## 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 Fluid Dynamics is conducting basic and applied research in the fields of thermo-fluid dynamics and magnetohydrodynamics in order to improve the sustainability, the energy efficiency and the safety of industrial processes. The Department of Fluid Dynamics Resource Technology Processes is looking for a PhD Student (f/m/d) Multisensor and Multiscale Measurement Techniques for Hydrodynamic Characterization of Flotation Cells.

# PhD Student (f/m/d) Multisensor and Multiscale Measurement Techniques for Hydrodynamic Characterization of Flotation Cells

City: Dresden; Starting date (earliest): 01/06/26; Duration: 3 years; Remuneration: TVöD Bund; Reference number: 2026/34; Closing date: 01/05/26

### Tasks

- Measure and analyze flow-field and turbulence quantities, including turbulent kinetic energy (TKE), using PIV/LIF as well as fiber-optic and piezoelectric vibration sensors
- Investigate gas dispersion in different zones of the flotation cell by determining bubble size distributions (e.g., using optical probes) and/or by applying ultrafast X-ray tomography (e.g., ROFEX)
- Develop and further improve multi-sensor and imaging-based measurement methods to capture key process variables in different zones of the flotation cell
- Integrate and interpret data from different sensors and measurement techniques to provide a consistent hydrodynamic validation dataset for flotation-cell CFD studies carried out by collaborating researchers

### Requirements

- Completed university studies (Master/Diploma) in the field of Process Engineering, Mechanical Engineering, Chemical Engineering, or a comparable discipline
- Experience or strong interest in fluid dynamics, turbulence, multiphase flows, and bubbly flows
- Familiarity with multiphase measurement systems (e.g., PIV, piezoelectric vibration sensors)
- Independent, structured, and reliable way of working in the laboratory
- Strong problem-solving skills in experimental setup, instrumentation, and measurement campaigns
- Willingness to collaborate with industrial and academic partners and to participate in experimental campaigns; a secondment of around 3 months in Chile is planned
- Basic to good programming skills for data analysis and image processing (e.g.,

MATLAB, Python)
- Good written and spoken English

**What we offer**

- A vibrant research community in an open, diverse and international work environment
- Scientific excellence and extensive professional networking opportunities
- A structured PhD program with a comprehensive range of continuing education and networking opportunities - more information about the PhD program at the HZDR can be found here
- 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=76989

More information at https://stellenticket.de/202787/OSTF/
Offer visible until 19/04/26