

Federation of Astronomical Societies



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Newsletter

www.fedastro.org.uk

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Note: The FAS Council Reserves the Right to publish articles, events and reports submitted to the FAS Newsletter

President's Spot: Dr Paul A. Daniels FRAS



Well, what a lot of work – but it all went wonderfully!

I'm sure many of you know the 80:20 rule that 20% of a project takes 80% of the time and the FAS' international webinar, *The Challenge of Megaconstellations*, held on 7th and 8th May 2022, was no exception (although sometimes it felt more like 95:5!).

The draft programme structure was decided (tick), the initial set of potential speakers were contacted (tick) and the replies from many of them came back reasonably promptly (some yes, some no) and I started to fill in the programme (tick).

If I didn't get a prompt reply the first big question was "How long do I wait before sending a gentle reminder?" (a calculation complicated by the range of time zones); too soon would be rude and too long a waste of time and, if the speaker has lost my email off the bottom of their Inbox, it gives the hoped-for speaker more time to put something else in their diary. Of course, the next question is "How long before I give up and invite another speaker for the slot?".

On top of all those ponderables – I had email problems! I discovered that some speakers either weren't getting my emails (or they did but I wasn't getting their replies). One potential speaker who'd received several emails from me (including *via* his PA) eventually *telephoned* me to say he couldn't give a talk. I'd begun to wonder whether I'd been blacklisted by the FAS' email service provider but then I hadn't sent out any emails with dozens of recipients which is a sure-fire way to be blacklisted as a potential spammer. I had to resort to sending some of my emails out *via* one of my other accounts and then try to recall which accounts worked for which speakers.

In the end the email delays caused some confusion that meant that, at two days' notice, I had to prepare a talk for one of the slots. Very many thanks also go to Dr Olivier Hainaut (ESO) and Dr Jeremy Tregloan-Reed (Universities of Antofagasta and Atacama, Chile) for stepping in to each give two talks.

In the end, with some excellent support from our FAS Webmaster, Martin Baker, the two days went smoothly and, after 6 hours video editing, 17 hours rendering and 6 hours uploading, the videos of the two days are now on [the FAS YouTube page](https://www.youtube.com/channel/UCnmaTudqws9k7Gr_WhUzw/videos). At the time of writing (18th May, just one week after the uploads) there were a combined 288 views.

As a consequence of the additional work organising that webinar, we've taken the decision to delay the *ProAm Astronomy* webinar to allow more time to organise it properly. Originally scheduled for 28th May it's now been pushed back to 16th July – look out nearer the time for an email from us giving details.

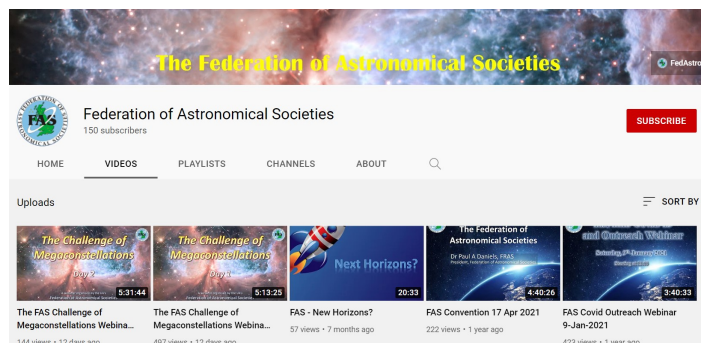
Stay safe and clear skies

18th May 2022

Paul

For those who have printed this newsletter, the FAS YouTube page is at:

https://www.youtube.com/channel/UCnmaTudqws9k7Gr_WhUzw/videos



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First UK satellite launch in summer 2022

As part of a three-year mission two satellites will operate close to Earth experimenting and test imaging and interoperability.

The first satellite launch from the UK will take place this summer as Prometheus-2 takes off from Spaceport Cornwall in Newquay, the Defence Procurement Minister, Jeremy Quin announced on 10th May.

