



UKSEDS PRESENTS THE 35th ANNUAL



NATIONAL STUDENT
SPACE
CONFERENCE 2023

UNIVERSITY OF MANCHESTER
4TH & 5TH MARCH 2023

UKSEDS
UK STUDENTS FOR THE EXPLORATION AND DEVELOPMENT OF SPACE

THE NATIONAL STUDENT SPACE CONFERENCE
IS ORGANISED BY

UKSEDS

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This conference has been put together by a team of volunteers, all students and recent graduates, over the last 6 months in their spare time outside of university, work, and personal lives.

WELCOME

Isn't it great to see so many people together in-person again? I am delighted to welcome you to the 35th edition of the National Student Space Conference (NSSC), this year at the University of Manchester.

Whether this is your first year or your 35th, NSSC has become synonymous with people finding their place in the space sector and we hope that this year is no different. None of this would be possible without the 30+ sponsors and supporters here today; their continuous support is the reason why UKSEDS can keep creating opportunities for people to network, pick up new skills and start a career in space.

We have a vast range of diverse talks, panels and workshops to keep you entertained. With over 500 tickets sold, this is set to be a record-breaking NSSC. Saturday focuses on panels and talks, starting strong with an opening address from the UK Space Agency deputy CEO and covering everything from what it takes to be an astronaut to why we're going back to the Moon. Sunday is all about you; building skills, networking and learning about all the different disciplines in demand at the moment. We'll talk National Space Strategy and how you can get involved, you can design an off-world habitat or hunt for exoplanets using James Webb Space Telescope data, and we'll place an emphasis on why a diverse space sector is integral to its success.

I am thrilled to see a theme of sustainability run through the two days; something which was not planned, but happened because it is so important to continue to address and it is high on the priority list of our members. Organising this event is a behemoth task; I am so proud of the team that's put this all together and can't wait to see where the newly elected executive committee is going to take us next!

