**PhD position in Physics at Warwick University - The explosion environments and host galaxies of supernovae**

Dr Joe Lyman

**Overview**

We invite applications from outstanding and highly motivated students for the Warwick Prize Scholarships in Astrophysics. The successful applicant will work with [Dr Joe Lyman](https://warwick.ac.uk/fac/sci/physics/research/astro/people/lyman/phd2023/) within the [Astronomy and Astrophysics group](https://warwick.ac.uk/fac/sci/physics/research/astro/) in the Department of Physics at the University of Warwick.

**This project will study spectroscopic, photometric and morphological properties of supernova explosion sites in order to constrain the nature of their exploding progenitor stars.**

Supernovae have shaped the Universe around us. They are the luminous explosions marking the end of stars and inject significant amount of heavy elements and kinetic energy into their surroundings. The heavy elements released form the basis of the next generation of stars and planets (and ultimately life), whilst the kinetic energy regulates and shapes the dynamical evolution of galaxies.

Despite their importance, we still do not have a robust understanding of how the nature of the progenitor stars produce the wide diversity of supernovae we are discovering. A deeper knowledge of this supernova-progenitor connection is needed for a full understanding of stellar evolution, and to exploit supernovae as cosmic beacons in the Universe. This project will probe the supernova-progenitor connection by studying the local stellar populations surrounding historical supernovae using exquisite imaging and spectroscopy of their explosion environments. We will use the local stellar population as a proxy to help us understand the nature of the progenitor itself.

Warwick is an internationally recognised centre of research excellence. Our group takes leading roles in many major ground and space-based projects, including the Gravitational-wave Optical Transient Observer (GOTO), Next Generation Transit Survey (NGTS), PLAnetary Transits and Oscillations of stars (PLATO) telescope, Sloan Digital Sky Survey (SDSS), WHT Enhanced Area Velocity Explorer (WEAVE) spectrograph, 4-metre Multi-Object Spectrograph Telescope (4MOST), and Dark Energy Spectroscopic Instrument (DESI).

The Astronomy & Astrophysics group is part of the Physics Department at Warwick; both the department and the university hold Athena SWAN Silver awards, a national initiative to promote gender equality for all staff and students. The Physics Department is also a Juno Champion, which is an award from the Institute of Physics to recognise our efforts to address the under-representation of women in university physics and to encourage better practice for all. The Astronomy & Astrophysics group also hosts monthly [equitea](https://warwick.ac.uk/fac/sci/physics/research/astro/seminars/equitea/) forums to break down barriers faced by all under-represented groups in science.

More details on PhD positions with the Astronomy and Astrophysics group at Warwick are available [here.](https://warwick.ac.uk/fac/sci/physics/research/astro/postgraduate_phd/)

Start Date: October 2023

Funding Duration: 3.5-4.0 years

Applications due by: 10 January 2023

**Eligibility**

You must have or expect a First or Upper second class MSci, MPhys or equivalent degree in Physics or a closely related discipline. Holders of BSc honours degrees are eligible but successful BSc applicants typically have substantial additional research experience. International equivalents are detailed [here](https://warwick.ac.uk/study/international/admissions/entry-requirements/).

For students whose first language is not English, we normally require a score of 6.5 in IELTS or equivalent. If your previous degree was taught in an English-speaking country this requirement may be waived.

The award is available to home and international applicants.

**How To Apply**

You must apply through the [University’s online application system](https://warwick.ac.uk/study/postgraduate/apply/research/) and follow the instructions. Use course code P-F3P0. Make sure to state an interest in the Astronomy and Astrophysics group. Please state ‘Warwick Prize Scholarships’ as the funding option. We encourage applicants to express interest in more than one [available PhD project.](https://warwick.ac.uk/fac/sci/physics/research/astro/postgraduate_phd/)

**Funding Notes**

The project will provide a full UK-standard annual tax-free stipend of £18,200, rising with inflation, plus allocations for travel and computing.