

CURRICULUM VITAE

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Professional Experience

- Since 07/2018 - Technical manager of Gamma Spectrometry Laboratory, LPSR, IST, Sacavém
- Since 11/2016 – Substitute of Technical manager of Gamma Spectrometry Laboratory, LPSR, IST, Sacavém
- Since 8/2012- Technician of Gamma Spectrometry Laboratory, LPSR, IST, Sacavém.
- Since 2010 – Senior technician, ITN, Sacavém
Responsible for the installation of the ICP-MS laboratory of LPSR and performance of ICP-MS analyses.
- 2008-2010 – Post-Doc Fellow, “Speciation of heavy metals by mass spectrometry”, ITN, Sacavém.
- 2003-2008 – PhD Fellow, “Actinide Chemistry Studies by Mass Spectrometry”, ITN, Sacavém.
- 2001-2002 – Research fellow “Gas-phase Actinide Chemistry Studies by Mass Spectrometry”, ITN, Sacavém

Academic Degrees

- 2008- PhD in Chemistry, Physical Chemistry, Lisbon University, Lisbon.
- 2000 - Graduation in Chemistry, Faculty of Sciences, Lisbon University, Lisbon.

Main scientific area

- Mass Spectrometry
- FTICR-MS and ICP- MS
- Gamma Spectrometry

Other scientific areas of interest

- Environmental Radioactivity
- Radioactivity Measurements

- Radiation Protection

Scientific Training Programmes and Short Courses:

- Feb 2018 - Workshop for the participants of the 2017 EC proficiency Test & basic and advance courses on gamma ray spectrometry, JRC-Geel, Belgium.
- Dec 2017 – NATO Advanced Training Course: Improvements in Radiation Protection procedures: Implementation of best practices, IST- CTN, Sacavém 18th to 22nd of December 2017 organizes under the framework of NATO’s Science for Peace and Security Programme, Instituto superior técnico- Laboratório de Protecção e Segurança Radiológica, and the Centre National de L’Energie, des Sciences et des Techniques Nucléaires.
- Out 2017 – Formação em Auditorias Internas (NP EN ISO/IEC 17025) dada pela SINASE, 25 horas, LPSR, IST, Sacavém.
- Jun 2017 – Regional Workshop on the Environmental Monitoring, Sampling Procedures for Water and Sediment sample, TC Project RER/7/008, Kozloduy Nuclear Power Plant, Kozloduy, Bulgária.
- Nov 2016 - Curso de Protecção e Segurança Radiológica, 12h, IST, Sacavém
- April 2016 - Workshop on "Measurement on simulated airborne particulates – 137Cs in air filters" e Training on "Basics of gamma-ray spectrometry and analysis of air filters", Joint Research Centre (JRC), Institute for Reference Materials and Measurements, Geel, Belgium
- Since Feb 2016 - Formação no laboratório de Contagens Totais, IST, Sacavém
- May 2015 - ALMERA (Analytical Laboratories for the Measurement of Environmental Radioactivity) Training Course on Rapid Assessment Methods for Environmental Radioactivity, Argonne National Laboratory, Argonne, IL, United States of America
- March/April 2014 - Estimation of Measurement Uncertainty in Chemical Analysis”, University of Tartu, (1 ECTS)
- August 2012 till January 2016 - Formação no laboratório de Espectrometria Gama, IST, Sacavém
- Jan 2012 - Implementação do Sistema de Gestão da Qualidade na UPSR, 2h30, Unidade de Protecção e Segurança Radiológica (UPSR), IST/ITN
- April/May 2011 - Curso de Protecção e Segurança Radiológica, 12h, Instituto Tecnológico e Nuclear
- March 2011 - Curso básico de Protecção Radiológica, 3h, Instituto Tecnológico e Nuclear
- Feb 2011 - Curso básico de Prevenção de Incêndios, 3h, Instituto Tecnológico e Nuclear
- Sept/Nov 2009 – Estágio na área da especificação de metais pesados por HPLC-ICP-MS sob o tema “development of Post column IDMS for methionine quantification”, Chemical Measurement and Calibration facility of LGC Limited , Londres, Reino Unido

Scientific works

- PhD thesis “*Actinide Chemistry Studies by Mass Spectrometry*,”
- Author/co-author of about 20 original publications in Refereed Journals.
- Author/co-author of about 25 oral presentations and communications in national and international scientific conferences.

