

University of Arkansas

Website: icp.uark.edu

Lab Description: The Trace Element and Radiogenic Isotope Lab (TRaIL) at the University of Arkansas is currently equipped with a Thermo iCap quadrupole mass spectrometer, ESI 193 excimer laser ablation System, and a Thermo ChemAxia Scanning Electron Microscope. In the future we will also be adding a Thermo XTRA XRD system and a Thermo Neomo multi-collector mass spectrometer (Early to Mid 2025; Mar-June 2025). Until the arrival of these new instruments we are limiting applications to *in situ* U-Pb dating and trace element analysis of zircon, rutile, titanite, and apatite. We are able to analyze samples either in polished epoxy mounts, thin sections, or on grain mounts. These analyses can be supplemented with imaging (BSE, CL) via the Thermo ChemAxia scanning electron microscope. Once the new equipment arrives we will add capabilities including split-stream laser ablation, Lu-Hf in zircon, *and in situ* Sr and Pb isotopes, as well as solution based isotopic analyses of Sr, Pb, and Nd analyses, and XRD analyses.

Timeframe: In general, we can accommodate student visitors with a 3-4 week notice and most analytical work can be completed in a few days.

Preparation for visitation: The student's samples should already be prepared for analysis prior to arrival. We are able to make some adjustments as needed on site, but the majority of the sample preparation should be completed ahead of time. If students need assistance with their sample preparation, we are available to guide students through the process remotely, as needed. The imaging (microscopic imaging in XPL, PPL etc.) of the student's samples should be completed ahead of time, though we are able to supplement their imaging with CL and BSE images as necessary. If the student requires BSE/CL imaging the sample should be carbon coated.

Cost of Analysis: Laser Ablation ICP-MS analytical costs are \$75/hr of machine time. Sample set-up and instrument warm-up are not charged to the user. For budgeting purposes, we typically estimate 50 analyses (unknown/standards) per hour for spot analytical work. A typical detrital zircon sample with a 150 unknowns plus standards will typically take 4-4.5 hrs to complete. SEM image is \$20/hr. The pricing for additional methods will be updated as they become available.

Data Handling: During their visit students can be taught how to reduce, or depending on time constraints, they can be instructed on reducing their data remotely using TeamViewer and Teams or similar software.

Laboratory Staff: The Trace Element and Radiogenic Isotope Lab is directed by Erik Pollock and the Laser Ablation Facility and SEM is managed and operated by Dr. Barry Shaulis.

Laboratory Availability: We can accommodate students within in short time frame if necessary, however, to better ensure instrument availability during their entire visit, we ask that students try to plan their visit ahead of time.

Laboratory contact:

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