÚSTO DA SILVA, J.J., “Elemental Distribution of Demospongiae from the Eastern Atlantic - Coastal and Deep Sea Waters”, *submitted to Oceanologica Acta*.
10. ARAÚJO, M.F., JOUANNEAU, J.-M., VALÉRIO, P., PAIVA, P., GOUVEIA, A., WEBER, O, DIAS, J.M.A., “Geochemical signatures of main West Atlantique European Estuaries in the Mud Fields of the Shelf. Examples of Tagus, Douro, Minho and et Gironde”, *submitted to Oceanologica Acta*.

11. COUTINHO, R., CARREIRA, P.M., ALMEIDA, C., MONGE SOARES, A., VIEIRA, M.C., CARVALHO, M.R., CRUZ, J.V., “Utilização de Isótopos Ambientais no Estudo dos Sistemas Aquíferos do Maciço das Sete Cidades, S.Miguel (Açores). Resultados Preliminares”, *Revista da Associação Portuguesa dos Recursos Hídricos* (in press).

Special Publications, Book Chapters, Others

1. CARREIRA, P.M., SOARES, A.M.M., MARQUES da SILVA, M.A., “Coastal Areas of Portugal: Palaeowaters in the Aveiro Cretaceous Aquifer and in the Lower Tagus and Lower Sado Aquifers”, in “*Palaeaux. Management of Coastal Aquifers in Europe*”. European Community Fourth Framework Programme (Climatology and Natural Hazards). 1997, pp. 28-29.

Conference Proceedings

1. PRUDÊNCIO, M.I., “Rare Earth Elements Geochemistry Applied to Provenance and Alteration Processes of Granitic Rocks in Megalithic Monuments”, *Proceedings of the IVth International Symposium on the Conservation of Monuments in the Mediterranean Basin*, Vol.1, 1997, pp.247-252.
2. OLIVEIRA, F., PRUDÊNCIO, M.I., MARTINS, M., GOUVEIA, M.A., SEQUEIRA BRAGA, M.A., DELGADO, M. “Geoquímica Aplicada à Caracterização e Identificação da Cerâmica Arqueológica Romana “Bracarense”, *Proceedings of the X Semana de Geoquímica e IV Congresso de Geoquímica dos Países de Língua Portuguesa*, 1997, pp. 617-620.
3. PRUDÊNCIO, M.I., SEQUEIRA BRAGA, M.A., WAERENBORGH, J.C., GOUVEIA, M.A., “Redistribuição de Elementos Traço Associada à Transformação do Estado do Ferro num Paleossolo em Formações Ferralíticas Terciárias”, *Proceedings of the X Semana de Geoquímica e IV Congresso de Geoquímica dos Países de Língua Portuguesa*, 1997, pp. 303-306.
4. PRUDÊNCIO, M.I., GOUVEIA, M.A., SEQUEIRA BRAGA, M.A. “Trace Elements in Residual and Sedimentary Deposits of Kaolins from Minho (NW Portugal)”, *Seventh Annual V.M. Goldschmidt Conference*, Tucson, Arizona, USA, Abstracts, 1997, pp. 167.
5. MARQUES, J.M.; CARREIRA, P.M.; AIRES-BARROS, L.; GRAÇA, R.C.; A. MONGE SOARES, A., “O $\delta^{13}\text{C}$ das Águas Gasocarbónicas Frias de Vilarelho da Raia, Vidago e Pedras Salgadas como Indicador da Origem do CO_2 ”, *Actas X Semana de Geoquímica / IV Congresso de Geoquímica dos Países de Língua Portuguesa*. 24 a 27 Março, Braga, Portugal, 1997, pp. 571-574.
6. PATRÍCIO MONTEIRO, J.P., LOURENÇO SILVA, M., CARREIRA, P.M., MONGE SOARES, A., “Aplicação de Métodos Geoquímicos Isotópicos à Interpretação da Hidrodinâmica do Aquífero Carbonatado da Serra de S. Mamede (Castelo de Vide)”, *I Congreso Ibérico de Geoquímica. VII Congreso de Geoquímica de España*. Ed. CEDEX. 23 a 26 de Setembro, Soria, Espanha, 1997, pp. 544-551.
7. FREITAS, M.C., ALVEIRINHO CORREIA, A., MARQUES, A.P., REIS, M.A., ALVES, L.C. , “Monitoring of Trace Element Air Pollution at a Rural Site: Comparison with Results Obtained at an Urban Site”, *Proceedings of the 2nd International k_0 -Users*

