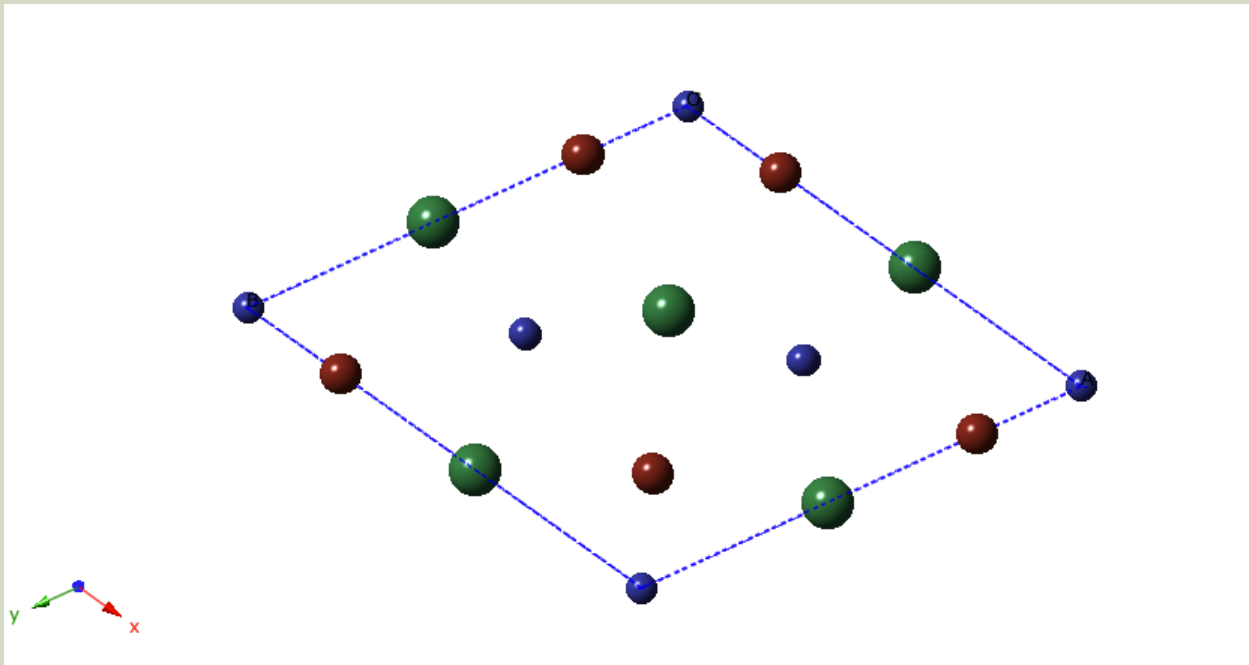


Synthesis and Characterization of Ferromagnetic FeScGe and MnScGe having the Fe₂P Crystal Structure