Built by In-Space Missions Ltd, based in Hampshire, and designed with Airbus Defence and Space, Prometheus-2 is a collaboration between the UK Ministry of Defence and international partners, including the US National Reconnaissance Office (NRO).

Two shoebox-sized satellites, 'Cubesats', will provide a test platform for monitoring radio signals including GPS and sophisticated imaging, paving the way for a more collaborative and connected space communication system with our allies.

This space mission will allow MOD to better understand how the UK and its international partners can work together to create a more capable and flexible system at a lower cost than could be achieved alone. The technology on board the satellites will enable MOD to identify new techniques and algorithms for operating satellites and data processing.

The Cubesats will be carried on Virgin Orbit's Launcher One rocket which takes off horizontally from a modified Boeing 747 jet (see below), named Cosmic Girl. They will operate in low Earth Orbit, around 550km above the Earth and 50-100km apart at 17,000mph.

Image Below: Virgin Orbit's carrier aircraft Cosmic Girl takes off from Mojave Air and Space Port in California with LauncherOne underwing for the company's Tubular Bells: Part One mission. June 30th, 2021.

Cubesat 1 – includes a hyperspectral imager, a laser detector and a GPS receiver. The hyperspectral imager will capture multiple slivers of pictures over different wavelengths of light for higher definition images. The GPS receiver confirms the precise time and position of the satellite over the area of the Earth to be photographed.

Cubesat 2 – includes two optical imaging cameras, a laser range finder, and a GPS receiver. One camera will be fitted with a wide-angle lens for a 180-degree view of Earth's surface with the second camera observing the other Cubesat 1 to support space situational awareness and enables us to understand what else orbits the Earth.

These satellites will support MOD's science and technology activities both in orbit and on the ground, through continued development of the Defence Science and Technology Laboratories (DSTL) Hermes ground-station based in Portsmouth, and enabling improved coordination and collaboration with our international partners.

UK Space Agency

gov.uk/government/organisations/uk-space-agency

For details about the Hermes Ground Station visit:

forces.net/news/inside-hermes-ground-station-communicating-space

Credit: Virgin Orbit. virginorbit.com



Hampshire girl wins Blue Peter Competition to design satellite logo for first UK launch

A 12-year-old from Hampshire has been named the winner of Blue Peter's Awesome Orbit competition to design an emblem that will go on one of the first satellites to launch from the UK this summer.

Bethany Turner, from Alresford, appeared live on Friday's (20th May) episode of Blue Peter, joining the presenters in the studio as her 'Earth Sitter' emblem was named the winner. Bethany wants satellites to help in measuring the melting of the polar ice caps and monitoring deforestation, to discover when trees have been felled and where new seedlings need to be planted to prevent global warming.

The programme also featured 2nd place runner up Adam, aged 13 from Lancashire, who designed "The Ace of Space" that could be used to help repair broken satellites, and 3rd place runner up, Ava, aged 7 from Pembrokeshire, whose ecologically focused design "Where Bees Belong" could help search for land that needs more flowers for bees. Adam and Ava will have their names engraved on the satellite, along with 27 runners up.

British ESA astronaut Tim Peake launched the competition, which was supported by the UK Space Agency, in October 2021 to give young people across the UK the opportunity to design an emblem and come up with ideas for how satellites could be used to help people in the future.

Bethany said: It felt amazing when I found out I had won, I was so shocked I couldn't believe it. For my design I thought if we could scan the Earth with satellites it could tell people when there's illegal deforestation and they could go and plant trees. It could also scan the polar icecaps so people can see when they're melting and try to prevent it.

I've been interested in space for quite a long time and I really enjoy it. I get most of my information from books from the library or books I've bought and I definitely want to learn more. I'd definitely be interested in working in the space sector in the future.

As part of Bethany's prize, she spent a day with Steve Neaves, Creative Director at Hampshire-based branding and design studio Crux. Steve and his team had worked on Bethany's original drawing to help create the final emblem that will blast into space. They explained how her design had been redrawn and digitised to enable it to be engraved onto the plaque that will be fixed to the satellite.

