

## UROP Studentships for the Extreme Physics Laboratory (pulsed power)

**Open to: All years**

**How many: 2 students required**

**Length: 8-10 weeks**

**Bursary: £300/week**

**Closing date for application: Weds 13<sup>th</sup> February**

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### Description

We are seeking 2 UROP students to help with new experiments and diagnostics development in the extreme physics laboratory. Working with researchers on the MACH (Mega-Ampere Compression and Hydrodynamics) facility we will be exploring new methods to generate very high velocities in the laboratory to create multi-Mbar pressure conditions. A lot of the work will likely revolve around building, testing and optimising a new pulsed power X-pinch generator we hope to use to provide X-ray radiography and absorption spectrometry of experiments ran on MACH.

We require 2 students with excellent practical skills who are not afraid to get their hands dirty. You need to be happy with electronics, oscilloscopes etc - some experience of DIY/model building etc would be a big plus. Most importantly you should be able to think around problems and are happy with a combination of lots of experimental work with some analysis and simulation.

Further reading:

- <https://www.imperial.ac.uk/plasma-physics/research/extreme/>
- Shelkovenko TA, Pikuz SA, TiliKin IN, Bland SN, Lall D, Chaturvedi N, Georgakis A, 2018, X-pinch X-ray emission on a portable low-current, fast rise-time generator, *JOURNAL OF APPLIED PHYSICS*, Vol: 124, ISSN: 0021-8979
- Torchio R, Ocelli F, Mathon O, Sollier A, Lescoute E, Videau L, Vinci T, Benuzzi-Mounaix A, Headspith J, Helsby W, Bland S, Eakins D, Chapman D, Pascarelli S, Loubeyre P, 2016, Probing local and electronic structure in Warm Dense Matter: single pulse synchrotron x-ray absorption spectroscopy on shocked Fe, *SCIENTIFIC REPORTS*, Vol: 6, ISSN: 2045-2322