Publications

- "Natural radionuclides, rare earths and heavy metals transferred to the wild vegetation covering a phosphogypsum stockpile at Barreiro, Portugal.", José Alberto Gil Corisco, Jan Mihalíka, Maria José Madruga, Maria Isabel Prudêncio, Rosa Marques, Marta Santos, Mário Reis, *Water, Air, & Soil Pollution*, **2017**, 228: 235. <https://doi.org/10.1007/s11270-017-3413-6>
- "Assessment of radium activity concentration and radon exhalation rates in Iberian Peninsula building materials", E. Andrade, C. Miró, M. Reis, M. Santos, M. J. Madruga; *Radiation Protection Dosimetry*, Set **2017**, <https://doi.org/10.1093/rpd/ncx128>
- "Uranium mining wastes: The use of the Fish Embryo Acute Toxicity Test (FET) test to evaluate toxicity and risk of environmental discharge", J. Lourenço, S. Mrques, F.P. Carvalho, J. Oliveira, M. Malta, M. Santos, F. Gonçalves, R. Pereira, S. Mendo; *Science of The Total Environment*, **2017**, 605-606, 391-404, <https://doi.org/10.1016/j.scitotenv.2017.06.125>
- “Gas-Phase Oxidation Reactions of Ta²⁺: Synthesis and Properties of TaO²⁺ and TaO₂²⁺”, M. Santos, M.C. Michelini, C. Lourenco, J. Marçao, J.K. Gibson, M.C. Oliveira, *Journal of Physical Chemistry A*, **2012**, 116, 14, 3534-3540.
- “Gas-phase reactions of doubly charged actinide cations with alkanes and alkenes-probing the chemical activity of 5f electrons from Th to Cm” J. Marcalo, M. Santos, J.K. Gibson, *Physical Chemistry Chemical Physics*, **2011**, 13, 41, 18322 -18329.
- “Gas-Phase Reactions of the Bare Th²⁺ and U²⁺ Ions with Small Alkanes, CH₄, C₂H₆, and C₃H₈: Experimental and Theoretical Study of Elementary Organoactinide Chemistry”, E. Di Santo, M. Santos, M.C. Michelini, J. Marçalo, N. Russo, J.K. Gibson; *Journal of The American Chemical Society*, **2011**, 133, 6, 1955-1970.
- “Metal binding by humic acids in recent sediments from the SW Iberian coastal area”, J.M. De la Rosa, M. Santos, M.F. Araújo, *Estuarine, Coastal and Shelf Science*, **2011**, 93, 478-485.

- “Gas-Phase Oxidation of Cm^+ and Cm^{2+} —Thermodynamics of Neutral and Ionized CmO ”, J. K. Gibson, R. G. Haire, M. Santos, A. Pires de Matos, J. Marçalo, *J. Phys. Chem. A* **2008**, *112*, 11373-11381
- “FTICR/MS Studies of Gas-Phase Actinide Ion Reactions: Fundamental Chemical and Physical Properties of Atomic and Molecular Actinide Ions and Neutrals”, J. K. Gibson, R. G. Haire, J. Marçalo, M. Santos, J. P. Leal, A. Pires de Matos, R. Tyagi, M. K. Mroziak, R. M. Pitzer, B. E. Bursten, *Eur. Phys. J. D* **2007**, *45*, 133-138.
- “Gas-Phase Reactions of Hydrocarbons with An^+ and AnO^+ ($\text{An} = \text{Th}, \text{Pa}, \text{U}, \text{Np}, \text{Pu}, \text{Am}, \text{Cm}$): The Active Role of 5f Electrons in Organoprotactinium Chemistry”, J. K. Gibson, R. G. Haire, J. Marçalo, M. Santos, A. Pires de Matos, M. K. Mroziak, R. M. Pitzer, B. E. Bursten, *Organometallics* **2007**, *26*, 3947-3956.
- “Oxidation of Gas-Phase Protactinium Ions, Pa^+ and Pa^{2+} : Formation and Properties of $\text{PaO}_2^{2+}(\text{g})$, Protactinyl”, M. Santos, A. Pires de Matos, J. Marçalo, J. K. Gibson, R. G. Haire, R. Tyagi, R. M. Pitzer, *J. Phys. Chem. A* **2006**, *110*, 5751-5759.
- “Determination of the Ionization Energy of NpO_2 and Comparative Ionization Energies of Actinide Oxides”, J. K. Gibson, R. G. Haire, J. Marçalo, M. Santos, A. Pires de Matos, J. P. Leal, *J. Nucl. Mater.* **2005**, *344*, 24-29.
- “Oxidation Studies of Dipositive Actinide Ions, An^{2+} ($\text{An} = \text{Th}, \text{U}, \text{Np}, \text{Pu}, \text{Am}$) in the Gas Phase: Synthesis and Characterization of the Isolated Uranyl, Neptunyl, and Plutonyl Ions $\text{UO}_2^{2+}(\text{g})$, $\text{NpO}_2^{2+}(\text{g})$, and $\text{PuO}_2^{2+}(\text{g})$ ”, J. K. Gibson, R. G. Haire, M. Santos, J. Marçalo, A. Pires de Matos, *J. Phys. Chem. A* **2005**, *109*, 2768-2781.
- “FTICR-MS Study of the Gas-Phase Thermochemistry of Americium Oxides”, M. Santos, J. Marçalo, J. P. Leal, A. Pires de Matos, J. K. Gibson, R. G. Haire, *Int. J. Mass Spectrom.* **2003**, *228*, 457-465
- “Gas-Phase Oxidation Reactions of Neptunium and Plutonium Ions Investigated via Fourier Transform Ion Cyclotron Resonance Mass Spectrometry”, M. Santos, J. Marçalo, A. Pires de Matos, J. K. Gibson, R. G. Haire, *J. Phys. Chem. A* **2002**, *106*, 7190-7194.

25 de Julho de 2018