

*Exploring Rh and Fe Doped RuGe
For a New Ferromagnetic
Semiconductor*

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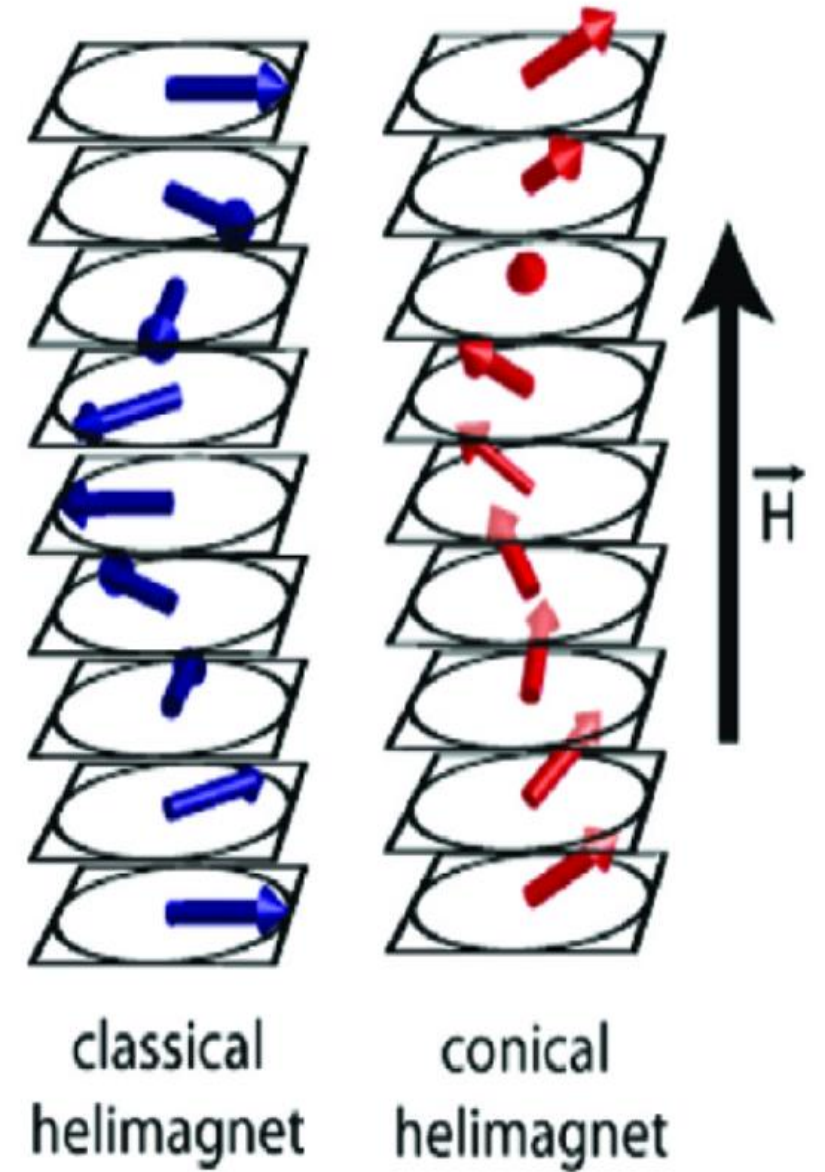
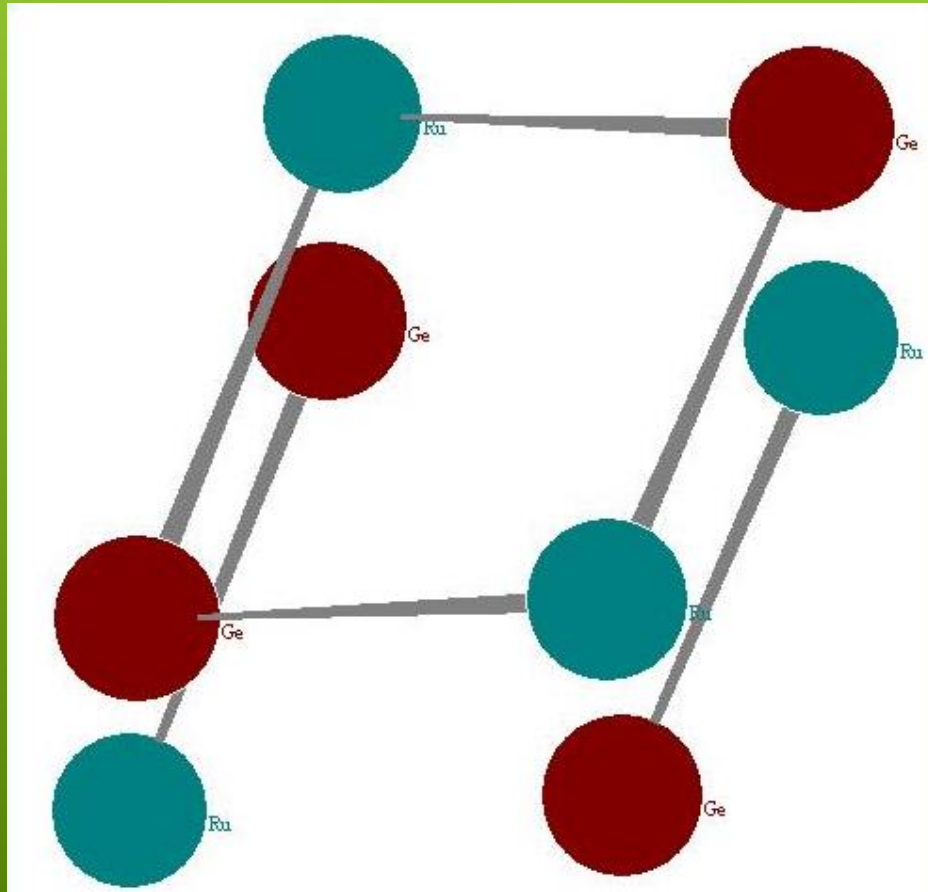