Ian Annett, Deputy CEO at the UK Space Agency, said:

We all use space every day, from watching satellite broadcasts, using a mobile phone, to finding our way around. Data from satellites in space is even used for monitoring the environment and understanding climate change and it's a big part of new technologies like supporting driverless cars through better connectivity.

From missions to Mars, to understanding climate change or launching satellites, all this great work relies on more young people joining the space sector in roles such as engineering, law, science and philosophy and the UK Space Agency is working to inspire future generations to consider a career in the space sector. It's fantastic to see so many people take part in this wonderful competition and our huge congratulations go to Bethany, Adam, Ava and all the runners up.

ESA astronaut Matthias Maurer congratulated Bethany with a message from the International Space Station, saying:

I heard the brilliant news about you winning the Blue Peter space competition and I thought 'where could be the best place to congratulate you from, but here in space'. I am currently on my own mission, and I have brought along the Blue Peter badge for the ride!

Bethany's emblem will be engraved onto a satellite that will be sent into orbit on the first launch from UK soil from Spaceport Cornwall this summer. As part of her winner's experience, Bethany will also win a Blue Peter Orange Competition winners' badge, take control of a Mars Rover at Airbus in Stevenage, experience a trip in a driverless car supported by satellites and get to see behind the scenes at satellite testing facilities at Harwell Space Cluster, in Oxfordshire.

The satellite is a collaboration between the UK's Defence Science and Technology Laboratory, and Airbus Defence and Space, and designed and built by In-Space Missions in Alton, Hampshire.

UK Space Agency

gov.uk/government/organisations/uk-space-agency



UK company reveals micro-launcher rocket

The UK Space Agency has welcomed news that the British rocket company Orbex has unveiled the first full-scale prototype of its Prime orbital space rocket.

Orbex's Prime rocket reaching technical readiness represents a significant achievement that brings together key elements of the ground infrastructure and prototype launch vehicle for the first time and is a major step forward for the company and for the UK launch industry.

Full Story at UK Space Agency

<https://www.gov.uk/government/news/uk-company-reveals-micro-launcher-rocket>

Letter to Astronomical Societies regarding Dark Sky Camps

Orpington Astronomical Society has for many years travelled to campsites for darker skies than we have in SE London. We organise these around a new moon.

We have found these camps not only to be excellent opportunities for darker sky imaging and observation but good social events as well. Members learn from and help each other.

We visit places in East Sussex and Kent. We do this about 3 times per year – spring, late summer, and autumn - whilst trying to fit around the Kelling Heath star parties.

Unfortunately, over the years the number of our members attending has dropped off. This has been for a variety of reasons, but often due to having moved away to darker skies.

We wondered whether any of your members might be interested in joining us. This involves camping in a tent, campervan, or caravan. There is sometimes the possibility of securing a glamping pod at some of the sites. However, they are very much in demand by non-astronomers. Of course, there is always the risk of cloudy skies, but if we don't book in advance, we can't always get spaces.

Astro camps (which we call Deep Sky Camps) are open to both observers and imagers. Indeed, it is often useful to have an observer on the field who doesn't have a camera and is prepared to let the occasional member of the public have a peek.

Our only rule is that extraneous white light must be switched off or covered at night when astronomy takes place. Obviously, we cannot ask this of other members of the public at the site, but white light tends to disappear when they go to bed. In any case, we generally find members of the public are quite interested in what we are doing and readily respond to requests to switch off lights (such as caravan porch lights) when they go to bed.

Interested members simply pay for their own pitch. We always choose campsites that have electric hook ups, although you need to bring your own Residual Current Device (RCD) protected hook-up if you want to use one.

If any of your members are interested in joining us, please ask them to write to enquiries@orpington-astronomy.org.uk with their contact details and the message **DSC enquiry** for a response from our DSC organiser.