- Workshop*, (Ljubljana, Slovenia, September 30-October 3, 1996), Institut Jozef Stefan, Ljubljana, 1997, pp. 152-155.
8. FREITAS, M.C., GAWLIK, D., "Use of k_0 -Standardization Method at the Hahn-Meitner-Institut: a Way to Extend Inaa to Environmental Samples for Multielement Determination", *Proceedings of the 2nd International k_0 -Users Workshop*, (Ljubljana, Slovenia, September 30-October 3, 1996), Institut Jozef Stefan, Ljubljana, 1997, pp. 115-118.
 9. FREITAS, M.C., FAUSTINO, C., CORREIA, A., "Heavy Metal Contents Inolymers Used in Food Packing", *3rd Meeting on Chemistry of Food* (Faro, Portugal, March 23-26, 1997), Algarve University/Portuguese Chemical Society, Faro, 1997, pp. 273-275 (in portuguese).
 10. ARAÚJO, M.F., GOUVEIA, M.A. "REE Distribution in Fine Grained Sediments from the Portuguese Atlantic Shelf", *Water Rock Interaction WRI-9 Conference Proceedings*, (in press).
 11. DRAGO, T., ARAÚJO, F., VALÉRIO, P., WEBER, O., JOUANNEAU, J.-M., "Geomorphological Control of Fine Sedimentation on the Northern Portuguese Shelf", *Publicación Especial del Instituto Español de Oceanografía*, (in press).
 12. PRUDÊNCIO, M.I., GOUVEIA, M.A., FREITAS, M.C., REIS, M.A., ALVES, L.C., CHAVES, L., "Soil Versus Lichen Analysis on Elemental Dispersion Studies (North of Portugal). *Proceedings of the International Workshop on Biomonitoring of Atmospheric Pollution*, in press.

Internal Reports

1. "Causas e Mecanismos de Degradação de Rochas Ígneas do Património Construído do Minho, Alentejo e Açores". Project PRAXIS XXI 2/2.1/CSH/254/95. Repport of the 1st year.

Conference Communications

1. ARAÚJO, F., CRUZ, A., ALMEIDA FARIA, A.R., HUMANES, M., LOPES, T., MOURA, I., DA SILVA, J.A.L., FRAÚSTO DA SILVA, J.J.R., "Elemental Composition and Enzyme Activity in Demospongiae", *European Research Conference Chemistry of Metals in Biological Systems*, Tomar, Portugal 7-11 May 1997.
2. DRAGO, T., ARAÚJO, F., VALÉRIO, P., WEBER, O., JOUANNEAU, J.-M., "Geomorphological Control of Fine Sedimentation on the Northern Portuguese Shelf", *2^o Simpósio Sobre a Margem Continental Ibérica Atlântica*, Cadiz, Espanha, 17 -20 September 1997.
3. ARAÚJO, M.F., GOUVEIA, M.A., JOUANNEAU, J.-M., "Rare Earth Elements in Marine Fine-grained Sediments from the Northwestern Portuguese Shelf (Atlantic)", *Seventh Annual V.M. Goldschmidt Conference*, Tucson, Arizona, U.S.A., 2-6 June 1997, LPI contribution n°921, pp.7.

4. M.C. FREITAS, M.A. REIS, L.C. ALVES, M.A. GOUVEIA, M.I. PRUDÊNCIO, A.P. MARQUES & V. MATOS (1997). Comparing biomonitors behaviour in air pollution studies. *BioMap - International Workshop on Biomonitoring of Atmospheric Pollution*, Lisbon, Portugal, 1997.
5. MARQUES, J.M, CARREIRA, P.M., AIRES-BARROS, L., GRAÇA, R.C., MONGE SOARES, A. “O $\delta^{13}\text{C}$ das Águas Gasocarbónicas Frias de Vilarelho da Raia, Vidago e Pedras Salgadas como Indicador da Origem do CO_2 ”. *Actas X Semana de Geoquímica / IV Congresso de Geoquímica dos Países de Língua Portuguesa*, Braga, Portugal, 24 - 27 March 1997.
6. PATRÍCIO MONTEIRO, J.P., LOURENÇO SILVA, M., CARREIRA, P.M., MONGE SOARES, A., “Aplicação de Métodos Geoquímicos Isotópicos à Interpretação da Hidrodinâmica do Aquífero Carbonatado da Serra de S. Mamede (Castelo de Vide)”, *I Congreso Ibérico de Geoquímica. VII Congreso de Geoquímica de España*. Soria, Espanha, 23 - 26 September 1997.
7. CARREIRA, P.M., SOARES, A.M.M., SILVA, M.A.M., ARAGUÁS-ARAGUÁS, L., ROZANSKI, K., STUTE, M., “Palaeowaters in Portugal”, *3rd Mini-Conference on Recharge Temperatures, Palaeowaters & Climate*. Kastanienbaum, Suiss, 31 August - 4 September 1997.
8. FREITAS, M.C., ALVEIRINHO CORREIA, A.S., REIS, M.A., ALVES, L.C., “Instrumental Neutron Activation Analysis in Air Pollution Studies”, *MARC-IV*, Kona-Kailua, Hawaii, USA, April 7-11, 1997.
9. FREITAS, M.C., CORREIA, A.S. , “Multielement Analysis of Animal Tissues and Bones by Instrumental Neutron Activation Analysis”, *BERM-7*, Antwerp, Belgium, September 21-24, 1997.
10. FREITAS, M.C., REIS, M.A., ALVES, L.C. , “Heavy Metals in the Atmospheric Environment”, *AOAC Annual Meeting*, San Diego, USA, September 8-12, 1997.
11. FREITAS, M.C., REIS, M.A., ALVES, L.C., GOUVEIA, M.A. , Prudêncio, M.I., Marques, A.P., Matos, V., “Comparing Biomonitors Behaviour in Air Pollution Studies”, *BioMAP*, Lisboa, September 21-24, 1997
12. FREITAS, M.C., MARQUES, A., MATOS, V., “Air Pollution on Heavy Metals and other Elements in Portugal”, *Element Cycling in the Environment*, Warsaw, Poland, October 27-29, 1997.