Objectives

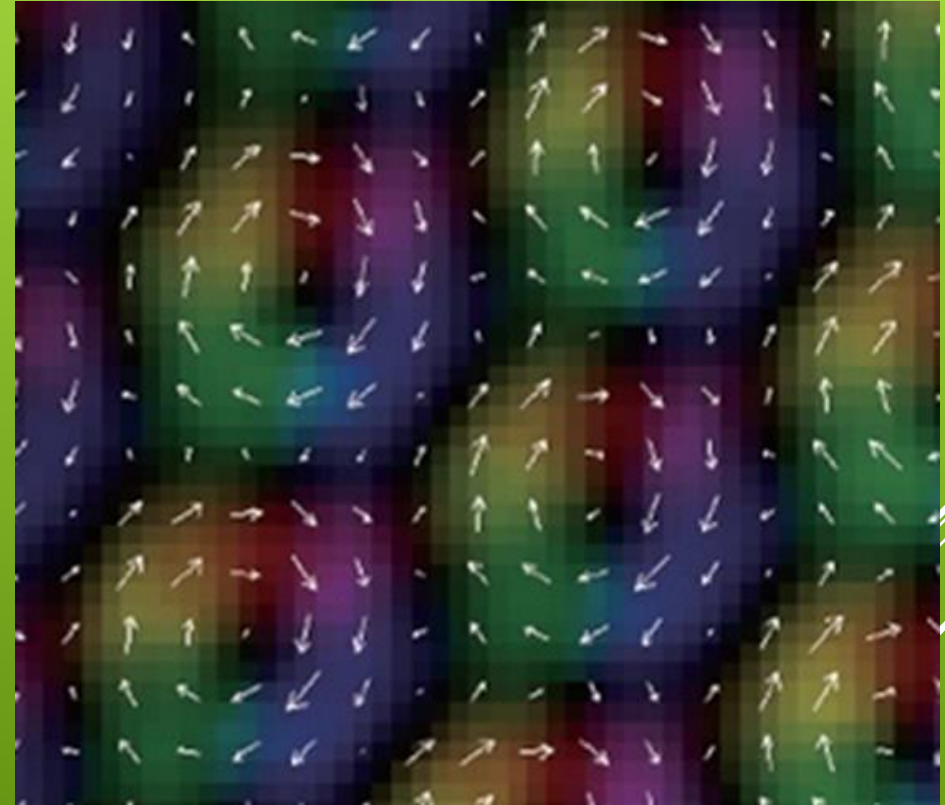
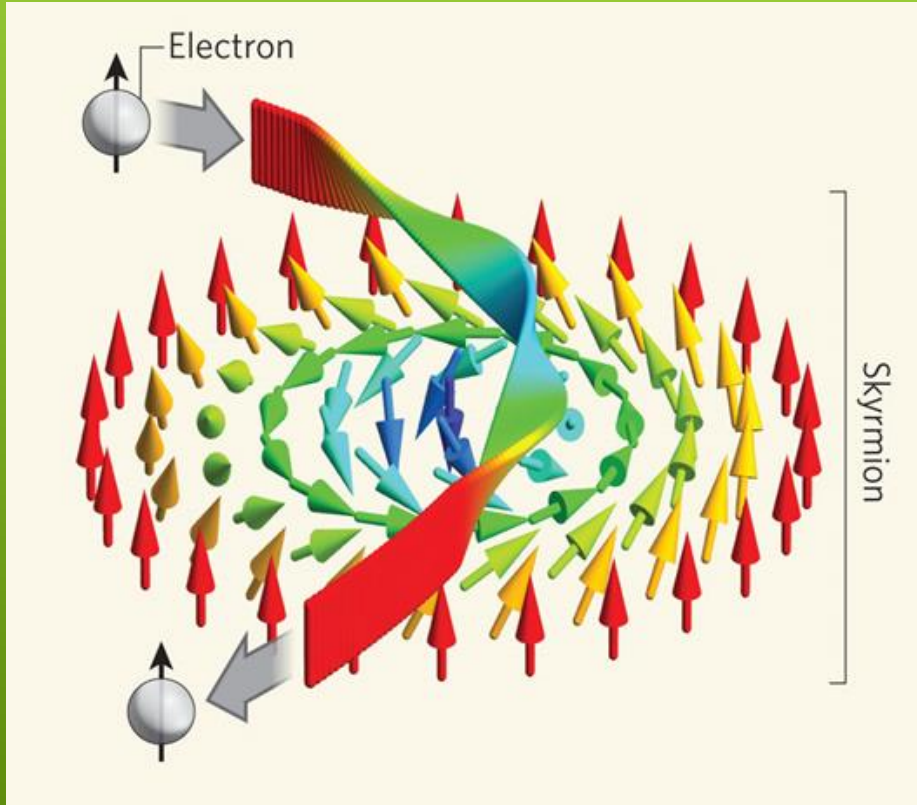
- *Background on Spintronics*
- *Methods for Synthesis*
- *Data and Results*



