University of Freiburg
Germany

PhD position in hydrothermal fluid chemistry

We are inviting applications for a Ph.D. position in aqueous chemistry and thermodynamics, funded by the German Research Foundation within the priority program DOME.

Project information

The successful candidate will complement our strength in fluid-mineral interaction and is expected to develop new thermodynamic models for saline aqueous-carbonic fluids relevant to hydrothermal and geothermal processes. The project will investigate aqueous-chloride and aqueous-carbonate fluids and their potential for metal transport and mineralization as controlled by the activity of complexing ligands (HCl, CO_2, alkali species). The objective is to develop and calibrate multicomponent thermodynamic models for the H_2O-NaCl-KCl-HCl and H_2O-Na_2CO_3-K_2CO_3-CO_2 systems over a wide range of hydrothermal conditions up to 800 ^oC and 5 kbar. These models will provide prediction of phase relations (e.g., magmatic devolatilization, liquid-vapor equilibria) and will allows us to geochemically model behavior of melts, brines and vapors in alkaline magmatic systems, with implications for critical-metal transport and mineralization.

The project is hosted within the federal priority program DOME, which offers excellent opportunities for scientific networking in the fields of geochemistry and mineral resources, with additional educational opportunities including short courses and workshops.

Requirements

We are seeking a highly motivated, reliable and creative individual communicating fluently in English and with ability to carry out scientific research and disseminate the results. The candidate must have M.Sc. or equivalent degree in geology, chemistry, physics or environmental sciences, and have demonstrated strong skills in geochemistry or chemistry, computational methods and programming. The Ph.D. position is paid 75 % TV-L E13 and available immediately for 3 years pending successful progress.

How to apply

We invite applications from all eligible candidates. Applicants should submit a single PDF document including curriculum vitae, academic record including the M.Sc. certificate, summary of a M.Sc. thesis, brief statement of research motivation and interests and the names and contact details to two professional referees. The applications should be sent by e-mail to Professor David Dolejs at **david.dolejs@minpet.uni-freiburg.de** by **02 April 2025**. Shortlisted candidates will be subsequently invited to a virtual interview. The position is available immediately afterwards.

We are an equal opportunity employer and committed to increasing its proportion of female employees. We strongly encourage applications from women as well as candidates with disabilities who will be given preference when equally qualified.

About the University of Freiburg

The University of Freiburg (https://uni-freiburg.de) is a research-oriented university located in southwestern Germany, with a very high living standard, multicultural environment at the border of Germany, Switzerland and France, and excellent access to leisure-time and outdoors activities in the Black Forest, Vosges, Jura and the Alps.

Further enquiries

For further information please contact Professor David Dolejs (david.dolejs@minpet.uni-freiburg.de).