

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Thin Films of New Fermion Material, Ta₃Sb MAZHAR ALI, MPI-Microstructure Physics, Halle, SEE-HUN YANG, IBM Almaden, JAMES TAYLOR, STUART PARKIN, MPI-Microstructure Physics, Halle — For the past two years, the condensed matter field has been focused on investigating Weyl fermions; one of the original three categories of Fermions predicted over 60 years ago. Recently, Bernevig et al, have shown theoretically that higher order Fermionic excitations can exist, including those coming from 3, 6, and 8 band crossings. Specifically, Ta₃Sb is expected to be an example of a “New Fermion” material, housing 8-fold degenerate fermions near the Fermi level. In order to investigate physical properties related to this phenomenon, we have grown Ta₃Sb thin films via sputtering on a variety of substrates. First results of film quality with textured films ranging from 5 to 50 nm are presented. Crystallinity was controlled via annealing as well as substrate choice. Simple heterostructures using Py and capping layers such as MgO and TaN were also created. Transport and magneto transport results on these films will also be presented.

Mazhar Ali
MPI-Microstructure Physics, Halle

Date submitted: 12 Nov 2016

Electronic form version 1.4