Jessica Hebert

July 30, 2015

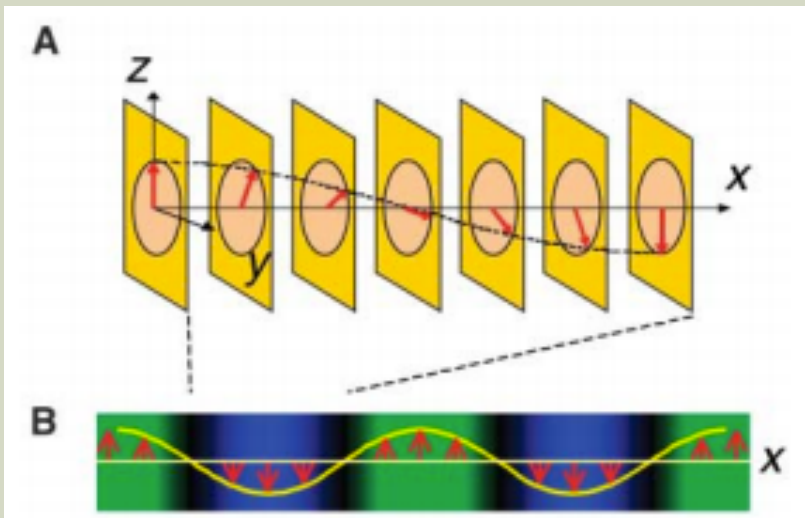
MATERIALS STUDIED



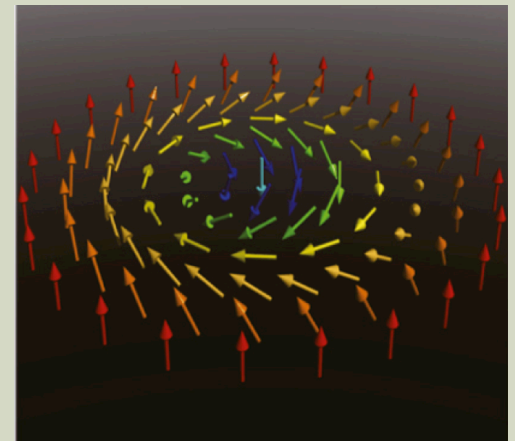
- FeScGe
- MnScGe

BACKGROUND

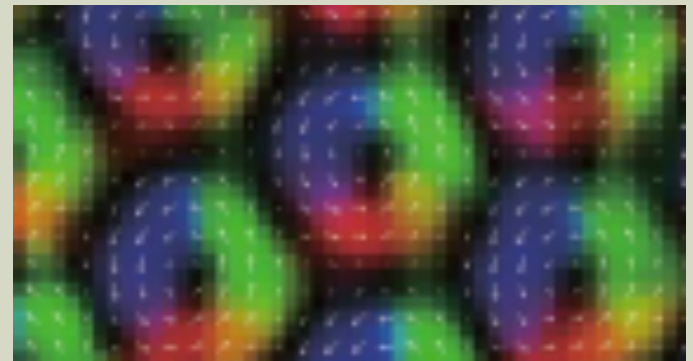
Helimagnetic ordering



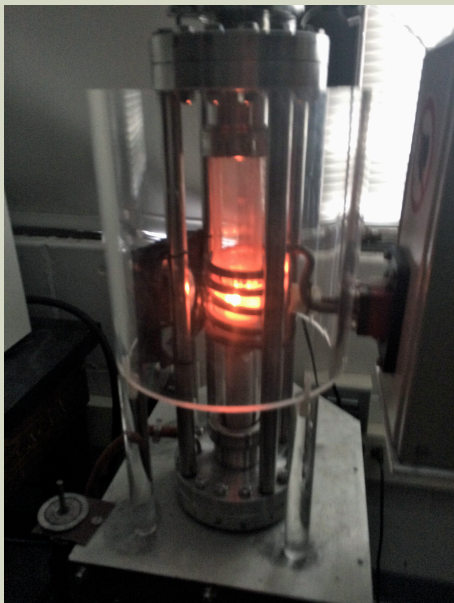
Magnetic Skyrmion