ad astra



ZARIA SERFONTEIN
UKSEDS Chair

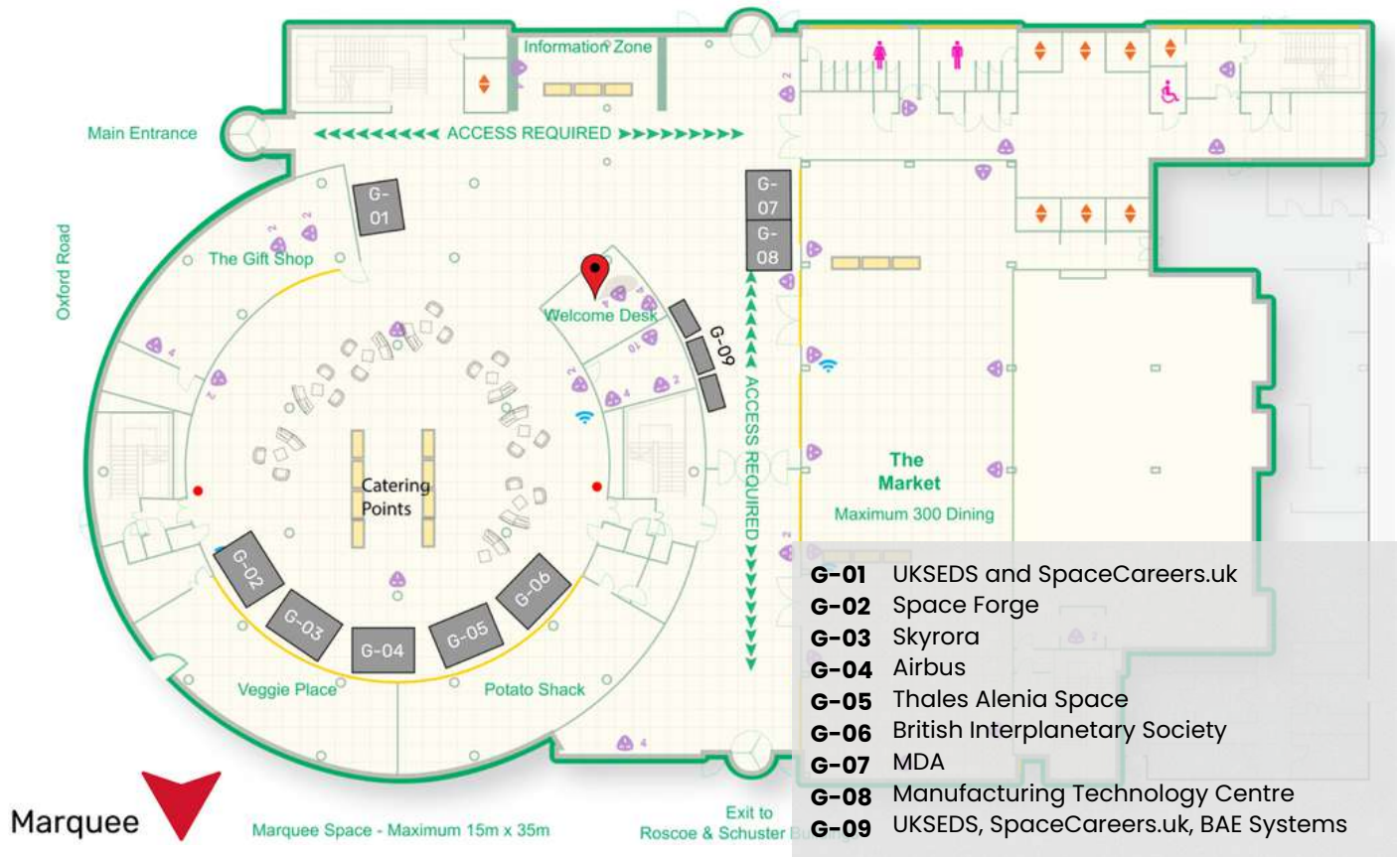
SATURDAY PROGRAMME

	STREAM 1 – LECTURE THEATRE B	STREAM 2 – LECTURE THEATRE A
08:30	REGISTRATION AND COFFEE RECEPTION	
09:00	WELCOME & OPENING (Ian Annet, Deputy CEO UKSA)	
09:30	MDA <i>Growing up in the Newspace Industry - Lessons Learned</i>	AIRBUS SPACE COMPETITION
09:40	COLIN SNODGRASS <i>Observing the NASA Dart Impact from a New Observatory in Kenya</i>	
10:10	THALES ALENIA SPACE <i>The Skimsat VLEO Platform / Multi Angle Polarimeter (MAP) on board the Copernicus CO2 monitoring mission</i>	
10:30	INMARSAT <i>Innovations in the Space Sector</i>	
10:45	COFFEE BREAK	
11:00	ENTREPRENEURSHIP PANEL AND LIVE PODCAST RECORDING	CGI <i>A Career Journey in IT for the Space Sector</i>
11:10		JAVIER MARTIN-TORRES <i>Is Mars Habitable?</i>
11:40		MANUFACTURING TECHNOLOGY CENTRE <i>How We are Working Collaboratively with the Space Sector for a More Sustainable Future</i>
12:00	MAX ALEXANDER <i>Our Fragile Space - Protecting the Near-Space Environment</i>	
12:35	LUNCH SPONSORED BY BAE SYSTEMS	
13:35	KEYNOTE PANEL: YOUR PATH TO THE STARS	
14:40	THE GOOD GOAL	
14:50	KEYNOTE: IAN ANNETT <i>Spaceflight of the Future</i>	ROYAL ASTRONOMICAL SOCIETY <i>Working for Astronomers and Space Scientists</i>
15:00	SKYRORA <i>A Story of Environmental Launch</i>	KATHERINE COURTNEY <i>Space Needs You! Why Care About Space Sustainability?</i>
15:20		
15:45	COFFEE BREAK	
16:00	SPACE FORGE <i>Revolutionising Return from Space</i>	NICHOLAS BOOTH <i>How I Learned to Stop Worrying and Had a Career in Space Completely by Accident</i> BOOK SIGNING
16:10	PANEL: MOON RACE 2.0	BAE SYSTEMS <i>Launching Careers in the Space Sector</i>
16:30		ROBERT WALSH <i>It Is Rocket Science! The NASA-UCLAN Sounding Rocket</i>
16:40		
17:10	UKSEDS NATIONAL AWARDS	
17:40	DRINKS RECEPTION	
18:40+	SOCIAL	

