

Helmholtz-Zentrum Dresden-Rossendorf e.V.



With cutting-edge research in the fields of ENERGY, HEALTH and MATTER, around 1,500 employees from more than 70 nations at Helmholtz-Zentrum Dresden-Rossendorf (HZDR) are committed to mastering the great challenges facing society today. The Institute of Resource Ecology performs research to protect humans and the environment from hazards caused by pollutants resulting from technical processes that produce energy and raw materials. The Department of Surface Processes is looking for a

Postdoc (f/m/d) Spectroelectrochemical studies on Technetium Complexation

Tc is the lightest chemical element that exists only in radioactive isotopes and exhibits unique chemical and physical properties. Due to its relevance for the safety assessment of potential nuclear waste repositories, a deeper understanding of the mobility of Tc in the environment is required, in particular regarding the formation of stable Tc complexes in aqueous solution. This postdoctoral project focuses on the complexation of Tc in different oxidation states with inorganic ligands. Special emphasis will be placed on the further development of spectroelectrochemical methods and their application to characterize Tc complexes. The postdoctoral position is part of the project "Retention and solubility of dose-relevant radionuclides under the reducing near-field conditions of a repository in clay or crystalline rock" (RULET), that is funded by the Federal German Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety. The position is planned to start on February 1, 2026. An earlier start is negotiable.

City: Dresden; Starting date (earliest): 01/02/26; Remuneration: TVöD-Bund; Reference number: 2025/114; Closing date: 03/10/25

Working field

- Further development and optimization of spectroelectrochemical methods
 - Electrochemical synthesis of Tc inorganic complexes (e.g., nitrate, sulfide, carbonate)
 - Determination of complexation constants using electrochemical methods
 - Structural characterization of the Tc inorganic complexes by various spectroscopic techniques e.g. UV-vis, Raman, infrared, nuclear magnetic resonance, X-ray absorption
 - Presentation of scientific results at international conferences and their publication in peer-reviewed journals
- (Co-)supervision of Ph.D., master and bachelor students

Requirements

- Ph.D. in chemistry, electrochemistry, radiochemistry, physics, materials science, or a related discipline
- Strong expertise in electrochemistry, including hands-on experimental experience and

data interpretation (must-have)

- Experience in spectroelectrochemistry or advanced electrochemical analysis (desireable)
 - Experience in the synthesis and characterization of air-sensitive compounds (desireable)
 - Experience with spectroscopic techniques (e.g., UV-Vis, Raman, infrared, nuclear magnetic resonance, or X-ray absorption), and/or other physicochemical characterization techniques (desireable)
 - Willingness to handle open radioactive materials in a radiation safety-controlled laboratory is required (must-have)
 - Ability to work in an interdisciplinary team and willingness to actively participate in scientific conferences and workshops (desireable)
 - Excellent communication skills in scientific English (must-have); basic German knowledge is an advantage

What we offer

- A vibrant research community in an open, diverse and international work environment
- Scientific excellence and extensive professional networking opportunities
- Salary and social benefits in accordance with the collective agreement for the public sector (TVöD-Bund) including 30 days of paid holiday leave, company pension scheme (VBL)
- We support a good work-life balance with the possibility of part-time employment, mobile working and flexible working hours
- Numerous company health management offerings
 - Employee discounts with well-known providers via the platform Corporate Benefits
 - An employer subsidy for the "Deutschland-Ticket Jobticket"

Application

We look forward to receiving your application documents (including cover letter, CV, diplomas/transcripts, etc.), which you can submit via our online-application-system: <https://www.hzdr.de/db/Cms?pNid=490&pLang=en&pOid=75557>

More information at <https://stellenticket.de/197733/TUBS/>
Offer visible until 03/10/25

