FOLLOWING GOODRICKE AND CHASING THE DEMON STAR

As part of the first year laboratory, a mini-project is run which involves working in a group to investigate an open-ended problem. For the Astrophysics students they are introduced to the skills and challenges of observing and the process of astronomical data reduction and analysis.

Algol, or Beta Persei, is an eclipsing binary star in the constellation of Perseus. It is part of a three-star system where one of the stars regularly passes in front of one of the others causing a drop in brightness. This star is known colloquially as The Demon Star and is the eye of Medusa in the constellation Perseus. The period of the eclipse was first measured by John Goodricke, observing from what is now Treasurer's House in York in the 1780s. He published a report on the star and suggested the mechanism for the brightness variations to the Royal Society, work that earned him the Copley Medal. Goodricke died only three years later, aged 21.

The goal of the student project is to observe and measure these changes in brightness, repeating

An eclipsing binary is a pair of stars where one blocks the light from the other when they align.
Image credit: ESO/L. Calçada

The new 16" Meade telescope and Paramount mount lets students and the public see even deeper into the night sky.

Goodricke's famous observations with modern telescopes and equipment.

Astrophysics undergraduate students are trained to use the Astrocampus and the main telescopes in their first weeks at the University. From this point they have independent access to the site for their academic work or for personal enjoyment. The University astronomy society, Astrosoc, regularly organise observing sessions for their members.

For the first-year students two telescopes are used to make observations of Algol.

The flagship telescope of the Astrocampus is a brand new 16 inch Meade reflector with a Paramount MEII mount (installed December 2015). This state-of-the-art instrument has only recently been commissioned but is already enjoying fantastic views of the night sky, whilst remaining relatively easy to use for novice astronomers with full computer controls. It is housed in the main dome on Astrocampus.

In addition an 8" lightswitch telescope (as easy to use as turning on a light) is available. This is a portable instrument that automatically uses an in-built GPS, compass and levels to orient itself in the sky. It is a great introductory instrument for budding astronomers.

Dr. Emily Brunsden
Year 1 Astro Lab Supervisor

EVENTS

January	8	Stargazing Live at St Peters
	14	Astrocampus Opening
	20	5 Planet alignment (to Feb 20)
	28	Astrocampus Opening
	30	Physics at 50 Event
February	11	Astrocampus Opening
	25	Astrocampus Opening
March	10-20	British Science Week

For details on our open nights and to make a booking, please go to www.astrocampus.org.uk.

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ASTRONEWS

ASTRO CAMPUS

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WRITTEN IN THE STARS!

The planets are aligned this winter (see SKY WATCH inside) and at the same time, in January, we welcome back alumni for the Physics at 50 celebration.

The Department of Physics, and indeed astronomy itself, has changed significantly over the last 50 years. In 1965 we had barely heard of dark matter and dark energy; and inflation in the Universe, string theory and pulsars were unknown to us. Despite intense and fruitful development of theory and observations of these phenomena they are still quite mysterious.

50 years ago the cosmic microwave background was new and unexplored, we had never visited the Moon (or indeed any other planets) or discovered the cosmic origin (a giant asteroid) of the dinosaur extinction.

In 2006 we ditched Pluto from being a planet (but made it the most important dwarf planet). Hence we have gone from 9 known planets in 1965, to more than 1000 discovered in our galaxy to date. The search for an Earth-twin continues with developments in instrument technology and analysis techniques making this one of the cutting edges of astrophysics.

So where are we going now? What will the discoveries of the next 50 years bring? Speculation and preliminary plans from both NASA and ESA suggest humans are likely to return to the Moon and, eventually, Mars.

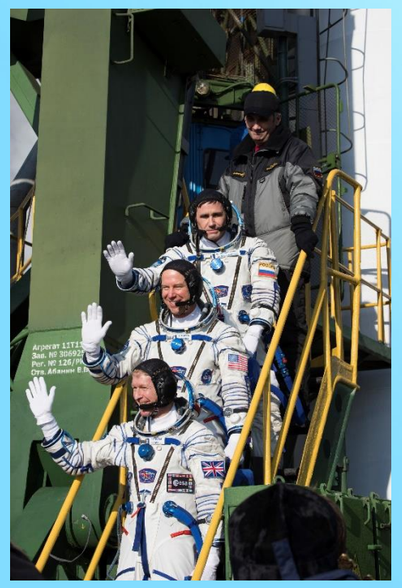
New telescopes are planned all over the world, including optical telescopes with mirrors 20m and more in size (for reference the largest currently is 11m). These new instruments will allow us to gain deeper insights than ever before, and whilst we are never sure exactly what they will discover, I think the past has taught us it will challenge our current understanding of the Universe, and raise even more questions!

Do you have questions of your own? The Astrocampus hosts twice-monthly openings for the public. Come and ask us anything - whilst we might not have all the answers we just love discussing astrophysics with everyone! See www.astrocampus.org.uk for full details and free tickets.

Best Wishes and Clear Skies!

Dr. Emily Brunsden
Director of Astrocampus

OUTREACH UPDATE



15th December 2015 was a momentous occasion here in the UK: British Astronaut, Tim Peake, was launched to the International Space Station (ISS). Coverage on the BBC Stargazing Live Special was fantastic and remains on iPlayer until the middle of January, so check it out if you missed the big event. Here in York, over 600 school students and members of the public got involved in activities to celebrate the big day, and had the opportunity to ask questions of European Astronaut Trainer, Gerhard Gritner. The atmosphere was electric as 200 children from local primary schools all joined in the countdown. And the fun's not over yet...Tim will be on the ISS for the next six months and there will be lots more to see and get involved with. Why not sign up to receive alerts when the ISS passes overhead at http://spotthestation.nasa.gov/ Look out for a bright dot moving quickly across the sky. Or find out more about the mission and how you can get involved at https://principia.org.uk/.

Katherine Leech
Outreach Officer

Images: ESA–Stephane Corvaja, 2015