



ADVERTISEMENT

POSTDOCTORAL RESEARCH FELLOWSHIP

Innovative application of electro precipitation for the removal of heavy metals and emerging contaminants in industrial wastewater treatment

The Faculty of Engineering, through the Research Directorate of Mangosuthu University of Technology is pleased to announce a Postdoctoral Research Fellowship for 2024/2025 on: “Innovative application of electro precipitation for the removal of heavy metals and emerging contaminants in industrial wastewater treatment”

The increasing presence of heavy metals and emerging contaminants in industrial wastewater poses a significant threat to aquatic ecosystems, public health, and sustainable water resource management. Conventional treatment methods often fall short in effectively removing low-concentration and persistent pollutants. This project proposes an innovative application of electro precipitation (EP) as an advanced treatment technique for the efficient removal of heavy metals and selected emerging contaminants from industrial wastewater. The project aims to optimize the operational parameters of EP such as electrode material, current density, reaction time, and pH for maximum removal efficiency of contaminants such as lead, cadmium, arsenic, and pharmaceutical residues. The research will include laboratory-scale experiments using synthetic and real wastewater samples, followed by chemical analysis (e.g., ICP-OES, UV-Vis spectrophotometry, and FTIR) to assess the effectiveness and mechanisms of removal. Furthermore, the project will evaluate the energy efficiency, sludge generation, and potential for reuse of treated water..

Key Performance Areas:

- Initiate, conduct and manage research projects.
- Draft project proposal and grant application in broad research area of “environmental pollution control”
- Design experiments for generating high quality data and interpretation of the results
- Prepare and publish at least two manuscripts in DHET accredited journals per year
- Monitor and evaluate research projects.
- Communicate research findings through various methods.
- Co-supervise relevant postgraduate research and/or collaborate with researchers on the subject of pollution reduction through a circular economy.
- Establish research networks for collaboration, partnership and joint ventures

Minimum requirements/Eligibility:

- A recently earned PhD in Chemical Engineering or relevant applied sciences (within the last five years), specializing in water and wastewater treatment technologies; industrial wastewater remediation and reclamation; waste valorisation for circular economy.
- South African citizens or permanent residents will be prioritised.
- International Postdoctoral Research Fellows must have a long-term visitor's visa endorsed for academic activities affiliated with MUT (Section 11(1)(b) Visitors Visa).
- A good publication track record in peer-reviewed ISI journals
- Has not held full-time permanent academic or professional employment.

Recommendations:

- Track record of, and passion for research.
- Experience in postgraduate student mentorship.
- Knowledge of softwares for designing experiments.
- Knowledge of operating analytical instruments like GC-MS, HPLC

Competencies:

- Literature review
- Computer literacy
- Ability to work independently or with minimum supervision.
- Knowledge of writing for publication
- Excellent oral and written communication skills
- Ability to interpret data
- Good organizational skills

Value of the fellowship

- The value of the first fellowship is **R300,000** per annum (tax-exempt), and the fellowship is awarded for a period of one year.
- The Fellowship may be renewed for a further one year, subject to satisfactory performance, as attested to by the Host in the first year, and subject to availability of funding.

TO APPLY:

Please send the applications to Ms S.N Masondo at hr.engineering@mut.ac.za by no later than **29 August 2025**. The application should include the following: (a) a motivation detailing the extent to which they meet the requirements of the position; (b) Certified copy of ID document; (c) a Curriculum Vitae including a list of research publications, conference papers, and other scholarly outputs; (d) certified copies of doctoral degree certificate; and (e) names of three contactable referees

Please provide academic transcripts and SAQA evaluation certificate if qualifications were obtained outside South Africa.