Andrew Ramsay
Chair, Orpington Astronomical Society
<http://www.orpington-astronomy.org.uk/>



Nottingham Astronomical Society BAA One Day Meeting: 'Cosmology, Galaxies & Exo-planets'

Saturday 25th June 2022

Venue: the Maths and Physics Building, University of Nottingham,
University Park, Nottingham, NG7 2RD

Doors Open at 10:00 and the meeting will finish at approx. 18:00

Closing date for booking your place is 22nd June 2022

For more details including price and to book your tickets visit:

<https://baa-nottingham-2022.eventbrite.co.uk>

For more details and the BAA flyer see the FAS blog at

<https://fedastro.org.uk/fas/baa-one-day-meeting-25th-june/>

Nottingham Astronomical Society website: <https://nottinghamastro.org.uk/>

FAS Convention

Saturday 12th November 2022

Save the Date - and a request!

The 2022 FAS Convention will take place on
Saturday 12 November

The theme is “**Women In Astronomy**” and we are delighted to have
Dame Jocelyn Bell Burnell as our keynote speaker.

As she is based in Oxford, that's where the event will be held. We have not yet chosen a venue, and we would like your help. Oxford has various potential venues - at various prices. In order to select the most appropriate it would be very useful to have an idea of how many people might be attending.

We would therefore be very grateful if you would let us know if you would like to come along. We are looking to arrange a ticket price of about £20, to include lunch.

The plan is that **this will only be an in-person event**; it will be recorded but will not be live-streamed. If you want to see it live - you will need to be there!

Please write to meetings@fedastro.org.uk by the end of June. This is just to gauge interest - it does not commit you to attending, nor reserve a place.

Thank you.

UK National Astronomy Meeting



The University of Warwick, 11th - 15th July 2022

The [Royal Astronomical Society](https://www.royalastro.org/) is proud to present the next National Astronomy Meeting, NAM 2022, to be hosted by the [University of Warwick](https://www.warwick.ac.uk/) from **Monday 11th July to Friday 15th July, 2022**.

In addition to the UK's astronomy community, the meeting includes the UK Solar Physics (UKSP), and the Magnetosphere Ionosphere and Solar-Terrestrial (MIST) communities.

Abstract submission for the UK National Astronomy Meeting 2022 is now open – please see the following website for details
<https://nam2022.org/science/abstract-submission>

We welcome abstracts from all members of the community who wish to contribute to one of the many parallel sessions at the conference. A [full list of the sessions](https://nam2022.org/science/abstract-submission) is available on the NAM2022 website. We welcome abstracts for both in-person and remote presentation (in keeping with the hybrid nature of our conference). The deadline for abstracts is 23:59 on Thursday 14th April 2022. Late abstracts will not be accepted.

For more information about the conference, please see <https://nam2022.org/>. If you have further questions, please [contact the LOC](mailto:contact@nam2022.org).

Many thanks,

The NAM2022 LOC

'Spot the difference' to help reveal Rosetta image secrets

The European Space Agency (ESA) has launched a citizen science effort for the Rosetta mission.

ESA and the [Zooniverse](#) have launched [Rosetta Zoo](#), a citizen science project that invites volunteers to engage in a cosmic game of 'spot the difference'. By browsing through pictures collected by ESA's [Rosetta](#) mission, you can help scientists figure out how a comet's surface evolves as it swings around the Sun.

The Rosetta archive contains a huge number of images that have only been partially explored. Lots of eyes are needed to sift through them – given the complexity of the imagery, the human eye is better at detecting small changes than automated algorithms are.

Rosetta Zoo presents pairs of images collected by Rosetta's [OSIRIS](#) camera showing Comet 67P's surface as it approached and moved away from the Sun. Volunteers are invited to view images of roughly the same region side by side and identify a variety of changes, from large-scale dust transport to comet chunks that moved or even vanished. Sometimes this may require zooming in or out a few times, or rotating the images to spot changes on different scales, getting up close and personal with the iconic comet.

Thanks to the visual inspection of many volunteers, the project will produce maps of changes and active areas on the comet's surface, with labels for each type of change.

Scientists will then be able to associate the activity of the comet with modifications on its surface, developing new models to link the physics of comet activity to observed changes such as lifted boulders or collapsed cliffs.