Health and Environmental Studies using Ion Beam Techniques

Publications in Journals

1. PINHEIRO, T., BUGALHO DE ALMEIDA, A., VIEIRA, J., FERNANDES, A., ALVES, L. C., REIS, M. A., CARVALHO SOARES, J., "Elemental Distribution in the Human Respiratory System and Excretion Organ - Absorption and Accumulation", *X-Ray Spectrometry* **26** (1997) 217-222.
2. MARTÍN, J.E., MARTÍNEZ-AGUIRRE, A. RESPALDIZA, M.A., SILVA, M.F., "Anthropogenic Contamination Analysed by TTPIXE in Samples from de Odiel Salt Marsh at the SW Spain", *Journal of Radioanalytical and Nuclear Chemistry* **223** (1/2) (1997) 33-40.
3. CARVALHO, M.L., PINHEIRO, T., BARREIROS, M.A., CASACA, C., CUNHA, A.S., CHEVALLIER, P., "Amalgam Components Drift in Teeth - Toxicity Risks: A Preliminary Approach", *Nucl. Instr. and Meth.*, (in press).
4. ARAÚJO, F., PINHEIRO, T., ALVES, L.C., VALÉRIO, P., GASPAR, F., ALVES, J., "Elemental Composition in Sediments and Water in the Trancão River Basin. A Preliminary Study", *Nucl. Instr. and Meth.*, (in press).
5. ALVES, L.C., REIS, M.A., FREITAS, M.C., "Air Particulate Matter Characterisation of a Rural Area in Portugal", *Nucl. Instr. and Meth.*, (in press).
6. JESUS, A.P., REIS, M.A., ALVES, L.C., "Enhanced X-Ray Yields from Insulating Samples", *Nucl. Instr. and Meth.*, (in press).
7. MARTÍN, J.E., GARCÍA-TENORIO, R., RESPALDIZA, M.A., AGER, F., SILVA, M.F., "Elemental Composition of Sediments Determined by TTPIXE", *Nucl. Instr. and Meth.*, (in press).
8. MARTÍN, J.E., GARCÍA-TENORIO, R., RESPALDIZA, M.A., BOLÍVAR, J.P., SILVA, M.F., "Influence of the Mining Activity on Sediments from the Odiel River (SW of Spain) Analysed by TTPIXE", *Nucl. Instr. and Meth.*, (in press).
9. MARTÍN, J.E., GARCÍA-TENORIO, R., RESPALDIZA, M.A., ONTALBA, M.A., BOLÍVAR, J.P., SILVA, M.F., "TTPIXE Analysis of Phosphate Rocks and Phosphogypsum", *Nucl. Instr. and Meth.*, (in press).

Conference Communications

1. PINHEIRO, T., CARVALHO, M.L., BARREIROS, M.A., CASACA, C., COSTA, M.M., JESUS, A.P., CUNHA, A.S., "Elemental Drift in Teeth - The influence of amalgam materials, dietary habits and environment", *World Congress on Medical Physics and Biomedical Engineering -NICE97*, Nice, France, 1997.
2. VIEGAS CRESPO, A.M., LOPES, P., PIRES, A.M., PINHEIRO, T., COELHO, M.M., COLLARES-PEREIRA, M.J., VALE, C., FERREIRA, A.M., SANTOS, M.C.,