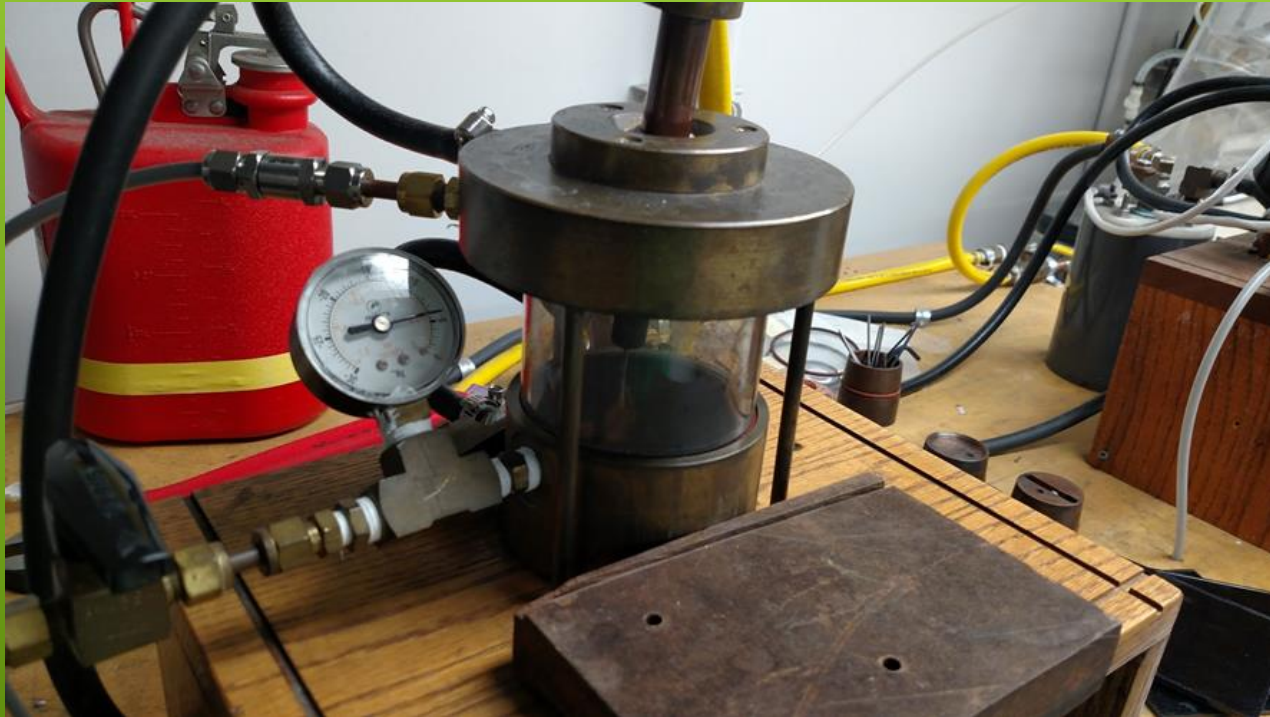
B20 Crystal Structure and Helimagnetism



Skymion



Synthesis



Arc-Furnace



RF Furnace

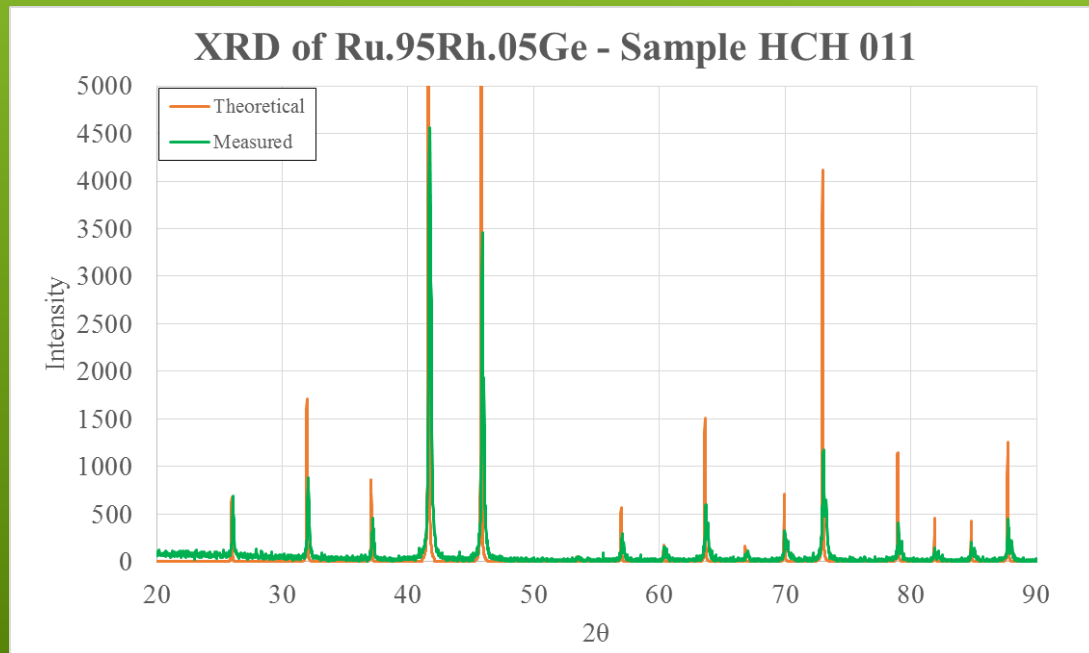
Annealing

Tube
Furnace



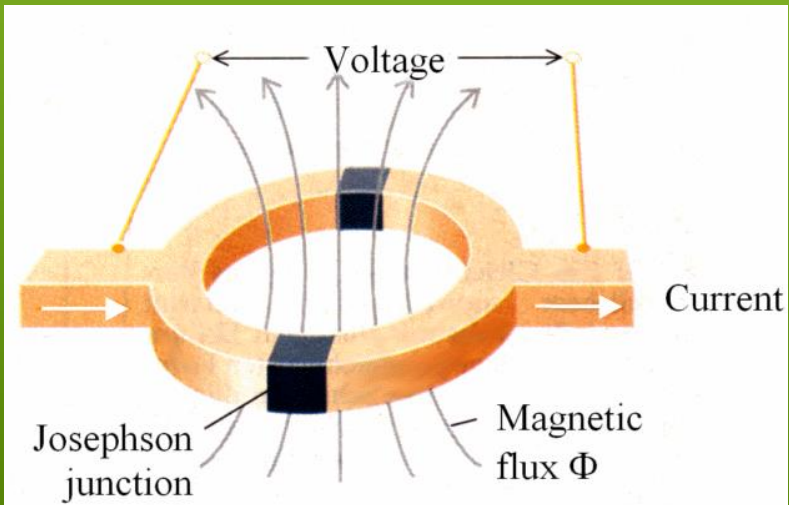
Sealing of
Quartz Tube

X-Ray Diffraction



SQUID