Anybody can use Rosetta Zoo online for free, without needing to sign up, install an app or programme, or have any previous scientific experience.

A direct link to the Project: <https://www.zooniverse.org/projects/ellenij/rosetta-zoo>

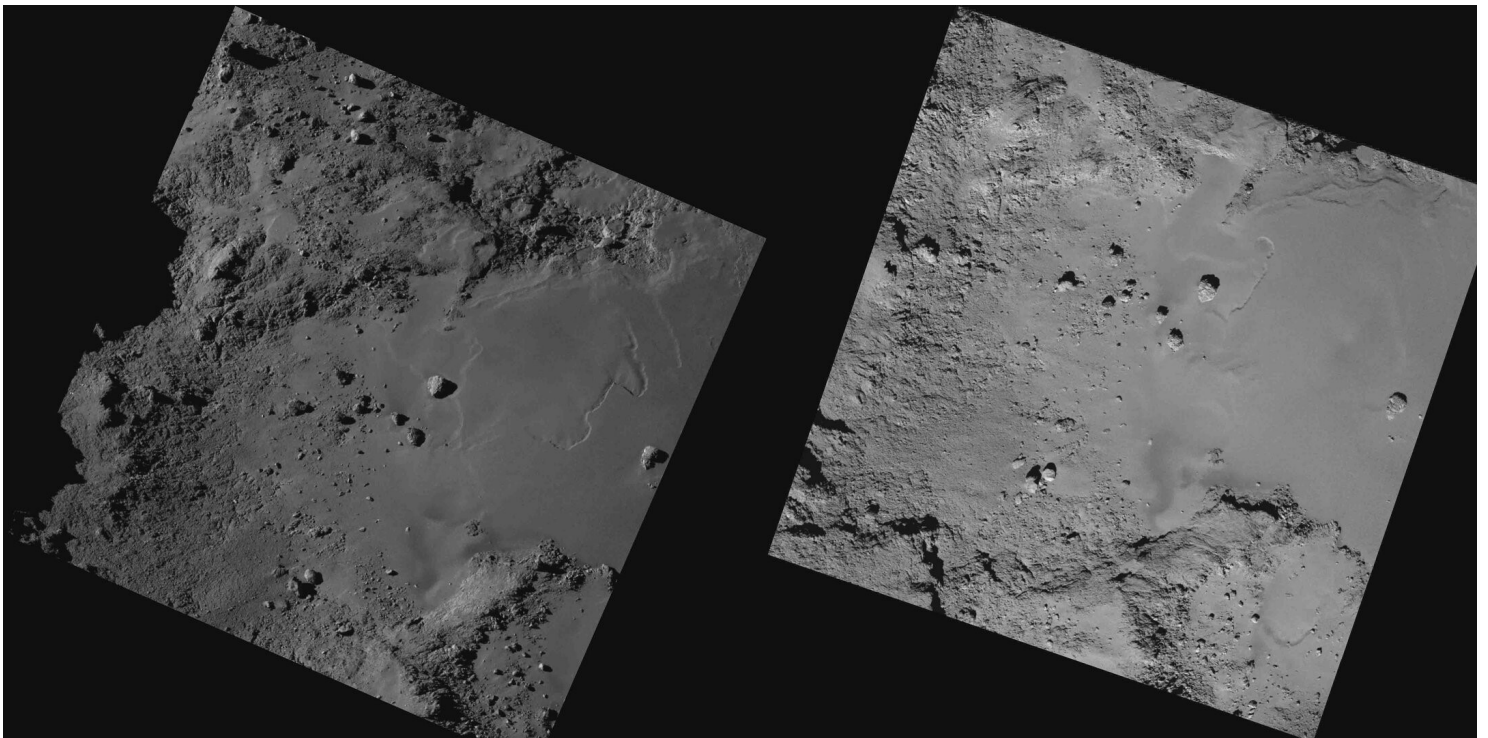
The Rosetta Spacecraft visited Comet 67P and deployed a lander in 2014. The Rosetta website can be found at https://www.esa.int/Science_Exploration/Space_Science/Rosetta

Pål A. Hvistendahl
NGO Liaison Officer
European Space Agency (ESA)

Image below:

The visual difference between the same landscape of Comet 67P between images taken in 2014 (left) and 2016.

