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Personal Summary

He holds a Bachelor's degree in Chemistry (1997) and a Ph.D. in Physical Chemistry (2005), both from the University of Brasília, Brazil. He completed a postdoctoral fellowship at Sorbonne University (Faculté des Sciences et Ingénierie), Paris, France, in 2006, and returned as a visiting researcher in 2023. Full Professor at the University of Brasília, he served as coordinator of the Graduate Program in Materials Science from 2015 to 2019. With over 24 years of experience in the field, his research focuses on ferrofluids and magnetic nanocomposites, with recent work exploring magnetic nanomaterials for environmental and energy-related applications. He holds a Research Productivity Grant – PQ (Level 2, CNPQ) and has been an active peer reviewer for numerous scientific journals since 2010. He also serves as a guest editor for *Nanomaterials*, *Applied Sciences*, and *Discover Surfaces*.

Languages

Portuguese: ★★★★★

English: ★★★★★

French: ★★★★★

Spanish: ★★★★★

Academic Advisory

Master's Thesis: 17 (Graduate Programs in Materials Science and in Chemistry)

Ph.D Thesis: 3 (Graduate Programs in Chemistry and in Biological and Chemical Technologies)

Recent Projects (as coordinator)

2021 – today: FAP-DF (Call 04/2021) – Nanofabrication of Innovative Materials Aiming at Environmental Remediation and Sustainable Energy Generation

2017 – 2021: FAP-DF (Call 04/2017) – *Research and Development of Advanced Nanomaterials for Technological Applications: Nanocatalysts for Green Fuels Combustion and Magnetic Nanoadsorbents for Wastewater Treatment*

2016 – 2020: CNPq (Call Universal 2016) – *Elaboration of Magnetic Nanoadsorbents for Dye Removal from Textiles Wastewater*

2014 – 2017: FAP-DF (Call 05/2014) – *Synthesis, Characterization and Applications of Magnetic Nanoadsorbents for Water Pollution Remediation*

Recent Scientific Production (5 years)

Papers

1. *Synthesis and characterization of proton-conductive [GO-CoFe₂O₄@γ-Fe₂O₃] nanocomposites series for impedimetric olfaction of clinically relevant VOCs in simulated human breath.* **Mater. Chem. Phys.** **2025**, 333, 130307.
2. *Electrical conductivity in kerosene-based ferrofluid under DC potential.* **J. Appl. Phys.** **2025**, 137, 134701.
3. *Thermal Response and Viscosity-Driven Dynamics in Water-Based Ferrofluids Stabilized in Different Electrolytes: A DLS and Zeta Potential Study.* **J. Nanofluids** **2025**, 14, 272–281.
4. *Structural characterization of Laponite–lavender essential oil dispersions: Colloidal interactions and microstructural evolution.* **Colloids Surf. A Physicochem. Eng. Asp.** **2025**, 726, 137816.
5. *Andiroba oil (*Carapa guianensis*) and ginger extract (*Zingiber officinale*)-loaded nanoemulsion: Elaboration, characterization, antioxidant activity, and cell viability investigation.* **Colloids Surf. A Physicochem. Eng. Asp.** **2024**, 702, 134990.
6. *Magnetic fluorescent nanofluids obtained by a colloidal approach.* **Mater. Today Commun.** **2024**, 41, 110320.
7. *Colloidal dispersions of cobalt ferrite nanoparticles in EMIM TFSI, propylene carbonate and their mixtures.* **Colloids Surf. A Physicochem. Eng. Asp.** **2024**, 703, 135233.
8. *Hybrid magnetic CoFe₂O₄@γ-Fe₂O₃@CTAB nanocomposites as efficient and reusable adsorbents for Remazol Brilliant Blue R dye.* **Environ. Technol.** **2024**, 45, 581–597.
9. *Enhancing the efficiency of magnetically driven carbon nitride-based nanocomposites with magnetic nanoflowers for the removal of methylene blue dye at neutral pH.* **Environ. Sci. Pollut. Res.** **2024**, 31, 53706–53717.
10. *pH-dependent phase transitions in ferrofluids: A Monte Carlo simulation study using an extended DLVO model.* **Colloids Surf. A Physicochem. Eng. Asp.** **2023**, 658, 130578.
11. *Tuning magnetic and luminescent properties of iron oxide@C nanoparticles from hydrothermal synthesis: Influence of precursor reagents.* **Surf. Interfaces** **2023**, 36, 102624.
12. *L-Lysine-coated magnetic core–shell nanoparticles for the removal of acetylsalicylic acid from aqueous solutions.* **Nanomaterials** **2023**, 13, 514.