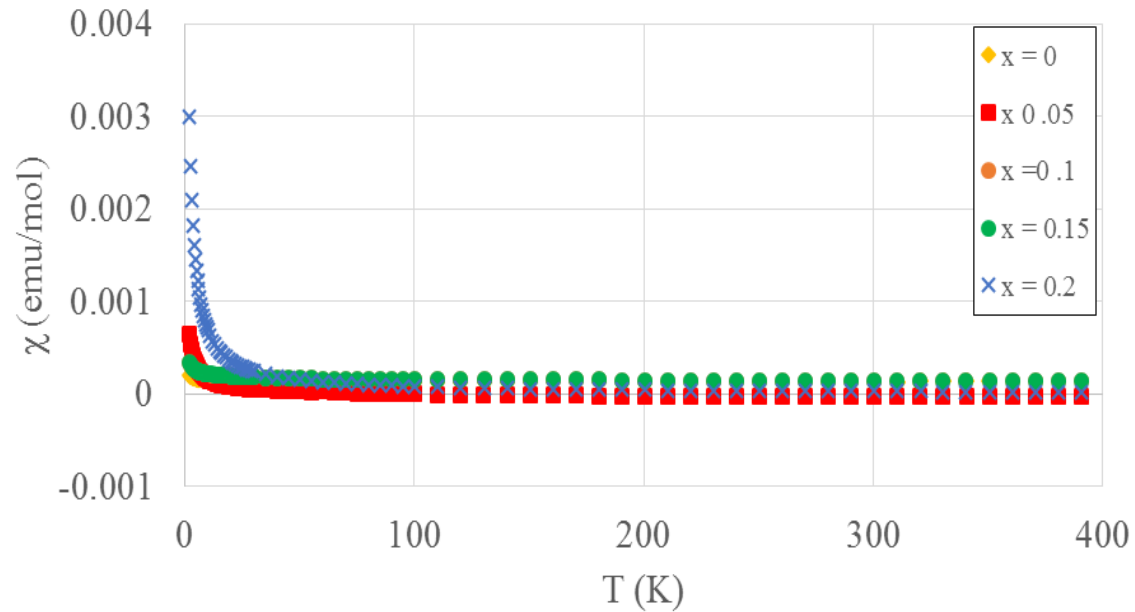
Superconducting
Quantum
Interference Device



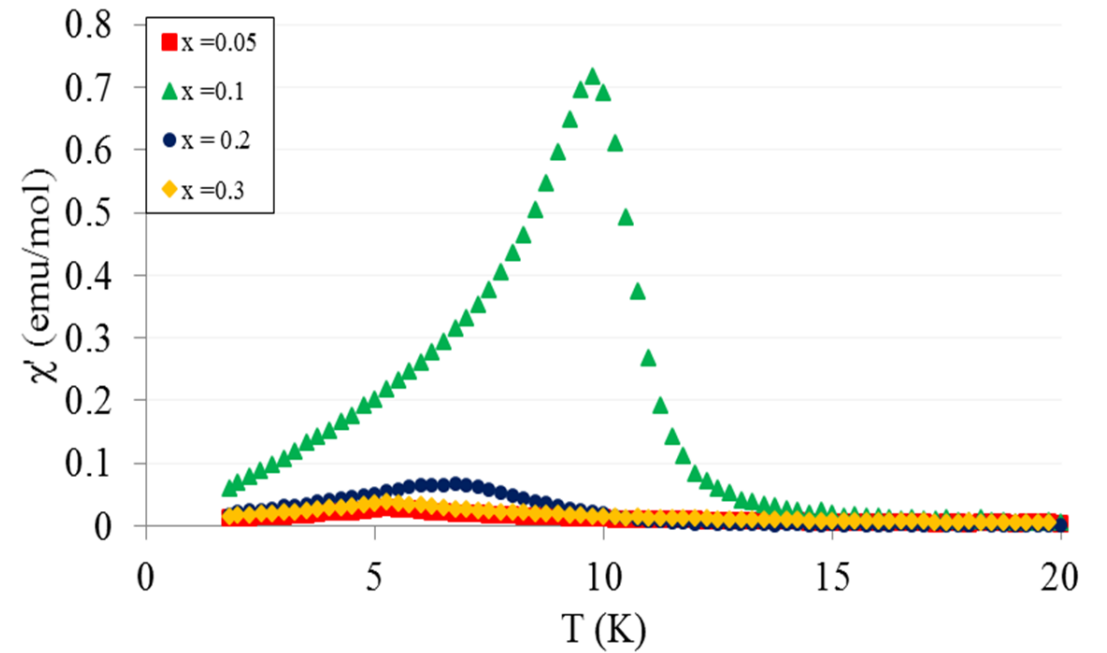
Susceptibility

24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.933	27 Co Cobalt 58.933	28 Ni Nickel 58.693
42 Mo Molybdenum 95.94	43 Tc Technetium 98.907	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.906	46 Pd Palladium 106.42
74 W Tungsten 183.85	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.22	78 Pt Platinum 195.08
106 Sg Seaborgium [266]	107 Bh Bohrium [264]	108 Hs Hassium [269]	109 Mt Meitnerium [268]	110 Ds Darmstadtium [269]

