



#### **VISION**

##### **Shape and own the future**

To be a transforming, equitable, sustainable, and academically excellent University of Technology anchored in its communities.

#### **MISSION**

To offer technological, career-directed educational programmes focussing on the innovative problem-solving research and engage with government, business, industries and communities as end-users.

### **FACULTY OF NATURAL SCIENCES**

#### **POSTDOCTORAL RESEARCH FELLOWSHIP**

(Combating the effect of Ionising Radiation Exposure in South African Mining)

#### **One-Year Fixed Contract**

#### **Key Performance Areas:**

- Forge the construction of interdisciplinary links between medical geologists and medical staff of existing public health clinics in selected gold and uranium mines of South Africa, through the institution of maternal and health care programmes and strengthening of existing ones. Through these links we would educate postpartum and pregnant women and children in their homes, providing them with mentoring and simple, user-friendly radiation detection devices.
- Examine the relationship between neonatal death rate for the ten-year period, 2015 - 2024 and our revised estimates of natural or background radiation exposure (taken as an indication of a higher than normal environmental radiation level) in the gold and uranium mining industries of South Africa;
- Contribute towards the design of simple, efficient, cheap and affordable dosimeters for use by residents around uranium tailings disposal facilities in the study areas;
- Write relevant and reliable radiation monitoring programmes for gold and uranium mines in our study areas capable of reducing ionising radiation exposure levels to below 50 mSv/a.
- Use data from routinely and universally registered birth and death certificates for developing statistical methods of ionising radiation hazard estimation where such populations are subject to predictable or measurable radiation in the study areas.
- Draft project proposal applications in the broad research area of "Medical Geochemistry".
- To prepare and publish manuscripts of high quality in DHET journals.
- Ability to co-supervise relevant postgraduate research and/or collaborating with other postdoctoral fellows.
- Involvement in initiating and managing research projects.
- Assisting in overall management and contribute to the various activities of the Research projects.
- Initiating, developing and/or being involved in research networks, collaborations (i.e. formulating spin-offs, and joint ventures), institutional partnerships, and the organisation of research events.
- Maintain a continuous and progressive risk assessment of radiation exposure after the study is completed; and seek to further reduce exposure below 20 mSv over five consecutive years.

- To explore methods best suited to the surface remediation of most of the uranium and gold mill tailings sites in the study localities of South Africa.

#### **Minimum Requirements:**

- A recently earned PhD in Medical Physics/Radiology, Environmental Geochemistry and Health, Medical Geology, Public Health or Epidemiology. At the time of the award, the candidate should have graduated with his/her doctorate degree no longer than within the previous five years.
- South African citizens and permanent residents will have priority.
- 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 thorough knowledge of fieldwork techniques, including health and safety issues in difficult terrains.
- At least 4 published journal papers (DHET) in the above-stated specialist areas in the last 24 months.
- Working knowledge and experience with statistical software such as SPSS.
- Has not held full-time permanent academic or professional employment.
- Experience in postgraduate student mentorship.

#### **Competencies:**

- Excellent oral and written communication skills.
- High ethical standards; Innovative and conscientious.

---

**Stipend:** R300 000.00 per annum (tax-exempt)

Interested applicants should send (a) a motivation detailing the extent to which they meet the requirements of the position; (b) an application form (downloadable from [www.mut.ac.za](http://www.mut.ac.za)); (c) a Curriculum Vitae including a list of research publication, conference papers, and other scholarly outputs; (d) certified copies of academic qualifications plus academic records and proof of professional registration with a relevant professional body where applicable. **(Please provide academic transcripts and SAQA evaluation certificate, if qualifications were obtained outside South Africa)**; and (e) names of three contactable referees at [hr@mut.ac.za](mailto:hr@mut.ac.za) copied to: [davies.theophilus@mut.ac.za](mailto:davies.theophilus@mut.ac.za)

Enquiries: Tel: (031) 907 9294

**Closing Date: 23 August 2024**

**Mangosuthu University of Technology is committed to meeting the objectives of Employment Equity to improve representivity within the institution. Preference will be given to applicants from designated groups in accordance with our Employment Equity targets including people with disabilities.**