

Abstract Submitted
for the 4CF17 Meeting of
The American Physical Society

Optical Floating Zone Growth of $\text{Yb}_2\text{Si}_2\text{O}_7$ ANTONY SIKORSKI, HARIKRISNAN S. NAIR, KATE A. ROSS, Colorado State University — We report the successful growth of single crystals of Ytterbium Silicate ($\text{Yb}_2\text{Si}_2\text{O}_7$) using the Optical Floating Zone (OFZ) technique. This compound is a strongly spin orbit coupled Quantum Dimer Magnet, as evidenced by the temperature dependence of its magnetic heat capacity, and may exhibit novel magnetic field induced phases of matter. Large single crystals of $\text{Yb}_2\text{Si}_2\text{O}_7$ are needed in order to study its anisotropic properties via neutron scattering. Typical OFZ-grown crystals of $\text{Yb}_2\text{Si}_2\text{O}_7$ are 0.5 cm x 0.5 cm x 0.3 cm pieces which break off from the as-grown boule. The tendency to form a multi-domain boule suggests an unreported structural transition near the melting temperature, which is consistent with other members of the rare earth $R_2\text{Si}_2\text{O}_7$ series.

Antony Sikorski
Colorado State University

Date submitted: 20 Sep 2017

Electronic form version 1.4