

Growth of Topological $\text{Bi}_{2-x}\text{Sb}_x\text{Se}_3$ Single Crystals

By Matt Curtis

Single Crystals



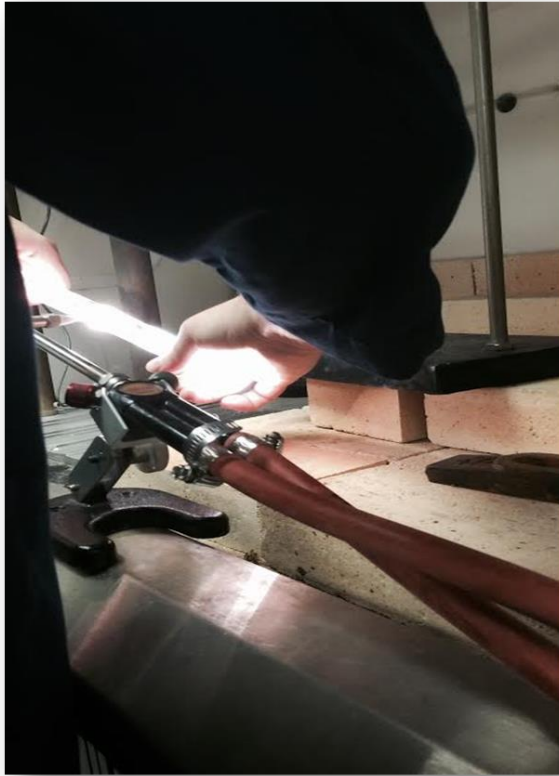
- ▶ Single crystals reflective and have a flat surface (mirror like).
- ▶ Have to grow single crystals because we want to measure the topological properties.

Making the Sample



- ▶ Measure out the samples using stoichiometry
 - ▶ Each sample around 1.5g

Sealing



Sealing

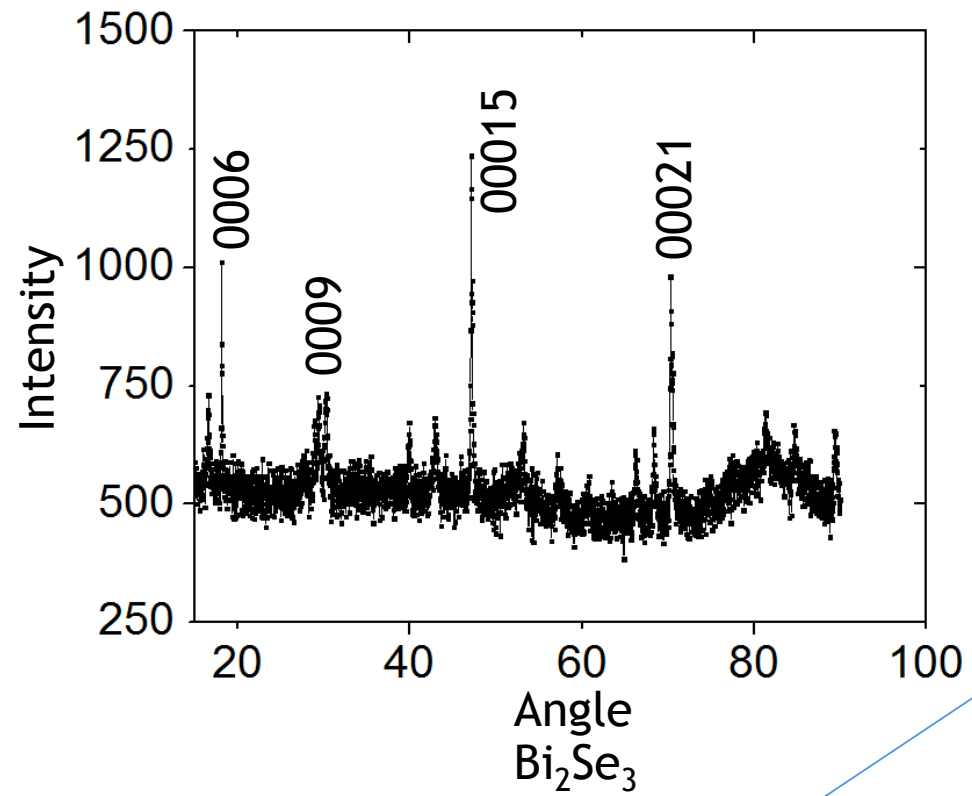
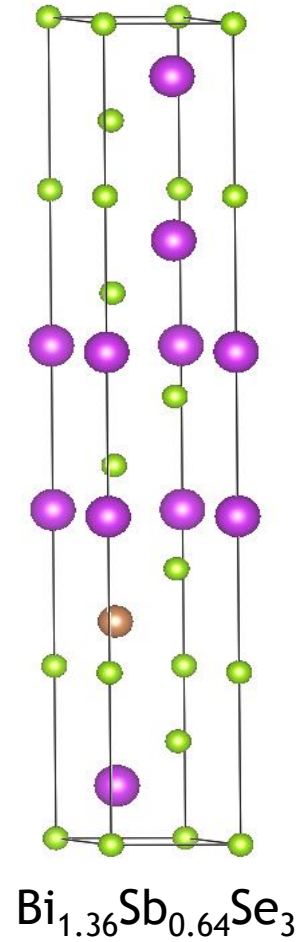
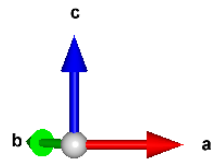
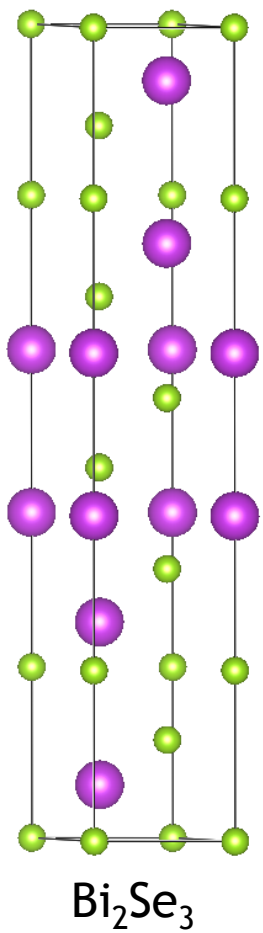


