EARTH, ENVIRONMENTAL, AND PLANETARY SCIENCES

Graduate Student Opportunities | Fall 2027

Fu Lab - Isotope Geochemistry, Geodynamics, and Planetary Evolution

Hello, I am Hairuo Fu, a new Assistant Professor in the Department of Earth, Environmental, and Planetary Sciences (EEPS) at the University of Tennessee, Knoxville (UTK), starting in Fall 2027. I am recruiting PhD and/or MS students to join a new research group investigating the formation, differentiation, and long-term evolution of Earth and other planetary bodies. The positions offer full support through a combination of teaching and research assistantships.

Students may develop projects in analytical geochemistry, computational modeling, or across both areas. I am especially excited to work with students who want to connect geochemical observations with physical models and use each perspective to sharpen the other.

Research Directions

Analytical and lab-based projects may use elemental and isotopic compositions of terrestrial, lunar, meteoritic, and experimental materials to study:

- planetary accretion and differentiation; magma-ocean and crust-mantle evolution
- magmatic processes, mantle geochemistry, core formation, and volatile behavior
- metal stable isotope fractionation, radiogenic isotopes, and nucleosynthetic anomalies

Modeling and quantitative projects may involve physical and geodynamic modeling of accretion, impacts, and planetary interiors, as well as geochemical and thermodynamic modeling, data-driven approaches, and machine learning.

A Growing Isotope Geochemistry Laboratory

Students will have the opportunity to help establish and shape a new isotope geochemistry laboratory. As part of UTK's Core Facility, the lab hosts an iCAP TQ ICP-MS, an NWR193 laser-ablation system, and a Neoma MC-ICP-MS to be installed soon. Analytical work will include both high-precision solution analysis and high-spatial-resolution in situ analysis.

The department also supports H–C–N–O–S stable isotope analysis, electron microprobe analysis, SEM, sample preparation, and experimental petrology for potential collaborations (eeps.utk.edu/facilities).

Who Should Reach Out

Students from Earth and planetary science, geochemistry, geology, chemistry, geophysics, astrophysics, physics, or related fields are encouraged to contact me. Prior experience in isotope geochemistry, MC-ICP-MS, sample analysis, geodynamics, numerical modeling, or machine learning is very welcome but not required. A clear interest in using experimental or computational approaches to address fundamental questions in Earth and planetary science is essential.

Additional Opportunities

Inquiries are also welcome from prospective postdoctoral researchers, post-baccalaureate researchers, and visiting students interested in joining or collaborating with the lab.

Interested? Please contact me well before submitting a formal application. A brief note about your interests, a CV/resume, and any relevant background are very helpful. Please see department websites for more information about the graduate program (eeps.utk.edu/graduate-students).

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