

Claire Romine, East Carolina University, Greenville, North Carolina, USA for her project: *High-Resolution Synchrotron Chemical Characterization of Beryl Zoning to Determine Relation to Color*.

I am a second-year master's student pursuing an M.S. in Geology at East Carolina University working alongside my advisor, Dr. Adriana Heimann Rios. In 2025 I earned a B.S. in Geology from the University of Kansas, where my undergraduate research of the Raman spectra of nanoparticle hematite kindled my interest in mineralogy and geochemistry.

My research investigates chemistry-color relations in color-zoned and unzoned beryl crystals of all color varieties using various microanalytical and synchrotron-based techniques, particularly X-Ray Fluorescence spectroscopy. It aims to investigate how the relative abundance of chromophore element impurities affect color in beryl, and to test the detection limits of chemical zoning in beryl crystals using synchrotron-based micro-XRF analysis. Better understanding impurities within beryl has implications for the extraction of the "critical mineral" beryllium and the production of synthetic beryl gemstones.



The Lipman Research Award will allow me to travel to the Advanced Photon Source at Argonne National Laboratory to conduct high-resolution micro-XRF analysis, as well as other synchrotron-based techniques such as X-Ray Absorption spectroscopy. This award also supports the sample preparation needed prior to analysis.

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