- RAMALHINHO, M.G., SÉRGIO, C., REIS, M.A., CRESPO, E.G., MATHIAS, M.L., “Research on Biochemical Parameters Indicative of Toxicity in two Cyprinids Exposed to Copper”, *Ninth International Congress of European Ichthyologists (CEI9) “Fish Biodiversity” Book of Abstracts*, Ed. Pier Giorgio Bianco, Napoli, Italy, 1997.
3. REIS, M.A., ALVES, L.C., FREITAS, M.C., VAN OS, B., WOLTERBEEK, H.TH., “Mean Annual Response of Lichens *Parmelia sulcata* to Environmental Elemental Availability”, *BioMap - International Workshop on Biomonitoring of Atmospheric Pollution*, Lisbon, Sept. 21 - 24, 1997.
 4. REIS, M.A., ALVES, L.C., FREITAS, M.C., VAN OS, B., WOLTERBEEK, H.TH., “Lichens *Parmelia sulcata* Time Response Model to Environmental Elemental Availability”, *BioMap - International Workshop on Biomonitoring of Atmospheric Pollution*, Lisbon, Sept. 21 - 24, 1997.
 5. ALVES, L.C., REIS, M.A., FREITAS, M.C., "Comparison of PIXE and INAA in the Analysis of Lichens", *BioMap - International Workshop on Biomonitoring of Atmospheric Pollution*, Lisbon, Sept. 21 - 24, 1997.
 6. REIS, M.A., ALVES, L.C., "Atmospheric Heavy Metals Monitoring", *Workshop on Global Change - International Geosphere-Biosphere Programme*, Lisbon, May 15-17, 1997.

RADIOISOTOPES AND RADIATION IN HEALTH SCIENCES

Radiopharmaceutical Development

Publications in Journals

1. GANO, L., FERNANDES, C., CANTINHO, G., SANTOS, A.I., PENA, H., VIEIRA, R., SALGADO, L., PATRÍCIO, L., “Technetium –99m Labelling of the IOR 1 Monoclonal Antibody: Evaluation of Different Methods”, *Nuklearmedizin* **36** (1997) 205.
2. NUNES, D., DOMINGUES, Â., PAULO, A., PATRÍCIO, L., SANTOS, I., CARVALHO, M.F., POMBEIRO, A. “Synthesis, Characterization and Study of the Redox Properties of Rhenium (V) Diolates. Attempts to prepare some ^{99m}Tc Analogues”, *Inorg. Chem. Acta* (in press).
3. GANO, L., PATRÍCIO, L., MARQUES, E., CANTINHO, G., PENA, H., MARTINS, T., HNATOWICH, D. J., “Human Polyclonal Immunoglobulin labelled with Technetium-99m Via NHS-MAG₃: a Comparison of Radiochemical Behavior and Biological Efficacy with other Labelling Methods”, *Nuc. Med. Biol.* (in press).

Communications to Conferences

1. GANO, L., PATRÍCIO, L., RODRIGUES, A., MARQUES, E., HNATOWICH, D., “^{99m}Tc-Human Polyclonal Immunoglobulin Via NHS-MAG₃: Comparison of Radiochemical Behavior and Biological Efficacy with other ^{99m}Tc-Immunoglobulin”, 7th *European Symposium on Radiopharmacy and Radiopharmaceuticals*, 2-5 March 1997.
2. NEVES, M., MARCHI, A., BERTOLASI, V., FAUSTO, R., “A Molecular Mechanics Based Study of Biguanide Tc-99m Complexes and their Interactions with Water, Peptides and Phospholipids”, 10th *International Symposium in Radiopharmacology*, Rapallo, Génova, Itália, 17-23 Maio 1997. Published in *The Quartely Journal of Nuclear Medicine*, **41**, Supl.1 to n.2, 1997.
3. PATRÍCIO, L., GANO, L., MARQUES, E., CANTINHO, G., “^{99m}Tc-Immunoglobulin versus ^{99m}Tc-Ciprofloxacin: Comparative Study in Infected Mice”, *XIX Congresso Nacional de Medicina Nuclear*, Alicante, Espanha, 12-14 Junho 1997.
4. MELO E SILVA, M.C., THIEMANN, T., PATRÍCIO, L., SÁ E MELO, M.L., “17 α -[¹²⁵I]iodovinyl Derivatives of 3-methoxy-6-dehydro Estradiol: Potential Radioligands for the Estrogen Receptor”, 2^o *Encontro de Química Orgânica*, Oeiras, Portugal, 17-19 Setembro 1997.
5. MELO E SILVA, M.C., THIEMANN, T., PATRÍCIO, L., SÁ E MELO, M.L., “Sterioisomers of 17 α -[¹²⁵I]iodovinyl-6-desidrostradiol-3-methyl Eter: Potential Ligands

as Estrogen Receptor Imaging”, *V Curso de Divulgação de Medicina Nuclear/Avanços Recentes em Oncologia*, Lisboa, Portugal, 24-25 de Outubro 1997.

6. PIERROZ, D.D., VUAGNAT, B.A.M., RAPOSINHO, P.D., PRALONG, F.P., BLUM, W.F., AUBERT, M., “Evidence for a Leptin-Neuropeptide Y axis for the Regulation of Growth Hormone Secretion in the Rat”, *4th International NPY Conference 1997*, Londres, England, 13-14th November 1997.

