ShortTitle: MicroGeo

Title: Co-registration of microscopy-generated image, spectral, and matrix geoscience datasets

Project lead and contact details:

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Suggested team size: 2-4

Logistics: Can work from anywhere, but an office on Mines campus will be available for use, along with as much coffee and grapefruit spindrift you can drink, and endless bags of Dot's pretzels and chex mix (and free lunch on Thursdays!)

Project description: Images and quantitative measurements (e.g., elemental concentrations, mineral abundance) of small rock pieces (called thin sections) from drill cores can tell geologists about the amount and quality of critical minerals (e.g., for Tesla batteries), hydrocarbons, and water in the subsurface. We have several ways to image and measure these thin sections, but need to better coregister the different data types from different instruments in order to enable rock-quality predictions. You would help build capability to co-register and 'stack' several datasets from x-ray flourescense, scanning-election microscopy, and transmitted-light microscopy instruments. You will work directly with Mines geologists and Bruker software engineers on data generated at the Bruker Demonstration Lab on Mines campus.