



A long exposure of the sky at Astrocampus shows the Milky Way through the centre of the image. The blue cluster is the Pleiades star cluster and the 14" telescope dome can be seen in the top left corner.



Even longer exposures show trails of stars as Earth rotates. Polaris, the pole star remains stationary. Moonlight and airglow on the horizon brighten the sky.

## THE SKY IS FALLING

If you are taking a BSc Physics degree at York, then in your third year you embark on a Final Year Project, which forms a large part of your assessment for that year and your degree as a whole. Our project uses some of the amazing equipment available to us at the Astrocampus. We are studying meteors, or 'shooting stars'. These are basically space rocks that hit the atmosphere and begin to heat up like a space capsule during re-entry. We aim to analyse what they're made of and where they come from. We do this by photography. At certain times of year, meteors come down in showers. By observing these showers, we aim to acquire many images of separate meteors, use software to stack them all into one picture against the same night sky, and then use mathematics to determine if they all seem to originate from the same point in space. In theory, they do. In fact meteor showers are named after the constellation which they appear to stem from. For example, the Orionid Shower appears to come from the constellation Orion, the Geminids appear to come from the constellation Gemini and so on.

Pictures are taken using a camera that is trusted throughout the scientific community with this kind of photography. Next, a special kind of lens is attached to the camera that allows us to see a huge proportion of the night sky at the same time. This fisheye lens is key to increase our chances of actually capturing a meteor. To aid our efficiency, we can attach a timer remote control (also known as an intervalometer) to the camera. We can then set the camera to take a huge number of photographs at an exposure of our choice without us having to touch another button. If the pictures are good enough to see the colour of any captured meteors, this will give us a clue as to what the meteors are made of. We are really excited about the Geminid shower, as this could be the largest shower for a decade and is our best chance of gathering data. Meteors in general are a spectacular sight to behold, so do keep your eyes wide open!

**Hugo Graham, Charly Davis and Alastair Nutter**  
Year 3 BSc Students

## NEW YEAR, OLD SKY

The first months of the year are a busy time for the Astrocampus. The early darkness provides a perfect opportunity to get outside and start looking up. The winter sky is the most familiar to most of us with old favorites Orion, Taurus and Jupiter high in the sky. Check out our inside spread and boost your star spotting skills.

January used to be the month famous for Stargazing Live celebrations. Although the television event has this year moved to March to coincide with British Science week (and the 1<sup>st</sup> Birthday of Astrocampus!), St Peters School will still host its famous astronomy evening on 9th January. Professor Ian Morison will be giving a guest lecture "Are we Alone: the Search for life beyond the Earth". We will be there helping out with stalls and the Cosmodome inflatable planetarium running shows.

Our weekly Thursday openings will resume on 15<sup>th</sup>

January and continue until the end of February. The programs change regularly and this quarter many evenings will focus on our brand new meteorite. Booking is free at [yorkastronight.eventbrite.co.uk](http://yorkastronight.eventbrite.co.uk).

Looking further ahead, we are excited to announce in June we will be hosting the Science and Technology Facilities Council's 'Seeing the Universe in all its light' roadshow. This is a travelling exhibition of telescope models and activities that we will add to with our own events as part of a five day astronomy extravaganza. This will form part of the University's Festival of Ideas. As part of this we expect to launch an astrophotography competition in January so start thinking about pointing your cameras skywards!



Best Wishes and Clear Skies!

**Dr. Emily Brunsten**  
Director of Astrocampus

## UPDATE

With our weekly openings now well underway, we're delighted to be adding some new and exciting hands-on activities to the evening events. Why not have a go at handling a meteorite? These fall to Earth from Space as shooting stars, and we estimate that ours landed on Earth about 4000-6000 years ago. However, that's not the most amazing thing about it...this meteorite is about 4,600,000,000 years old! It was formed when the Solar System was still being formed, and will almost certainly be the oldest thing you ever hold!

Or have a go at using our infrared camera. Instead of seeing light, this 'sees' heat. These cameras are really useful on space telescopes because they allow us to see through the vast amounts of dust that floats round in space. Here on Earth, we can show this by looking straight through black sacks!

All of these fantastic activities are part of the 'Explore Your Universe: Atoms to Astrophysics' project. You can check out <http://www.exploreyouruniverse.org/> for more information.



Above: Handle an object from space: this meteorite is 4.6 billion years old!

Below: Why not take a 'selfie' home with you...but using infrared instead of visible light!



EVENTS		
January	15	Astrocampus Opening
	22	Astrocampus Opening
	29	Astrocampus Opening
February	5	Astrocampus Opening
	12	Astrocampus Opening
	12	Children's University Lecture
	19	Astrocampus Opening
	26	Astrocampus Opening

For details on our open nights and to make a booking, please go to [www.astrocampus.org.uk](http://www.astrocampus.org.uk)

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