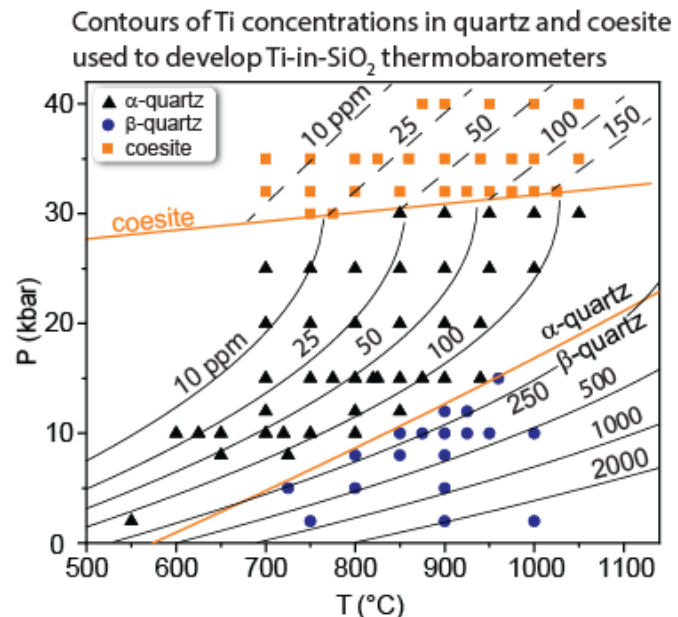
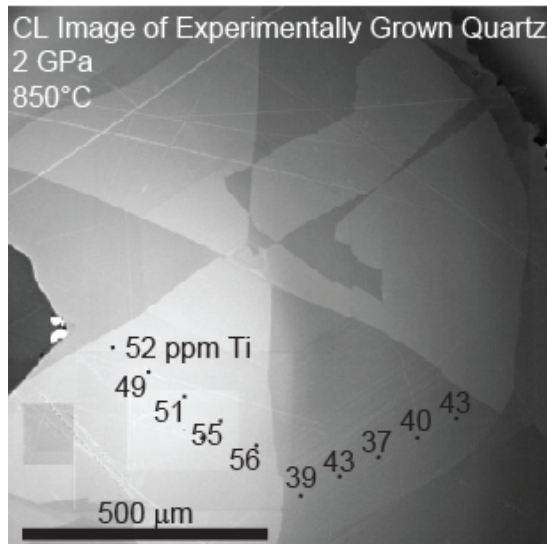


Geosciences and Environmental Science Colloquium Series

4:00 PM, Monday , February 6, Bolin 100

Dr. Jay Thomas, Associate Professor, Syracuse University

“Truths, mirages, and shifting sands: parting Earth’s curtains using trace element in mineral thermobarometers to reveal crystallization conditions of felsic rocks .”



Summary

The presentation will summarize experimental research used to develop trace element thermobarometers for estimating the pressure (depth) and temperature at which rocks crystallize. I will describe two decades of research from the earliest trace element-in-mineral thermometers, problems encountered during early applications to real rocks, ensuing controversies, followed by descriptions of our recent experimental campaign that explores conditions spanning Earth’s crust through the upper mantle. I will show how we cross-check pressure and temperature estimates from our Ti-in-quartz solubility models against the widely accepted Zr-in-rutile solubility models, simple mineral reactions, and thermodynamic data. The presentation will conclude with intriguing speculation on the state of knowledge on crystallization conditions for granitic composition rocks with implications to continental crust formation.