Our recent measurements of the low-temperature specific heat, electrical resistivity, and magnetization of the filled skutterudite compound PrOs$_4$As$_{12}$ reveal that two ordered phases appear at temperatures below ~ 2.3 K and in fields below ~ 3 T. Single-ion Kondo behavior is observed in both specific heat and electrical resistivity, yielding a Kondo temperature of the order of 1 K. Specific heat measurements in zero field indicate an electronic specific heat coefficient $\gamma \approx 200 \text{ mJ/mol-K}^2$, suggesting heavy fermion behavior in this compound [1]. In order to investigate the Fermi surface topology in this compound, we performed angle dependent de Haas-van Alphen effect measurements in PrOs$_4$As$_{12}$ at temperatures $T = 0.5$ K. Single crystals of PrOs$_4$As$_{12}$ were grown via the molten metal flux technique at high temperatures and pressures by Z. Henkie et al. [1]. The de Haas-van Alphen was measured at NHMFL Tallahassee using a torque magnetometer in a $^3$He refrigerator; fields were provided by the 45 T Hybrid and 33 T Bitter magnets.

![Figure 1](image)

**Figure 1.** Fourier transforms of de Haas-van Alphen oscillations of PrOs$_4$As$_{12}$ at temperature $T = 0.5$ K for various field orientations. In (a) $H$ is rotated from [100] to [111]; in (b) $H$ is rotated from [111] toward [011].

The angle dependence of the de Haas-van Alphen oscillations in PrOs$_4$As$_{12}$ at $T = 0.5$ K were measured by rotating the applied magnetic field $H$ from [100] to [011] with respect to a rotation axis [01 $\bar{1}$]. Figure 1 shows Fourier transforms of the torque data. The peaks in the frequency spectra correspond to external cross sections of the Fermi surface; frequencies at ~ 2200 and 3300 T appear through the whole angular range, and the dependence of the 2200 T frequency suggests a nearly spherical Fermi surface, assuming $O_h$ crystalline symmetry. Band structure calculations to simulate these data are under way.

**Acknowledgements**

This research was supported by the U.S. DOE (DE-FG02-04ER46105), the NSF (DMR 0335173), and NNSA under the Stewardship Science Academic Alliances Program through DOE (DE-FG52-03NA00068). LANL is supported by the NSF, the State of FL and the US DOE.

**References**