NUCLEAR ENGINEERING

Reactor Operation

Communications to Conferences

1. CARDEIRA, F., "Status of Storage of Spent Fuel at the Portuguese Research Reactor (RPI)", *IAEA Interregional training Course of the Technical and Administrative Preparations Required for Shipment of Research Reactor Spent Fuel*, Argonne, USA, 13-24 January 1997.
2. CARDEIRA, F., "Portuguese research Reactor - Overview 1996/97", *8th Annual Meeting of EAES-RROG (European Atomic Energy Society - Research Reactors Operators Group)*, Budapest, Hungary, 5-6 June 1997.
3. MARQUES, J.G., "Instrumentation and Control of the Portuguese Research Reactor", *IAEA Interregional Training Course on Instrumentation and Control of Nuclear Power Plants*, Forschungszentrum Karlsruhe, Germany, 3 June-3 July 1997.

Internal reports

1. OLIVEIRA, J., MENEZES, J., CARLOS, C.R., MARTINHO, E., TRINDADE, R., "Operational Limits and Conditions of the Portuguese Research Reactor (RPI)", *ITN/RPI-R-97/46*.
2. MENEZES, J., "Estudo do Reactor Português de Investigação (RPI)", *ITN/RPI-R-97/48*.
3. RAMALHO, A.G., "Determination of Hydrogen in Steel Through Neutron Dispersion", *ITN/RPI-R-97/47*.
4. CARDEIRA, F., "O Acidente de Tchernobyl: 10 anos depois", *ITN/RPI-N-97/12*.

Special publications

1. CARDEIRA, F., *Material for lectures in the "Training course for candidates to RPI operators"*, October-December 1997.

Modelling and Simulation

Publications in Journals

1. MARTINHO, E. “Calculation of Epithermal Neutron Doses in Research Reactors”, *Kerntechnik* **62** (1997) 184-186.

Conference Proceedings

1. GONÇALVES, I.F., MARTINHO, E., SALGADO, J., “Calculation of Fast Neutron Spectra from a Planar Source of Fission Neutrons in Various Diffusing Media Using the Monte Carlo Technique”, *Proceedings of the International Conference on Neutrons in Research and Industry*, ed. G. Vourvopoulos, SPIE - The International Society for Optical Instrumentation Engineers, Vol. 2867, 1997, pp. 461-464.

Internal reports

1. COSTA OLIVEIRA, J., MENEZES, J. B., CARLOS, C. R. , MARTINHO, E., TRINDADE, R.B., “Operational limits and conditions of the Portuguese Research Reactor”, *ITN/RPI-R-97/46* (in English).
2. CARLOS, C.R. , “Complement of the document ITN/RPI-R-96/44 (Preliminary results on the sensitivity of the values of $U(X, T)$ to the various parameters)”, *ITN/RPI-N-97/23*.

Special publications

1. MARTINHO, E., “Glossary on Radiation Physics”, Project “*À Descoberta das Radiações*” – *Programme “Ciência Viva”*, February 1997.
2. MARTINHO, E., “Interaction of Radiations with Matter – Physical Effects”, Colloquy in the scope of the 1st Course of Radiological Protection for Medical Doctors, Sociedade Portuguesa de Protecção Contra Radiações, Lisboa, March 1997.
3. MARTINHO, E., RAMALHO CARLOS, C., “Ten years after Chernobyl: What do we really know?”, Translation of *IAEA/PI/A51E*, May 1997.
4. MARTINHO, E., Salgado, J., “Discovering Nuclear Radiations”, Forum “*Ciência Viva*”, Lisboa, 6–7 June 1997.
5. SALGADO, J., MARTINHO, E., OLIVEIRA, M., “*Ciência Viva*”, a promising initiative?, Topical session “*Pensar Ciências – Metodologias*”, Forum “*Ciência Viva*”, Lisboa, 6–7 June 1997.
6. MARTINHO, E., “Introduction to Nuclear Physics”, Lectures in the scope of Nuclear Medicine, Faculty of Medical Sciences of New University of Lisbon, October 1997.
7. MARTINHO, E., “Problems of application in “Nuclear structure and stability” and “Nuclear reactions””, *Training course for RPI operators*, ITN, October.1997

8. MARTINHO, E., “Elements of Nuclear Physics”, Lectures in the scope of the Course of Radiopharmacy for Nuclear Medicine, ITN, November 1997.
9. OLIVEIRA, J., MARTINHO, E., “Nuclear Power Stations and Man”, Booklet to be published.