Skyrmion Lattice



SYNTHESIS

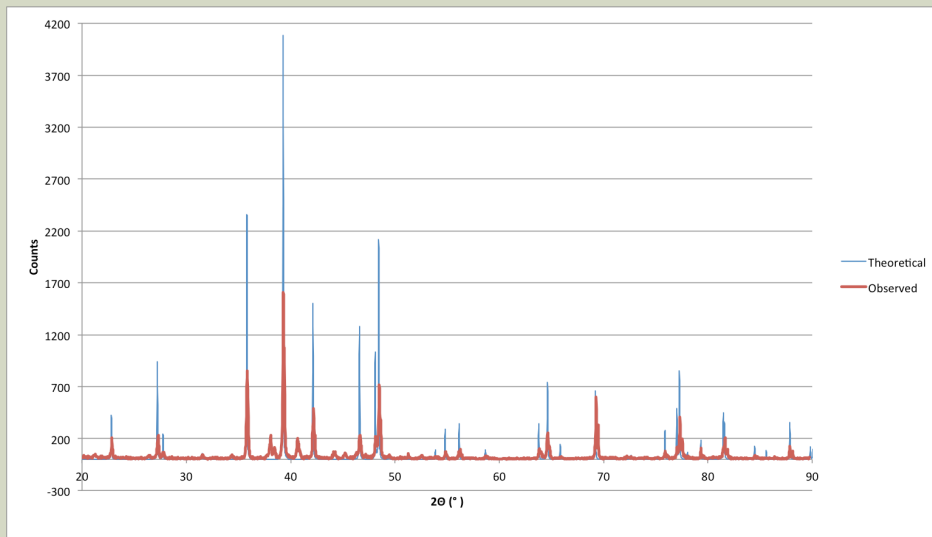


- RF furnace: induction heating at over 1500°C

- Arc melted at about 2500°C in Argon atmosphere

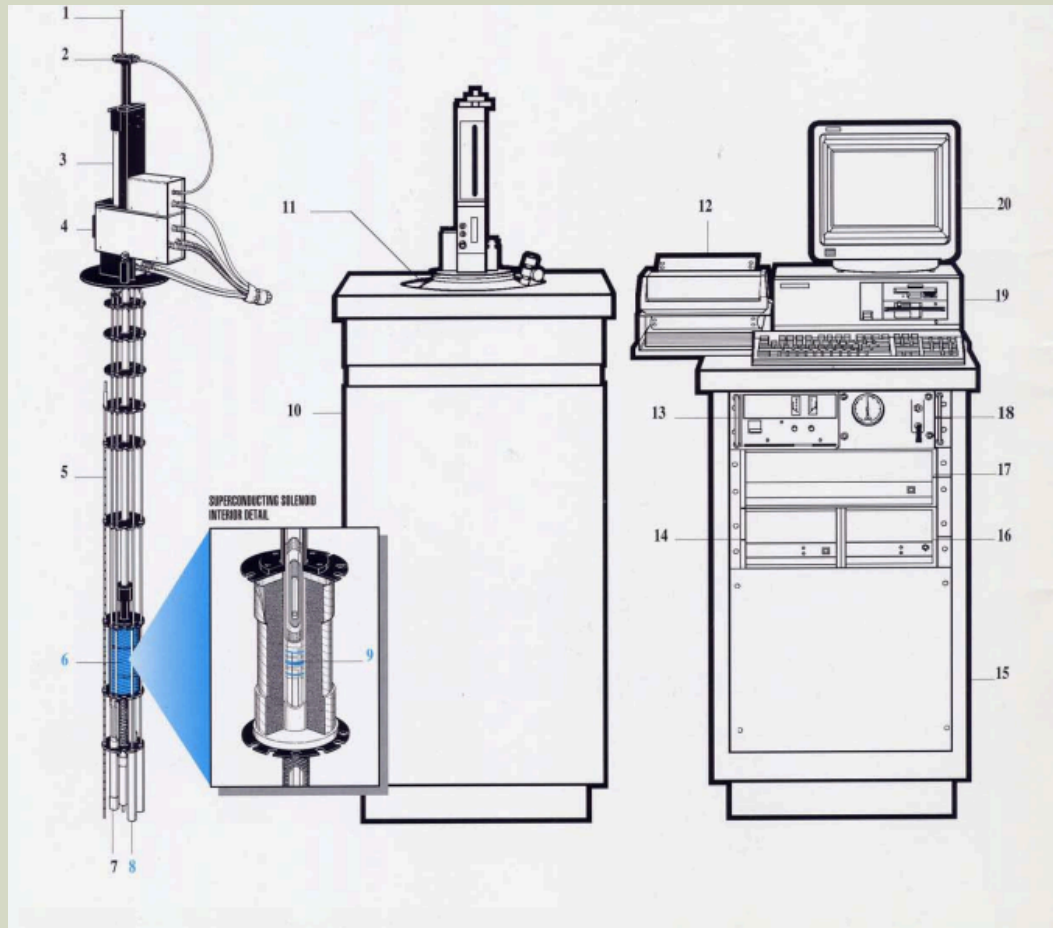


XRD

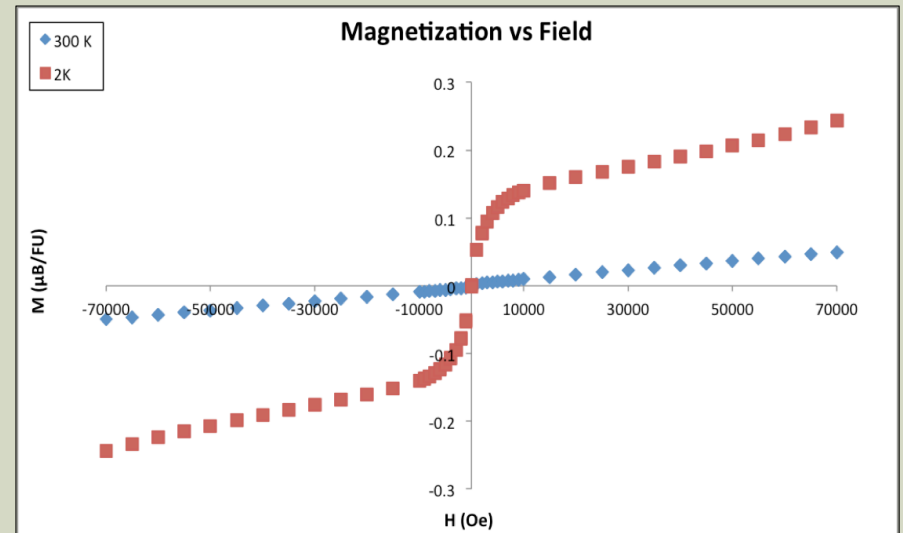
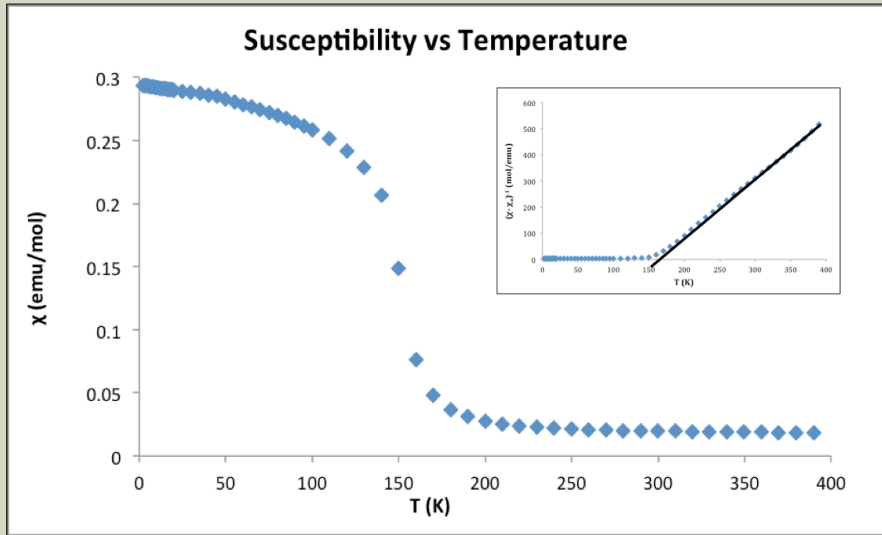


