## Abstract Submitted for the MAR14 Meeting of The American Physical Society

Quantum oscillations in a metallic pyrochlore irridate, Bi2Ir2O7<sup>1</sup> AMALIA COLDEA, MATTHEW WATSON, SAMUEL BLAKE, PRAB-HAKARAN DHARMALINGAM, Oxford University, Clarendon Laboratory, UK, ALIX MCCOLLAM, High Magnetic Field Laboratory, Radboud University, Nijmegen — We report quantum oscillations observed in single crystals of Bi2Ir2O7 using torque magnetometry in high magnetic fields up to 33T and low temperatures to 0.3K. Quantum oscillations allow to determine the extremal areas of the Fermi surface perpendicular to the magnetic field, the quasiparticle masses and also the scattering time. Our results are compared with first-principle band structure calculations that take into account the effects of the spin-orbit coupling. We find evidence both for small and large Fermi surfaces and the effective masses are unexpectedly light. The effect of the magnetic field on the electronic structure of Bi2Ir2O7 will be also discussed.

<sup>1</sup>This work was supported by EPSRC (UK) and partly by the EuroMagnet (EU contract number 228043).

Amalia Coldea Oxford University, Clarendon Laboratory, UK

Date submitted: 15 Nov 2013 Electronic form version 1.4