RPI Dosimetry

Publications in Journals

1. RAMALHO, A.G., MASCARENHAS, F., GONÇALVES, I. C., GONÇALVES, I.F., SALGADO, J., CASTRO, M., VALLE, F., PERTUSA, J., IRLES, A., ALCOBER, V., “Some Considerations Related with the Boron Neutron Capture Therapy”, *Revista da Sociedade Portuguesa de Protecção contra Radiações Ionizantes* (in press) (in portuguese).
2. MASCARENHAS, F., GONÇALVES, I.C., RAMALHO, A., PERTUSA, J., LORENTE, M.J., IRLES, A., ALCOBER-COLOMA, V., ALCOBER BOSCH, V., CASTRO, M., VALLE, F., TOSCANO RICO, J., “The Boron Neutron Capture Reaction as a Cancer Therapy (BNCT). The Development of the Ibero BNCT Group”, *Acta Radiológica Portuguesa* Vol. IX (34) (1997) 37-42 (in portuguese).

Conference Proceedings

1. GONÇALVES, I.F., GONÇALVES, I.C., RAMALHO, A.J.G., SALGADO, J.F., “Use of the Thermal Column of the Portuguese Research Reactor (Rpi) for BNC Therapy”, *Proceedings of the “4th Meeting on Nuclear Applications - IV ENAN”*, Poço de Caldas - Brasil Agosto 97.
2. V.Alcober, I.C.Gonçalves, J.Pertusa, A.Ramalho, A.Teijeiro, “The BNCT Technique Applied to Cell Cultures. Microdosimetric Calculations”, *Proceedings of the “XXVI Reunión Bienal de la Real Sociedad Española de Física”*, Las Palmas de Gran Canaria, September 1997 (in spanish).

Special Publications

1. Stecher-Rasmussen, F., Auterinen, I., Bedoe, A., Gonçalves, I.C., Jarvinen, H., Kosunen, A., Larsson, B., Marek, M., Mijnheer, B., Raaijmakers, C.P.J., Savolainen, S., Voorbraak, W.P., Watkins, P., Zsolnay, E., “A Code of Practice for the Dosimetry of BNCT in Europe”, in *Advances in Neutron Capture Therapy -Volume I, Medicine and Physics*, Proceedings of the Seventh International Symposium on Neutron Capture Therapy for Cancer, Zurich, 4-7 September 1996, eds. Borje Larsson, John Crawford and Regin Weinreich, Excerpta Medica, International Congress Series 1132, 1997, pp. 237-240.

Internal Reports

1. GONÇALVES, I.C., RAMALHO, A.J.G., “Optimization of the Radiation Field of the Vertical Access of the Thermal Column of RPI for Experiences with Biological Samples”, ITN Report.

Applied Dynamics

Conference Proceedings

ANTUNES, J., PAULINO, M., PITEAU, P., “Remote Identification of Impact Forces on Loosely Supported Tubes: Complex Vibro-Impact Motions”, *ASME Pressure Vessel and Piping Conference, Orlando, USA, July 1997*. PVP-Vol. 349, ”Plant Systems & Components”, pp. 51-65. Accepted for publication in *Journal of Sound and Vibration*.

ANTUNES, J., MENDES, J., GRUNENWALD, T., “A Theoretical Model for the Nonlinear Planar Motions of Rotors Under Fluid Confinement”, *ASME 4th International Symposium on Fluid-Structure Interactions, Aeroelasticity, Flow-Induced Vibration and Noise, Dallas, USA, November 1997*. AD-Vol. 53-2, pp. 445-454. Submitted for publication in *Journal of Fluids and Structures*.

BENNETT, G., ANTUNES, J., MENDES, J., PITEAU, P., “Some Issues on the Identification of Experimental Fluid-Elastic Forces”, *14th International Conference on Structural Mechanics in Reactor Technology (SMIRT), Lyon, France, August 1997*. Vol. 6-J, "Structural Dynamics and Extreme Load Analysis", pp. 119-127.

Technical Reports

1. ANTUNES, J., ARAÚJO, P., ANASTÁCIO, A., “Vibratory Analysis of the Cooling System at Setúbal Power Station: Modal Identification of the First Unit”, *Report ITN/ADL-Jan97-1 (1997)* (in portuguese).
2. ARAÚJO, M., ANTUNES, J., “Équilibrage d'Arbres Flexibles”, *Report ITN/ADL - Apr97-1 (1997)*.
3. ANTUNES, J., MENDES, J., PITEAU, P., “Identification des Forces de Couplage Fluide-Structure sous Écoulement: Développement d'une Méthode pour Optimiser l'Excitation des Systèmes Identifiés”, *Rapport CEA/DMT-97-432 (August 1997)*.
4. ANTUNES, J., ANASTÁCIO, A., ARAÚJO, P., “Vibratory Analysis of the Cooling System at Setúbal Power Station: Theoretical Study of the Supporting System”, *Report ITN/ADL-Nov97-1 (1997)* (in portuguese).
5. PAULINO, M., ANTUNES, J., “Identificação Remota de Forças de Impacto em Sistemas Multi-suportados”, *Report ITN/ADL-Nov97-2 (1997)*.
6. MOREIRA, M., “Introdução às Redes Neurais”, *Report ITN/ADL-Dez97-1 (1997)*.