Image curtesy ESA



Yearbook of Astronomy Convention

Saturday 29th October 2022

On Saturday 29th October 2022 the famous **Yearbook of Astronomy** will hold its first ever Convention. The event will take place at:

The Idle and Thackley Conservative Club, Idle, Bradford, West Riding of Yorkshire, BD10 8PY
a venue which has excellent facilities – including a licensed bar.

Programme

8.30am Entry and registration and a welcoming mug of tea or coffee

9.45am Opening speeches/addresses

10.00am *How it Began: The Origins of Solar System Exploration – 1961 to 1981*

Presentation by **Peter Rea**

In this talk Peter will discuss the origins of solar system exploration by the USA and what was then the USSR. The talk focuses on the period 1961 to 1981 – when we were able to view the planets up close for the first time – and was inspired by the words of Oran W. Nick, NASA's Director of Lunar and Planetary Programs in the early 1960s, following the successful Mariner 2 mission to Venus in 1962: "There will be other missions to the planets, but there will never be another first mission to them."

11.15am *Ladies of the Night: Female Astronomers Prior to and Including Caroline Herschel*

Presentation by **Mary McIntyre**

We often hear that Caroline Herschel was the first female astronomer, but we can trace back female involvement in astronomy much further back in history. This talk tells their story.

12.30pm Buffet lunch with bar facilities

During the lunch interval – and weather permitting – attendees will be invited to observe the Sun through the Bradford AS's solar telescope. Details will be announced on the day.

2.00pm *The Meandering Moon and the Calendar*

Presentation by **David Harper**

Many ancient calendars were based on the phases of the Moon. Lunar cycles still govern the lives of billions of people. In this talk, we explore the role that the Moon has played in the major religious calendars of the world.

3.15pm *Radio Astronomy Around the World*

Presentation by **Rod Hine**

The last decade has seen a great rise in the number and scope of projects in radio astronomy and a number of major observatories, mostly with arrays of many antennas, have been built or are being built in diverse locations. Observations have reached for ever-shorter wavelengths and ever more sensitivity. Major collaborations using Very Long Baseline Interferometry have resulted in observations of exquisite detail of phenomena such as black holes. In addition, the study of radio astronomy in developing countries has been advanced by novel projects and the conversion of redundant satellite dishes to radio telescopes. This talk will give an overview of the current state of some of these projects and the challenges that radio astronomers are now tackling.

4.30pm Closing address and general discussion. Topics that may be discussed could include the idea of more, or even annual, Yearbook of Astronomy conventions.

The above-detailed presentations will be suitable for beginners as well as for the more-experienced amateur astronomer. The venue has excellent facilities – including a bar, which will be open throughout most of the day – and the admission price includes a buffet lunch.

Tickets £17.50 which includes a buffet lunch at:

<https://www.starlight-nights.co.uk/yearbook-of-astronomy-convention-2022/>

Or email Brian at stars@starlight-nights.co.uk

Mid-Kent Astronomical Society



Forthcoming Meetings:

10th June 2022

Bredhurst Village Hall, Gillingham, ME7 3EJ.

Roy Easto - The Dynamic Universe.

All are welcome to hear Roy Easto's talk '**The Dynamic Universe**'.

Enjoy some refreshment and general chit chat during the evening with members and guests.

An observing session may follow this event should weather permit.

24th June 2022

Bredhurst Village Hall, Gillingham, ME7 3EJ.

Prof David Southwood CBE - The Trials, Tribulations and Triumphs of Mars Exploration.

Come along and hear Professor Southwood as he explains '**The trials and tribulations of exploring Mars**'.

Members and guests may enjoy refreshments, social interaction with possibly an observing session later in the evening, should weather permit.

8th July 2022

Prof Ian Morison - Our Island Universe - the Milky Way Galaxy and its place in Time and Space.

