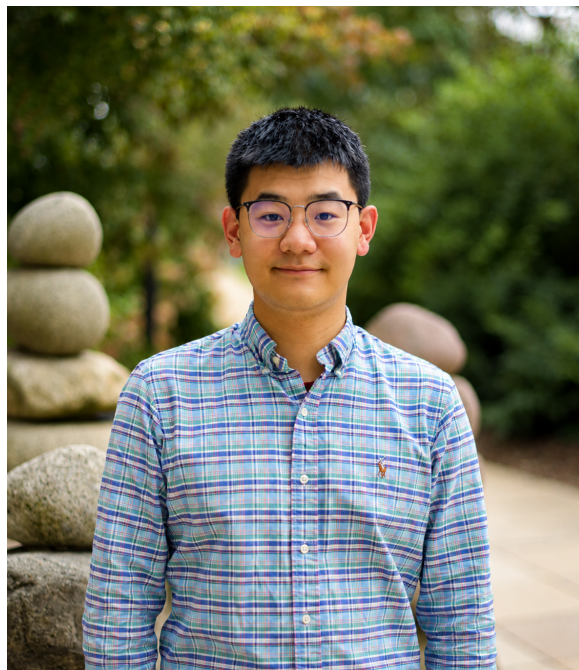


Ran He, The Pennsylvania State University, University Park, Pennsylvania, USA for his project: *Ironstones in the Appalachian Basin: Understanding Siderite Clumped Isotope Solid-state Reordering*.

Ran He is a Ph.D. candidate in the Department of Geosciences at Penn State University working with Dr. Miquela Ingalls.

Ran's research focuses on understanding the alteration of siderite (iron carbonate) in oxygen isotopes and clumped isotopes (Δ_{47}) and application of siderite clumped isotope as a paleotemperature proxy. He is interested in how solid-state bond reordering alter the primary clumped isotope signature during high temperature burial and test the hypothesis of whether siderite can be used as a more reliable paleoenvironmental archive than other Ca carbonates because of its lower solubility, dissolution kinetics, and more compact mineral structure. Prior to isotope measurements, he uses petrography and microanalytical tools to identify primary and altered carbonate fabrics.



Ran is grateful to be named a Howard and Jean Lipman Foundation Student Research Grant recipient and is thankful to the Geological Society of America for supporting his research. This funding will enable him to make siderite clumped isotope measurement and using microanalytical proxies to assess water-rock alteration for Pennsylvanian-age siderite samples in the Appalachian Basin.

Ran received his B.S. in the Department of Earth Science at China University of Geosciences (Beijing) in 2020. He then spent one year working as a research assistant at Chengdu University of Technology. Ran's undergraduate project has focuses on Mg isotope systematics during aragonite-calcite alteration and carbon cycle during Marinoan snowball Earth deglaciation.