

## Machine Learning Meets Ancient Geology in the search for dark matter

*Tuesday, August 20, 2024 1:45 PM (10 minutes)*

Ancient rocks are often found deep within the Earth's crust, have been untouched for millennia. Over time, they may have accumulated minuscule amounts of dark matter particles. By analyzing these ancient minerals, scientists hope to detect traces of dark matter interactions; these ancient rocks invaluable as "paleo detectors." By using LA-ICP-MS to analyze rocks like olivine and galena, we can collect trace element data. Which when applied to machine learning models can quantify the interference from trace elements like Uranium and Thorium (whose radioactive decay mimics the signals that researchers are trying to detect from dark matter particles.)

### What area of study best describes your talk?

Engineering

**If you answered 'Other', please provide the study area.**

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**Session Classification:** Presentations