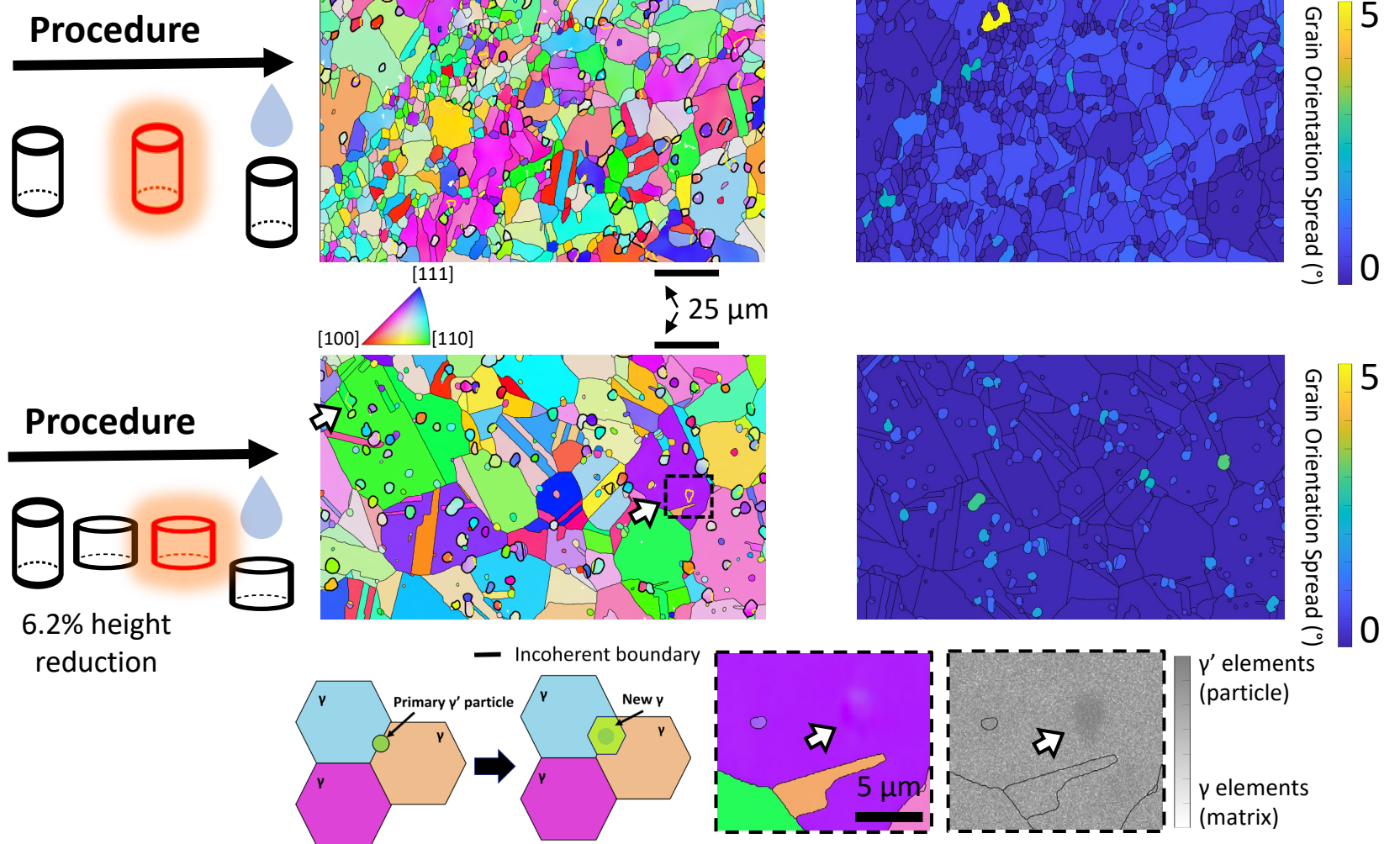


Onset of Heteroepitaxial Recrystallization under Static Annealing

Victoria M. Miller, University of Florida

Heteroepitaxial recrystallization (HeRX)—where a coherent γ grain forms on a primary γ' particle—is observed under *static* annealing condition for the first time.

- No evidence of HeRX found in unstrained sample. For γ grains, grain orientation spread (GOS which indicates stored energy of each grain) is less than 1° . This implies the initial stored energy was not enough to initiate recrystallization.
- The compressed sample's GOS suggests that stored energy within γ grains is significantly reduced (which indicates recrystallization) while that within the particles is persistent as recrystallization is challenging. The potential evidence of HeRX is marked with arrows.
- Detail image of potential HeRX (black box) is plotted where clearly segregated elements (γ' phase) are embedded within γ matrix with the same crystallographic orientation.



Heat-treatment on brass with induction heater and skin effect

Victoria M. Miller, University of Florida

This project has supported the work of one PhD student, four undergraduate students and one high school student. The high school and undergraduate students have worked investigating the hypothesis that the “skin effect” in induction heating will result in spatial inhomogeneity in recrystallization and grain growth.

Miller has additionally incorporated more recent research results into her undergraduate Physical Metallurgy I course. She has incorporated processing of multi-modal datasets, exposing the students to high dimensional data.