13. *Nanoparticle size distribution and surface effects on the thermal dependence of magnetic anisotropy.* **J. Phys. Chem. C** **2022**, 126, 1581–1589.
14. *Reversible, voluminous and tunable patterning of multiwalled carbon nanotubes in ferrofluid: Partial or complete?* **Appl. Surf. Sci.** **2022**, 604, 154283.
15. *Nonlinear behavior of the impedance spectrum of a kerosene-based ferrofluid.* **Phys. Chem. Chem. Phys.** **2022**, 24, 28506–28512.
16. *A numerical study on the interplay between the intra-particle and interparticle characteristics in bimagnetic soft/soft and hard/soft ultrasmall nanoparticle assemblies.* **Nanoscale Adv.** **2022**, 4, 3777–3785.
17. *Free ions in kerosene-based ferrofluid detected by impedance spectroscopy.* **Phys. Chem. Chem. Phys.** **2021**, 23, 2819–2824.
18. *pH-dependent surface properties of N-Cdots obtained by the hydrothermal method with multicolored emissions.* **Colloids Surf. A Physicochem. Eng. Asp.** **2021**, 621, 126578.
19. *Effect of citric acid on the morpho-structural and magnetic properties of ultrasmall iron oxide nanoparticles.* **J. Alloys Compd.** **2021**, 883, 160779.
20. *Carbon nitride nanosheets magnetically decorated with Fe₃O₄ nanoparticles by homogeneous precipitation: Adsorption–photocatalytic performance and acute toxicity assessment.* **Environ. Nanotechnol. Monit. Manage.** **2021**, 16, 100549.
21. *Reusable cysteine–ferrite-based magnetic nanopowders for removal of lead ions from water.* **Mater. Res. Ibero-Am. J. Mater.** **2021**, 24, e20210217.
22. *Local structure investigation of cobalt ferrite-based nanoparticles by synchrotron X-ray diffraction and absorption spectroscopy.* **J. Solid State Chem.** **2020**, 286, 121269.
23. *Efficient uptake of phosphorus from water by core@shell bimagnetic nanoadsorbents.* **J. Environ. Chem. Eng.** **2020**, 8, 103888.
24. *Elaboration of a core@shell bimagnetic nanoadsorbent (CoFe₂O₄@γ-Fe₂O₃) for the removal of As(V) from water.* **Colloids Surf. A Physicochem. Eng. Asp.** **2020**, 600, 125002.
25. *A conceptual model for stability and surface chemistry of oxidic soil dispersions.* **Colloids Surf. A Physicochem. Eng. Asp.** **2020**, 603, 125214.
26. *Synthesis and characterization of GO–H₃BO₃ composite for improving single-sensor impedimetric olfaction.* **J. Mater. Sci. Mater. Electron.** **2020**, 31, 14443–14453.

Patent

1. Fluorescent Magnetic Nanofluids and Their Elaboration Process – *Registration number:* BR1020200174 – INPI – National Institute of Industrial Property. (2020)

Book Chapters

1. *Nano-engineered composites based on carbon nitride as potential agents for the remediation of water with micropollutants.* In **Quantum Materials, Devices, and Applications**; Henini, M., Rodrigues, M., Eds.; Elsevier: Amsterdam, **2022**; pp 87–115.
2. *Nanotecnologias para descontaminação de águas.* In **Nanotecnologia: Considerações em Materiais, Saúde e Meio Ambiente**; Joanitti, G. A., de Moraes, P. C., de Azevedo, R. B., Eds.; Editora Universidade de Brasília: Brasília, **2022**; pp 479–512.