**Atomic and Laser Physics Seminar**

**Monday, 4 March**

**11.30**

**Audrey Wood Seminar Room**

**Dr Hugo Doyle**

**Department of Physics**

***Laboratory laser-driven methods for modeling astrophysical phenomena***

The long time scales and difficulty in fully characterising astrophysical phenomena have resulted in several discrepancies and inherent limits to theoretical predictions. This, along with the rapid development of high power lasers, gave rise in the nineties to the advent of laboratory astrophysics studies.

I will give a brief introduction to the dimensionless conditions required for scaling from the millimeter, nanosecond scale plasmas to those observed in the galactic medium. Concentrating on studies of astrophysical jets, radiative shocks and instabilities I will describe three common experimental platforms for the study of these - laser interactions with foils, clusters and shock tube experiments. Through the comparison of experiments I have participated in with the Gregori HEDP group and others I plan to convey the merits and disadvantages of these different platforms for achieving astrophysically relevant regimes.