

Segun Olabanji Oladele, The Pennsylvania State University, University Park, Pennsylvania, USA for their project: *Mineralogy and Analytical Geochemistry of Cookeite for the Study of the Pennsylvania Mercer Clay*.

Segun is a T-shaped mineral engineering professional and doctoral candidate in Energy and Mineral Engineering at The Pennsylvania State University. A *T-shaped professional* combines broad, cross-disciplinary knowledge - the horizontal bar of the “T” -with deep specialization in a particular field—the vertical bar.

For Segun, that breadth spans mineral characterization, process mineralogy, geometallurgy, surface chemistry, flotation, modeling and simulation, and digital tools such as machine learning and computer vision. His depth is in **critical-mineral beneficiation and recovery**, particularly lithium- and tungsten-bearing minerals.

His doctoral research focuses on recovering lithium from sediment- and clay-hosted deposits by integrating mineralogy, surface chemistry, flotation, and density functional theory (DFT) modeling.

He earned his bachelor’s degree in Mining Engineering at the Federal University of Technology, Akure, Nigeria, before being awarded a fully funded Erasmus Mundus scholarship in Sustainable Mineral and Metal Processing Engineering, studying at the University of Oulu (Finland), Montanuniversität Leoben (Austria), and Universidad Técnica Federico Santa María (Chile). He completed his joint Master’s with a research internship at the Helmholtz Institute Freiberg for Resource Technology, Freiberg, Germany.

My Lipman-funded project, “Mineralogy and Analytical Geochemistry of Cookeite for the Study of the Pennsylvania Mercer Clay,” investigates cookeite - a lithium-bearing chlorite group mineral - as a potential domestic source of lithium within Pennsylvania’s Mercer Clay deposits. The project combines detailed mineralogical and analytical geochemical characterization to better understand cookeite’s crystal chemistry, occurrence, and processing behavior, contributing to the search for viable domestic critical mineral supplies and supporting broader efforts toward secure, sustainable lithium sourcing in the United States.

I am deeply grateful to the Howard and Jean Lipman Foundation and the Geological Society of America’s Mineralogy, Geochemistry, Petrology, and Volcanology (MGPV) Division for this award. This support is invaluable in advancing my research and affirms the importance of investigating domestic critical mineral resources to strengthen supply chain resilience in the United States.

