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(b. 1949-04-28)

BRIEF DESCRIPTION OF ACTIVITY and PUBLICATIONS

(1970 – 2025)

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BRIEF DESCRIPTION OF ACTIVITY

Professor at the Faculty of Sciences of the University of Lisbon (FCUL) since 1980, jubilee in 2019. Studied Chemical Engineering at Instituto Superior Técnico (IST-UTL), Lisbon, Portugal (1966-1971), and obtained his PhD in Engineering Sciences (Chemical Thermodynamics) from IST-UTL, Portugal (1977) and the Aggregation in Chemistry – FCUL, Lisbon (1980). Principal areas of expertise are Thermodynamics and Transport Processes, Technological Chemistry, and Physical Chemistry. Coordinator of the Molecular Thermophysics and Fluid Technology Group of the Centre for Structural Chemistry (CQE) of the University of Lisbon (IST+FC, ULisboa). Director of the Center for Molecular and Materials Sciences – FCUL (until 2014) and Vice-President of CQE (2015-2019); President of the DQB – FCUL, and President of the Scientific Council, several terms. Received the Portuguese Stimulus to Excellence in Research Award, FCT-MCTES, Portugal (2005), and the Medal of Distinguished Services from the University of Lisbon. Senior Member of OE (College of Chemical and Biological Engineering). Fellow of IUPAC (2006) and of the International Association for Advanced Materials (Area Emerging Technologies for Energy Applications, 2022). According to the Stanford University Ranking, USA, 2020, 2021, 2022, 2023, and 2024, one of the top 2% most cited scientists in the world in the area of Chemical Engineering, Subarea of Physical Chemistry.

With more than 45 years dedicated to research in thermodynamics and transport processes of fluids and materials, with a high metrological level, in natural and synthetic products, environmental chemistry, heat transfer equipment, thin films, complex gaseous mixtures with energy and environmental impact, nanomaterials (synthetic and natural), ionic liquids and their Ionanofluids, including structure, new heat energy transfer and storage fluids, his actual scientific activity covers the field of molecular thermophysics and fluid technology, ionic liquids, molten salts, nanofluids, ionanofluids and nanosystems, including new heat and storage fluids with industrial impact in the area of energy and environment, and the use of ionic liquids as solvating and reaction media to synthesize and functionalize nanomaterials, for industrial and domestic applications.

Author of about 450 scientific publications, including 38 books and book chapters, proceedings of refereed congresses, and a European patent. He has presented more than 600 papers in congresses, symposiums, and seminars, including plenary lectures, keynote and invited communications, and has nearly 11,000 citations.

Published more than 40 pedagogical works. He directed/participated in more than 50 scientific projects funded by FCT (INIC, JNICT), NATO, CE, PEDIP, POE, some of which involved industrial companies. Served as Vice-President of the Instituto Português da Qualidade (2002-20054), and Member of the EUROMET committee (2003-2004), was appointed by FCT National Delegate to the Committee for the Domain of Chemistry, Molecular Sciences and Technologies of the COST program (2013-2015). Member of the Review Panel on Natural Sciences of the COST Program (2015-2021), of the Chemical Nanoscience and Nanotechnology Committee, and of the Molten Salts and Ionic Liquids Discussion Group of the Royal Society of Chemistry (UK). Member of the IUPAC Subcommittee on Transport Properties of Fluids (1978-2001), IUPAC Commission on Thermodynamics (1989-97), and the International Association for Transport Properties (2001-), member of the Executive Committee, and Founder. Member of The International Organizing Committee of the European Conference on Thermophysical Properties (ECTP) and Chair of the Life Time Award Committee (2012-2023).

Associate Editor of the Journal of Chemical and Engineering Data, American Chemical Society (2021-) and member of Editorial Board of several other journals (International Journal of Thermophysics, Fluids, Nanomaterials, PhysChem).

Evaluator of Excellence Research Centres, projects, university courses, and research grants, in Portugal (FCT, ANI, A3ES), in the EU (several countries: Spain, France, Lithuania, Czech Republic, Norway, Romania, Cyprus), Canada, and the USA. Organizer of national and

international conferences and workshops, chairing several of them. Member of scientific and professional societies (Sociedade Portuguesa de Química, Royal Society of Chemistry, American Chemical Society, International Association of Transport Properties, European Society for Ionic Matter). Management activities at the University of Lisbon, University of Madeira (Installing Commission), and in National and European institutions.

Recently, he started an Extreme Systems and Environments Laboratory at CQE, with colleagues of the Structural and Analytical Chemistry Group, to contribute to mitigating incongruent and non-scientific-driven policy options for economic and social development, both in energy and environment, by developing sound and competent experimentation and molecular interpretation to advance chemical knowledge in areas like the origins of the Planet (astrobiology), life in the oceans in extreme environments (polar regions), and to alternatives for new applications in renewable energy transfer and storage.

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3. Guia do Laboratório de Química e Bioquímica, José A. Martinho Simões Miguel A. R. Botas Castanho, Isabel M. S. Lampreia, Fernando J. V. Santos, Carlos A. Nieto de Castro, M. Fátima Norberto, M. Teresa Pamplona, Lurdes Mira, M. Margarida Meireles, Ed. LIDEL, Lisboa (2000), 166 pp., ISBN – 972-757-146-8
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