Susceptibility of $\text{Ru}_{1-x}\text{Rh}_x\text{Ge}$

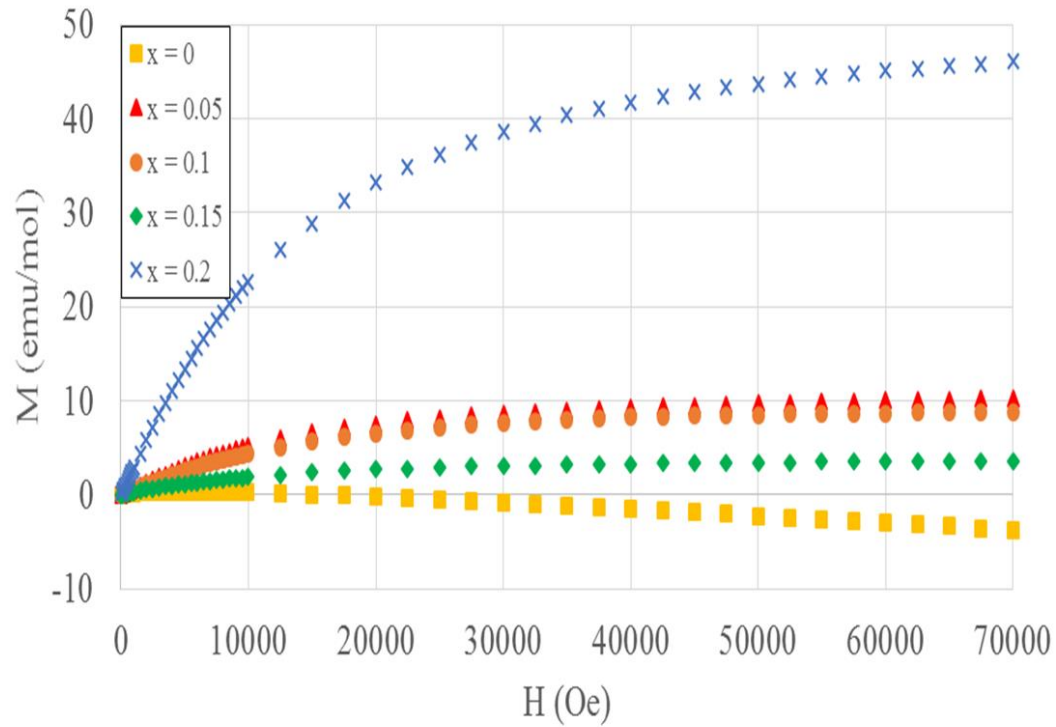


Susceptibility of $\text{Ru}_{1-x}\text{Co}_x\text{Ge}$