INDUSTRIAL TECHNOLOGIES

Nuclear Instruments and Methods

Publications in Journals

1. OLIVEIRA, C., SALGADO, J., GONÇALVES, I. F., LEITÃO, F., CARVALHO, F. G. “A Monte Carlo Study of the Influence of the Geometry Arrangements and Structural Materials on a PGNA System Performance for Cement Raw Materials Analysis”, *Applied Radiation and Isotopes* **48** (10-12) (1997) 1349-1354.
2. OLIVEIRA, C., SALGADO, J., LEITÃO, F., “Density and Water Content Corrections in the Gamma Count Rate of a PGNA System for Cement Raw Material Analysis”, *Applied Radiation and Isotopes*, in press.
3. OLIVEIRA, C., SALGADO, J. “Calibration Curves of a PGNA System for Cement Raw Material Analysis Using the MCNP Code”, *Applied Radiation and Isotopes*, in press.

Conference Proceedings

1. GONÇALVES, I.F., GONÇALVES, I.C., RAMALHO, A. J.G., SALGADO, J. “Use of the Thermal Column of the Portuguese Research Reactor (RPI) for BNCT Therapy”, III ENAN, Minas Gerais Brasil (1997).
2. GONÇALVES, I.C., RAMALHO, A.J.G., GONÇALVES, I.F., SALGADO, J., PERTUSA, J., IRLLES, A., MASCARENHAS, F., CASTRO, M., VALLE, F., TOSCANO RICO, J., ALCOBER, V., “Work in the Field of BNCT Using the Portuguese Research Reactor”, *First International Symposium on Nuclear and Related Techniques in Agriculture, Industry, Health and Environment*, Havana, Cuba, 1997. Submitted to the *Journal of Radioanalytical and Nuclear Chemistry*.
3. GONÇALVES, I.F., MARTINHO, E., SALGADO, J., “Calculation of Fast Neutron Spectra from a Planar Source of Fission Neutrons in Various Diffusing Media Using the Monte Carlo Technique”, *Proceedings Neutrons in Research and Industry*, Editor SPIE, **2867** 1997, pp. 461-464

Special publications

1. CRUZ, C. and CARVALHO, F. G. “DC Power Supply Constant Current mod 9611 - Présentation de l’appareil” (1997).
2. SALGADO, J. and MARTINHO, E. “Manual for Experiments in Radiation Physics”, Programa Ciência Viva, Projecto “À Descoberta das Radiações” (1997).
3. SALGADO, J. “Radiation Protection and Safety Manual” Training Course for ITN Workers (1997).

4. SALGADO, J., “Radiations and Environment”, Training Course for Reactor Operators (1997).
5. SALGADO, J., “Introduction to Ionizing Radiation Interactions with Matter”, Training Course for Reactor Operators (1997).

Internal Reports

1. OLIVEIRA, C., SALGADO, J., “Optimization Design of a CIMRAD-T System for Automatic Analyses of Raw Materials in a Conveyor Belt” (in Portuguese). Contract CIMPOR CEDI/DIR/51.

Communications to Conferences

1. SALGADO, J., MARTINHO, E. and OLIVEIRA, M., “Ciência Viva, a Promising Initiative?”, *Fórum Ciência Viva*, Lisboa, 1997.
2. RAMALHO, A.J.G., MASCARENHAS, F., GONÇALVES, I.C., GONÇALVES, I. F., SALGADO, J. CASTRO, M., VALLE, F., PERTUSA, J., IRLES, A. and ALCOBER, V. “Some Considerations Related with the Boron Neutron Therapy” (in portuguese), 4^{as} *Jornadas Portuguesas de Protecção contra Radiações*, Lisboa (1997).

Radiation Technologies: Processes and Products **(Radiation sterilization; food irradiation; polymers)**

Publications in Journals

1. BENOLIEL, M. J., QUEVAUVILLER, P., RODRIGUES, E., ANDRADE, M.E., CAVACO, M. A., CORTEZ, L., “Certification of Reference Materials for the Quality Control of Major Element Determinations in Groundwater”, *Fresenius J. Anal. Chem.* **358** (1997) 574 - 580.
2. ESTEVES, M. P., GÍRIO, F. M., AMARAL-COLLAÇO, M. T., ANDRADE, M. E., EMPIS, J., “Characterisation of Starch Fractions of White and Black Pepper Treated by Ionising Radiation”, *Science des Aliments* **17** (3) (1997) 49-58.
3. GIL, M.H, FERREIRA, L.M., ROCHA, J. AND M.E. ANDRADE “Preparation and Characterisation of Polyethylene Based Graft Copolymers. Applications in the Immobilisation of Enzymes”, *Radiation Physics and Chemistry* (in press).
4. NOGUEIRA, F.,BOTELHO, M. L. AND R. TENREIRO. “Radioresistance Studies in *Methylobacterium* sp.”, *Radiation Physics and Chemistry* (in press).
5. POLÓNIA, I., PORTUGAL, L. AND M. E. ANDRADE. “Dose Mapping of Dried Figs Treated by Gamma Radiation”, *Radiation Physics and Chemistry* (in press).