Neck

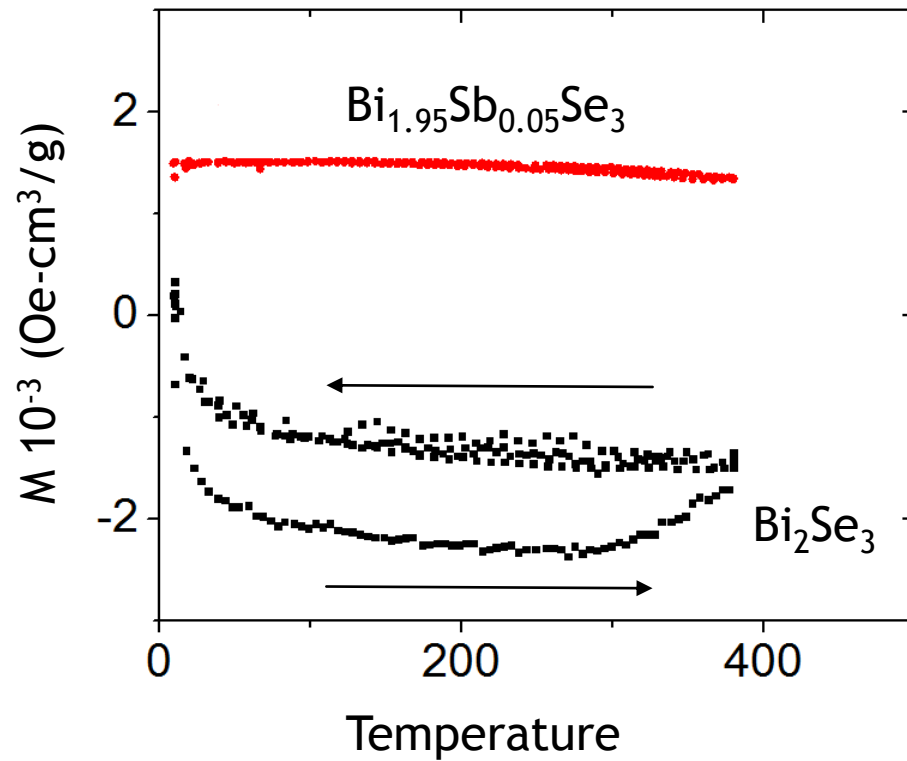
Sealed



- ▶ Prevents oxidation of sample
 - ▶ In a vacuum of 15 mTorr
- ▶ Silica tubes



Magnetic Properties



- ▶ Bi_2Se_3 is diamagnetic
- ▶ $\text{Bi}_{1.95}\text{Sb}_{0.05}\text{Se}_3$ is paramagnetic

Hysteresis