Bredhurst Village Hall. Hurstwood Road. Gillingham ME7 3 JZ

29th July 2022

Greg Smye-Rumsby - The Craig telescope.

Bredhurst Village Hall. Hurstwood Road. Gillingham ME7 3 JZ

The fascinating story of the Craig telescope

Whilst some would consider it "an expensive failure", we now have a much better understanding of this strange and cumbersome instrument and why it never fulfilled its promise despite employing the minds of some of the greatest engineers of the day.

Meetings start at 8:00 pm.

Please visit our website: www.midkentastro.org.uk/events as certain conditions may apply.

Hertford Astronomy Group

The Hertford Astronomy Group were one of the first to offer meetings on Zoom. Now we are once again holding in-person meetings, thanks to the University of Hertfordshire, who offered the use of a 250-seat lecture theatre!

Pre-COVID we often had 80 people at our meetings, and sometimes reached 100 - which was the official limit for the location. The offer of this larger venue means that - even allowing for social distancing - we can still accommodate a large number of attendees.

In addition, we are continuing to stream our meetings on Zoom, for those who are hesitant to attend meetings in person, or who cannot do so because of their distance. We have people viewing our meetings from Norfolk, Somerset and Wales!

In view of our new arrangement with the university, it seemed obvious that we should invite their head of Physics, Astronomy and Mathematics to be our final speaker for this season:

Wednesday June 8th at 8:00pm on Zoom and Face-to-Face “The Environmental Impact of Radio Galaxies” Presented by Martin Hardcastle

Powerful jets generated by accretion on to supermassive black holes, creating the objects known as 'radio galaxies' are thought to have a profound effect on their environment and therefore on the evolution of galaxies and clusters of galaxies as a whole.

This presentation will describe the evidence for radio galaxy environmental impact and show the latest results from work that being carried out to understand exactly how these objects affect their host environments, with a look forward to the discoveries expected from new radio and X-ray telescopes.

Martin Hardcastle is Professor of Astrophysics and Head of the Department of Physics, Astronomy and Mathematics at the University of Hertfordshire. Prior to that he was the Director of the Centre for Astrophysics Research. Before moving to UH in 2004 he was a PDRA and Royal Society research fellow in the Astrophysics Group of the Physics Department in the University of Bristol.

The meeting will take place on **Wednesday, June 8th, 2022. Doors open from 19:30**

In order to ensure that the room is not overcrowded, **all visitors must register and, where appropriate, pay *before the meeting begins***. Use the “Book Now” button on the society website. **Please note : You cannot just turn up on the night, and payment is not accepted on the door.**

Full details and the booking button can be found at **www.hertsastro.org.uk**

You can then use the link to join the meeting if watching online. You will be admitted to the Waiting Room where your status will be checked before being admitted to the Zoom meeting. Booking closes 1 hour before the meeting.

Membership details:

£10 per year - renewable at end of July*

Non-members £2.00 first 3 meetings, then annual membership subscription due pro rata for remaining meetings.

Free to under 18s and full time students. Proof of status may be required.

Under 16s must be accompanied by an adult.

For further membership details, write to Tony Challoner at membership@hertsastro.org.uk

www.hertsastro.org.uk



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Image Right: Boeing's CST-100 Starliner spacecraft lands at White Sands Missile Range's Space Harbor, New Mexico, on Wednesday 25 May 2022, in New Mexico. Boeing's Orbital Flight Test-2 (OFT-2) is Starliner's second uncrewed flight test to the International Space Station as part of NASA's Commercial Crew Program. OFT-2 serves as an end-to-end test of the system's capabilities.

Once operational, Starliner will provide a second launch capability for NASA for delivering Astronauts to the ISS and launching from American Soil, negating the need to rely on Russian vehicles.

Credits: NASA/Bill Ingalls

For more information visit: nasa.gov/exploration/commercial/crew/index.html



FAS Newsletter Copy Deadline:

Deadline for items for inclusion in the next FAS Newsletter, No 127 August 2022 is
15th July 2022