Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

**Transport properties of the topological semi-metal LuPtBi under pressure** FAZEL FALLAH TAFTI, Unviersity of Sherbrooke, TAKENORI FUJII, University of Tokyo, ALXANDRE JUNEAU-FECTEAU, SAMUEL RENE DE COTRET, NICOLAS DOIRON-LEYRAUD, University of Sherbrooke, ATSUSHI ASAMITSU, University of Tokyo, LOUIS TAILLEFER, University of Sherbrooke, UNIVERSITY OF SHERBROOKE TEAM, UNIVERSITY OF TOKYO TEAM — We present high-pressure magneto-transport data on single crystals of LuPtBi, a member of the ternary half-Heusler family. Recent band structure calculations show that LuPtBi is a topological semi-metal at ambient pressure due to strong spin-orbit coupling [1]. By decreasing the lattice parameter, equivalent to increasing pressure, the system should become a trivial insulator We have grown single crystals of LuPtBi and studied both the field dependence and the pressure dependence of their resistivity. The field dependence shows typical semi-metal behaviour, namely a weak temperature dependence and a large magneto-resistance. The pressure dependence shows a significant increase of resistivity and a decrease of magneto-resistance with increasing pressure. We compare our experimental results to the available theoretical work on the transport properties of topological semi-metals [2].

[1] Stanislav Chadov, *et al.* Nature, **9**, 541 (2010)
[2] W. Al-Sawai, et al. PRB, **82**, 125208 (2010)

Fazel Fallah Tafti
University of Sherbrooke

Date submitted: 14 Nov 2012 Electronic form version 1.4