Internal Report

1. ANDRADE, M.E., RIBEIRO, N., SILVA, J.P., Progress Report on “Establishment of Technological Parameters to Irradiate Dried Fruits for Disinfestation”, *IAEA Research Contract Research Contract POR/8165*, September 1997.
2. BOTELHO, M.L., First Scientific Report of the BIOESTER Project “Study Case on Medical Devices Manufacturing - Bioburden Studies in/on Product. Gamma Sterilisation versus Sterilisation with Steam under Pressure”, *BIOSTER Progress Report, AdI / PRAXIS XXI Measure 3.1*, July 1997.
3. COELHO, A.M.G., “Pilot Study at Medical Devices Companies. Initial Contamination Studies. Gamma Sterilisation versus Steam under Pressure - Surgical Garments”, *Progress Report PRAXIS XXI Measure 4 - BMCT / FAPOMED*, November 1997.
4. ÁGUAS, F.M.J., “Pilot Study at Medical Devices Companies. Initial Contamination Studies. Gamma Sterilisation versus Steam under Pressure - Ophthalmic Dressings”, *Progress Report PRAXIS XXI Measure 4 - BMCT / OFTALDER*, November 1997.
5. ANTUNES, V.N., “Pilot Study at Medical Devices Companies. Initial Contamination Studies. Gamma Sterilisation versus Steam under Pressure - Absorbent Surgical Gauzes”, *Progress Report PRAXIS XXI Measure 4 - BMCT / INFARMED*, November, 1997.

Communications to Conferences

1. LINCE-FERNANDES, T., SOUSA, I.M.N, ANDRADE, M.E., POLÓNIA, I., M.P. ESTEVES AND J. EMPIS, “Two Methods to Detect the Radiation Treatment on Ground Pepper: Viscosimetry and EPR”, *Proceedings of “3º Encontro de Química de Alimentos”, “Escola Superior de Tecnologia”, Algarve University, Faro, 23-26 March, 1997*, pp. 285-287 (in portuguese).
2. RIBEIRO, N., I.M.N. SOUSA, M.E. ANDRADE, I. POLÓNIA, M.P. ESTEVES AND J. EMPIS. “A Contribution to the Study of Structural Modifications on Dried Figs by Gamma Radation”, *Proceedings of the “3º Encontro de Química de Alimentos”, “Escola Superior de Tecnologia”, Algarve University, Faro, 23-26 March, 1997*, pp. 434-436 (in portuguese).
3. BOTELHO, M. L. “Biological Dosimeters *versus* Chemical Dosimeters: The Complement”, *Proceedings of “Congresso Nacional de Microbiologia, Micro’ 97, Tomar, 29 November- 1 December, 1997*, pp. 68 (in portuguese).
4. BOTELHO, M.L., *ISO Technical Committee 209 Meeting “Cleanrooms and Associated Controlled Environments”, Seoul, Coreia, 20-21 October 1997*.

ARCHAEOOMETRY

Publications in Journals

1. CABRAL, J.M.P., “Caracterização de Materiais Arqueológicos: 2 - Materiais Artificiais e Tecnologias de Fabrico”, *Al-madan*, IIª série, nº 6 (1997)15-26.
2. CARDOSO J.L., SOARES A.M.M. (1990-1992). Absolute chronology for Bell Beakers in Estremadura and the South of Portugal, *O Arqueólogo Português*, Série IV, 8/10, 203-228 (published in 1997).
3. CABRAL, J.M.P., “Métodos Físicos e Químicos de Análise em Investigação Numismática”, *NVMMVS*, in press.

Conference Proceedings

1. CABRAL, J. M. P., MARQUES, M. G., ARAÚJO, M. F., MARINHO, J. R., “Application of XRF spectrometry to the study of Visigothic coinage”, in *Metalurgy in Numismatics* 4, in press.

Special Publications, Book Chapters, Others

1. CABRAL, J.M.P., “História Breve dos Pigmentos: 2 - da Arte Egípcia”, *Química*, nº 66 (1997) 17-24.
2. CABRAL J.M.P., METCALF D. M., “A Moeda Sueva: Suevic Coinage”, *Anexos NVMMVS* Nº 4, Sociedade Portuguesa de Numismática, Porto, 1997, 352 pp.

Communications to Conferences

1. CABRAL, J.M.P., GOUVEIA, M.A., “Chemical Characterization of Lusitanian Amphorae”, *4th European Meeting on Ancient Ceramics*, Andorra, 1997.