- XRD shows undesired second phase $\text{Fe}_4\text{Sc}_4\text{Ge}_{6.6}$

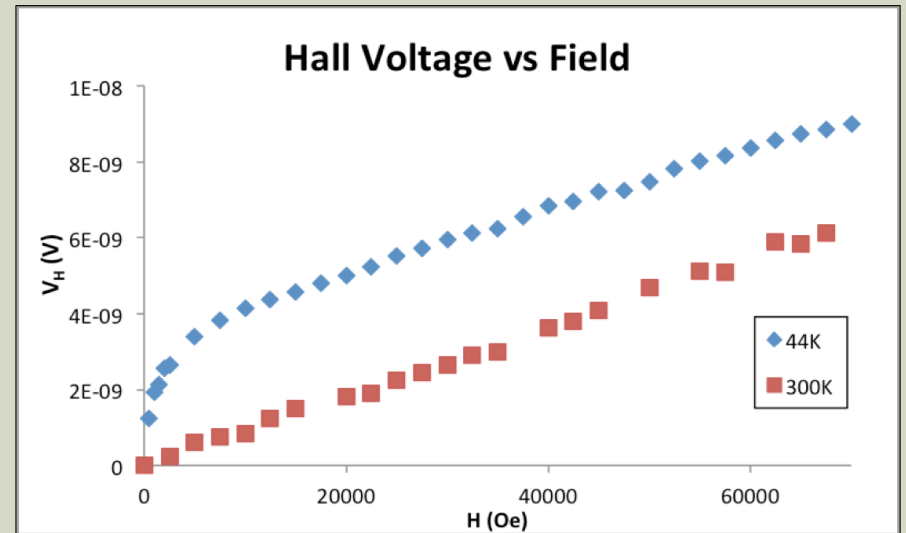
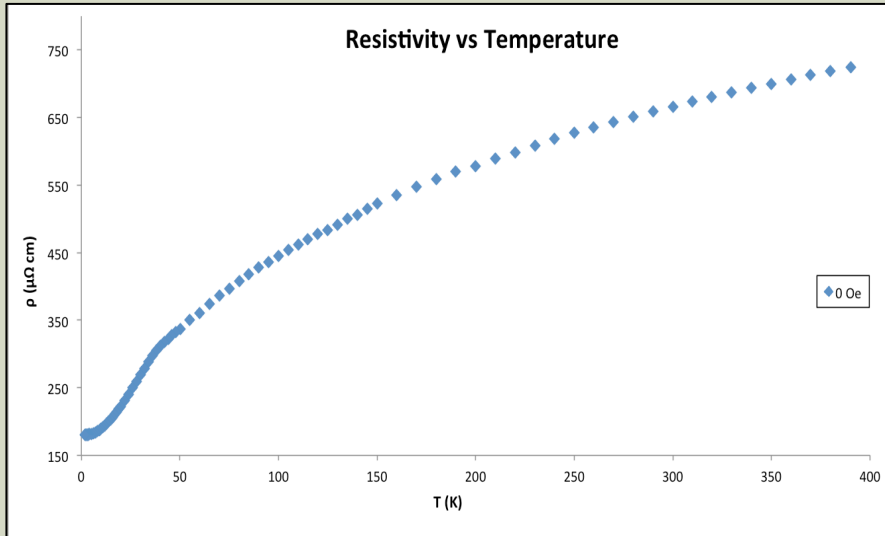
SQUID



RESULTS



RESULTS CONT.



QUESTIONS?