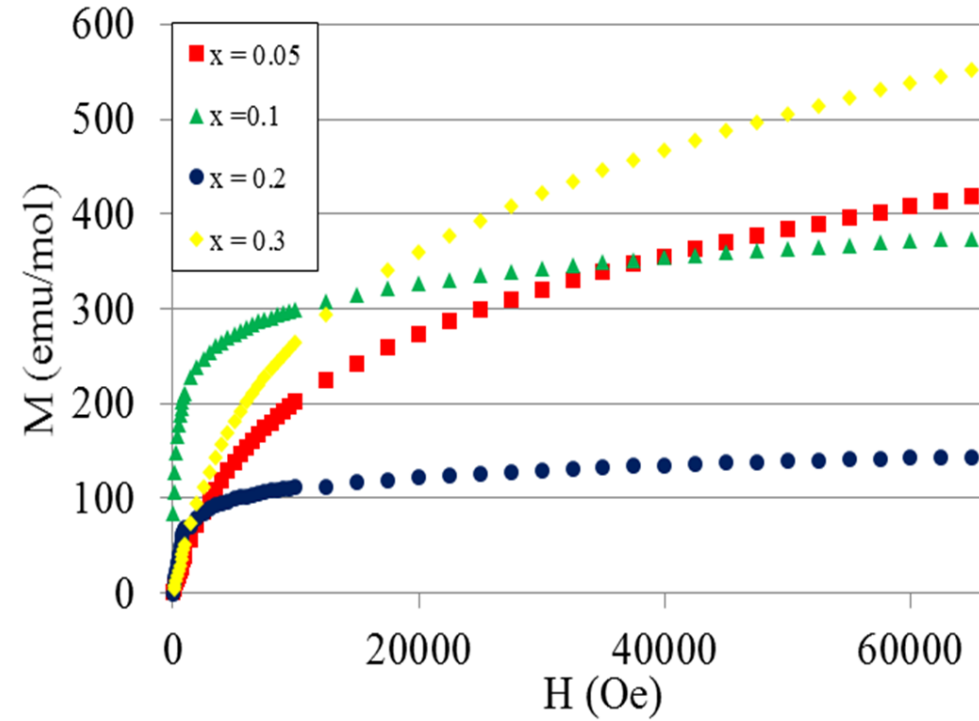


Magnetization

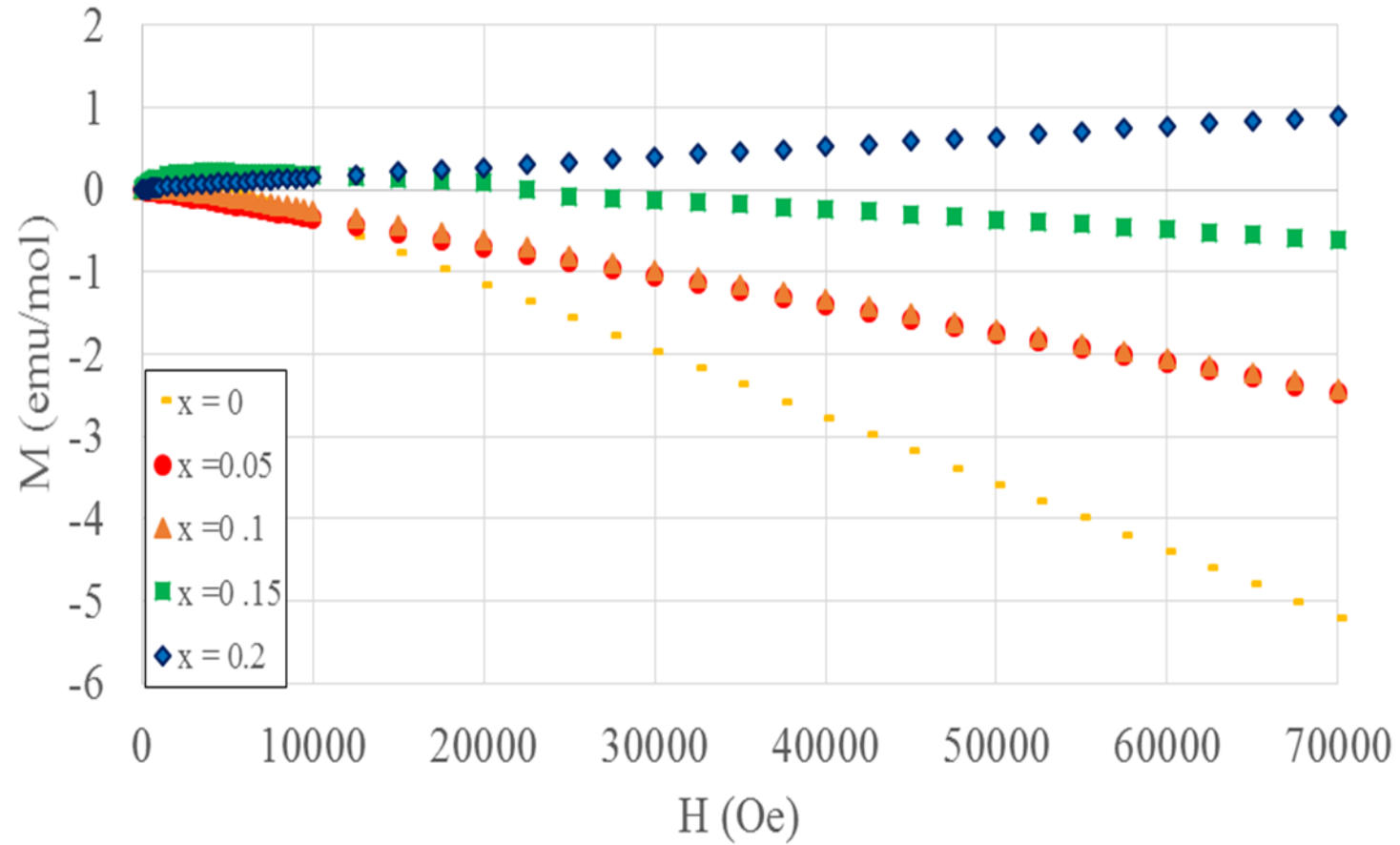
Magnetization $\text{Ru}_{1-x}\text{Rh}_x\text{Ge}$ at 2K



