Postdoc in stable isotopes and reaction kinetics

Indiana University
Department of Earth and Atmospheric Sciences

Overview:

Applications are invited for a Postdoctoral Research Associate at Indiana University, USA to work on CO2 mineralization as a climate change mitigation strategy. The NSF-funded project integrates basic science with society's urgent need for climate change solutions.

Specifically, the research aims to use non-traditional stable isotopes to measure reaction rates and understand the mechanisms of mineral-aqueous solution reactions. See our recent publications for details (Zhu et al., 2016, *Chemical Geology;* Zhu et al, 2020, 2021, *GCA*). The project will employ a combined experimental, analytical, theoretical, and modeling approach.

The successful candidate will hold a Ph.D. in Earth Sciences or a closely related field (e.g., environmental sciences, chemical engineering). A strong background in either stable isotopes or kinetics and thermodynamics is required. Experience performing aqueous geochemical experiments, and using geochemical equilibrium and kinetics models is highly desirable.

Salary is competitive and includes fringe benefits. The initial appointment will be for one year, with the expectation of renewable for another two years, subject to performance and funding availability. The candidate will be based on the Bloomington campus of Indiana University and will have access to an extensive suite of analytical tools, including MC-ICP-MS, TIMS, ICP-OES, ICP-MS, FESEM, and FETEM. Indiana University has some of the most powerful high-performance computing facilities in the nation that are free for faculty and students to use. The position requires excellent communication and interpersonal skills, intellectual curiosity, and a willingness to explore unfamiliar aspects of Earth sciences.

More information about ongoing research in Zhu's group may be found at:
www.hydrogeochem.earth.indiana.edu

Major Duties/Responsibilities:

- Perform batch, mixed flow reactor, and column experiments examining the interactions between minerals and aqueous solutions
- Analyze experimental run products using analytical techniques geared toward both solid and fluid characterization
- Perform spreadsheet computations and geochemical modeling to interpret the experimental results
- Develop and apply theoretical models to decipher the thermodynamics of isotope fractionation and reaction mechanisms
- Present and report research results and publish scientific results in peer-reviewed journals in a timely manner

Application details:

Online application is required and can be submitted via
https://indiana.peopleadmin.com/postings/18574. Applications, consisting of a single PDF

file combining the four documents listed below, can also be emailed directly to chenzhu@indiana.edu, with the subject line: Postdoc Position. The start date is negotiable. The tentative application deadline is 1 July 2023, but applications will be considered on a rolling basis until the position is filled.

Required documents:

1) A 1-page cover letter expressing interest in and qualifications for this position

2) A CV with a list of all publications and research grants

3) A 1-page research statement summarizing previous research experience

4) The names and contact information of at least two referees with knowledge of your research and academic experience

Required Qualifications:

- A completed Ph.D. degree by start date and within the last five years
- Firm grasp of aqueous geochemistry and/or isotope geochemistry
- Excellent written and oral communication skills

Preferred Qualifications

- Research experience in an aqueous geochemical laboratory, preferably performing experiments and analyses
- Research experience in stable isotope geochemistry

About Indiana University and Department of Earth and Atmospheric Sciences

Indiana University is an R1 university (Research Universities with the Highest research activity in the Carnegie Classification of Institutions of Higher Education) and is in its bicentennial celebration in 2020. The Department of Earth and Atmospheric Sciences (formerly the Department of Geological Sciences) was founded 125 years ago and has a long tradition of excellence in geochemistry. The City of Bloomington is a delightful, safe, and affordable college town ranked among the top livable cities in the USA. The university also has a famed school of music, which hosts year-round concerts, ballet, opera, and other cultural activities. Indiana University is an Equal Opportunity/Affirmative Action employer. Women and minorities are especially encouraged to apply.