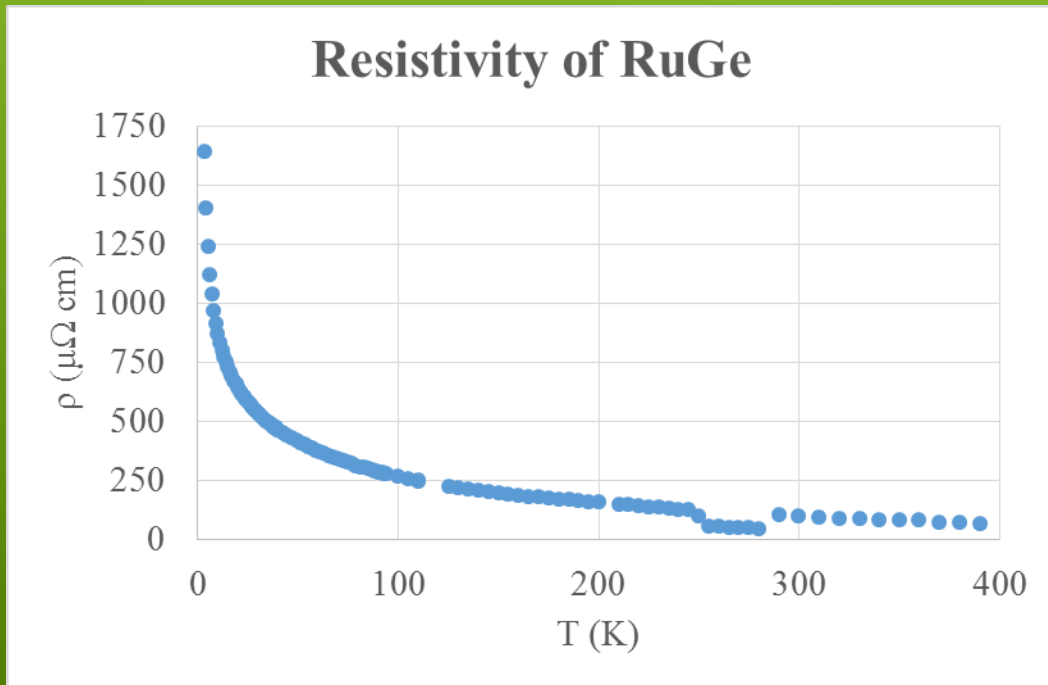
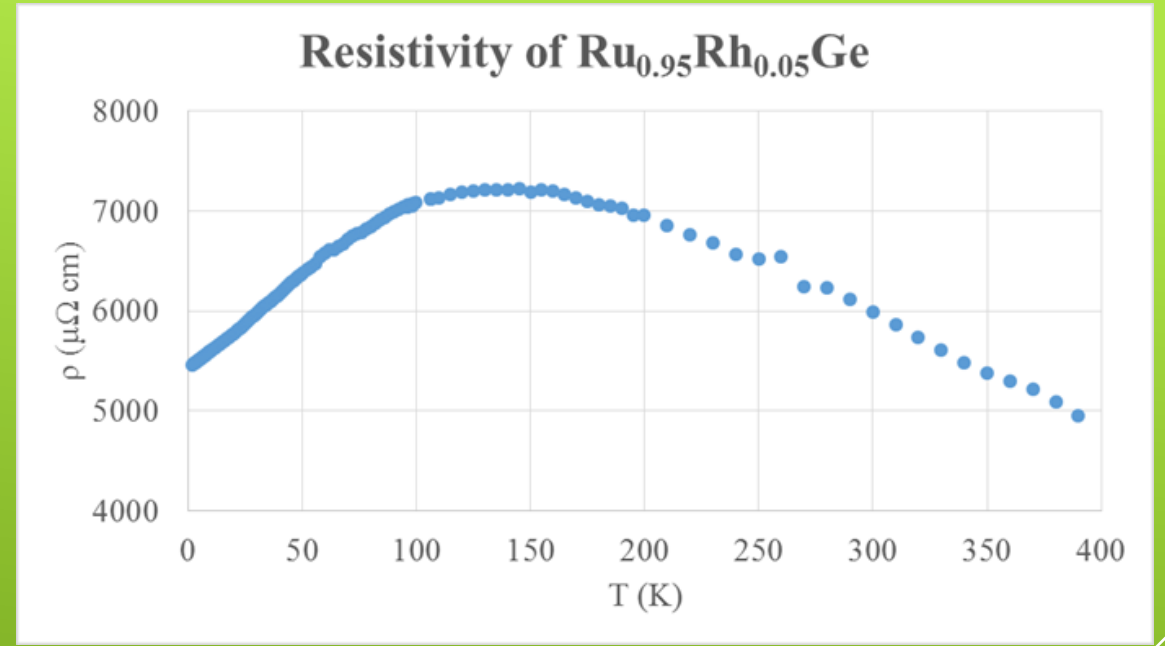
Magnetization of $\text{Ru}_{1-x}\text{Co}_x\text{Ge}$ at 2K



Magnetization of $\text{Ru}_{1-x}\text{Rh}_x\text{Ge}$ at 300K



Resistivity



Thank You

Questions?



References

<http://www.engr.sjsu.edu/rkwok/squid.htm>

<http://jin.chem.wisc.edu/content/spintronics>

<http://www.nature.com/nature/journal/v465/n7300/full/465880a.html>

http://www.geocities.jp/ohba_lab_ob_page/structure6.html