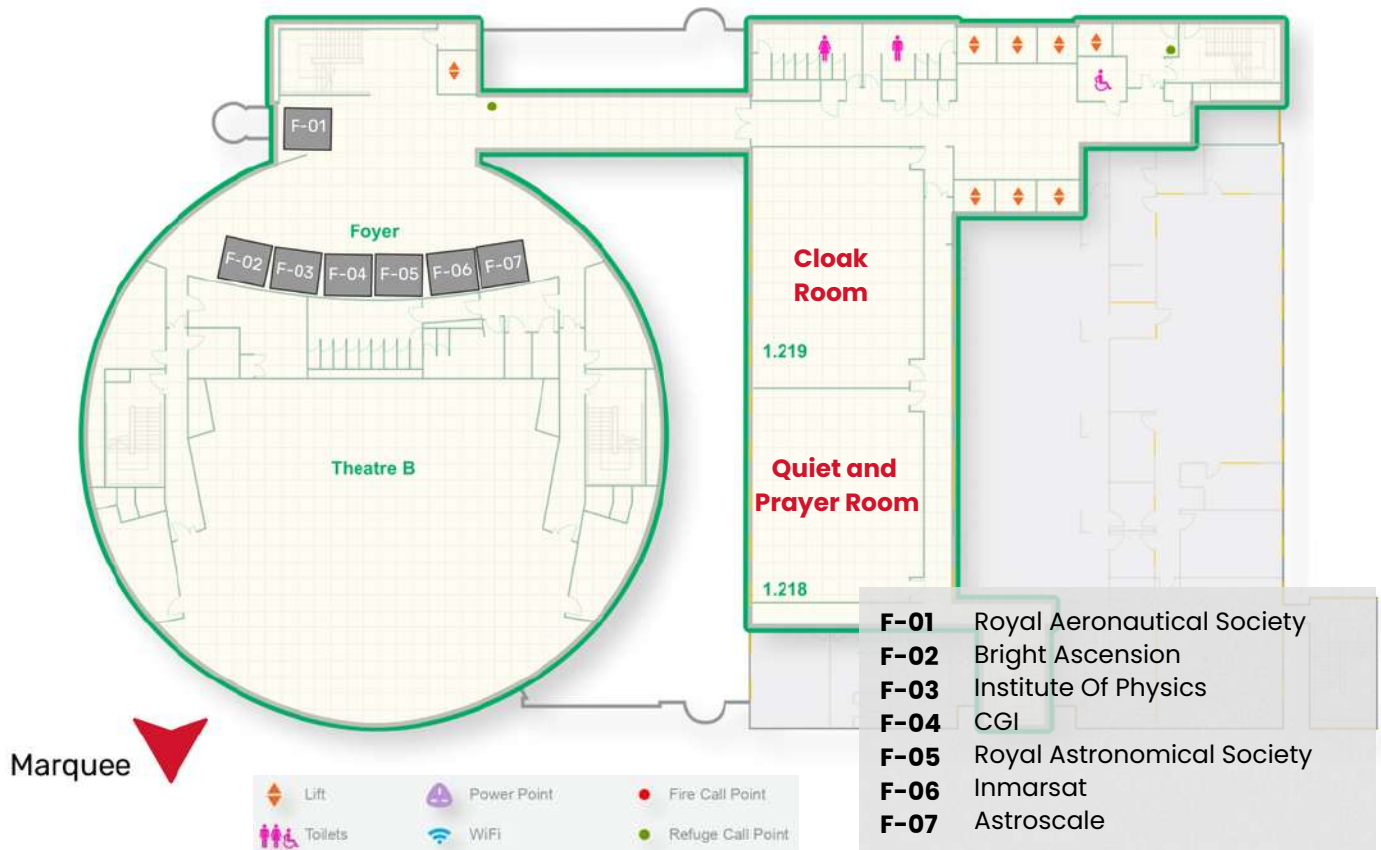
SUNDAY PROGRAMME

	STREAM 1 - LECTURE THEATRE B	STREAM 2 - LECTURE THEATRE A
9:30	REGISTRATION & BREAKFAST	
10:00	JENNY TURVEY The National Space Strategy: UK Priorities and How to Get Involved	
10:30	CIARA McGRATH University of Manchester Welcome	
10:40	CIARA McGRATH <i>Using Space to Make a World a Better Place</i>	CV WORKSHOP & SPEED NETWORKING
11:10	DEREK HARRIS <i>Importance of Communication for Career Development</i>	
11:40	COFFEE BREAK	
11:55	DIVERSITY IN SPACE CAREERS PANEL	EAST LANCASHIRE CHAMBER OF COMMERCE <i>Lancashire in Space</i>
12:05		SPACECAREERS.UK <i>Find your Place in Space</i>
12:20		UKSEDS IOSM WINNERS <i>Geoboost - Pitching a Winning IOSM Idea?</i>
12:40		INSTITUTE OF PHYSICS <i>The Institute of Physics and our Limit Less Campaign</i>
13:00	LUNCH SPONSORED BY BAE SYSTEMS	
14:00	BUILDING A THRIVING NORTHERN SPACE SECTOR PANEL	
15:00	HUGH LEWIS <i>The Illusion of Space Safety and Sustainability</i>	
15:30	HUNTING EXOPLANETS: A JWST WORKSHOP	DESIGNING AN OFF-WORLD HABITAT WORKSHOP
16:30	AGM	

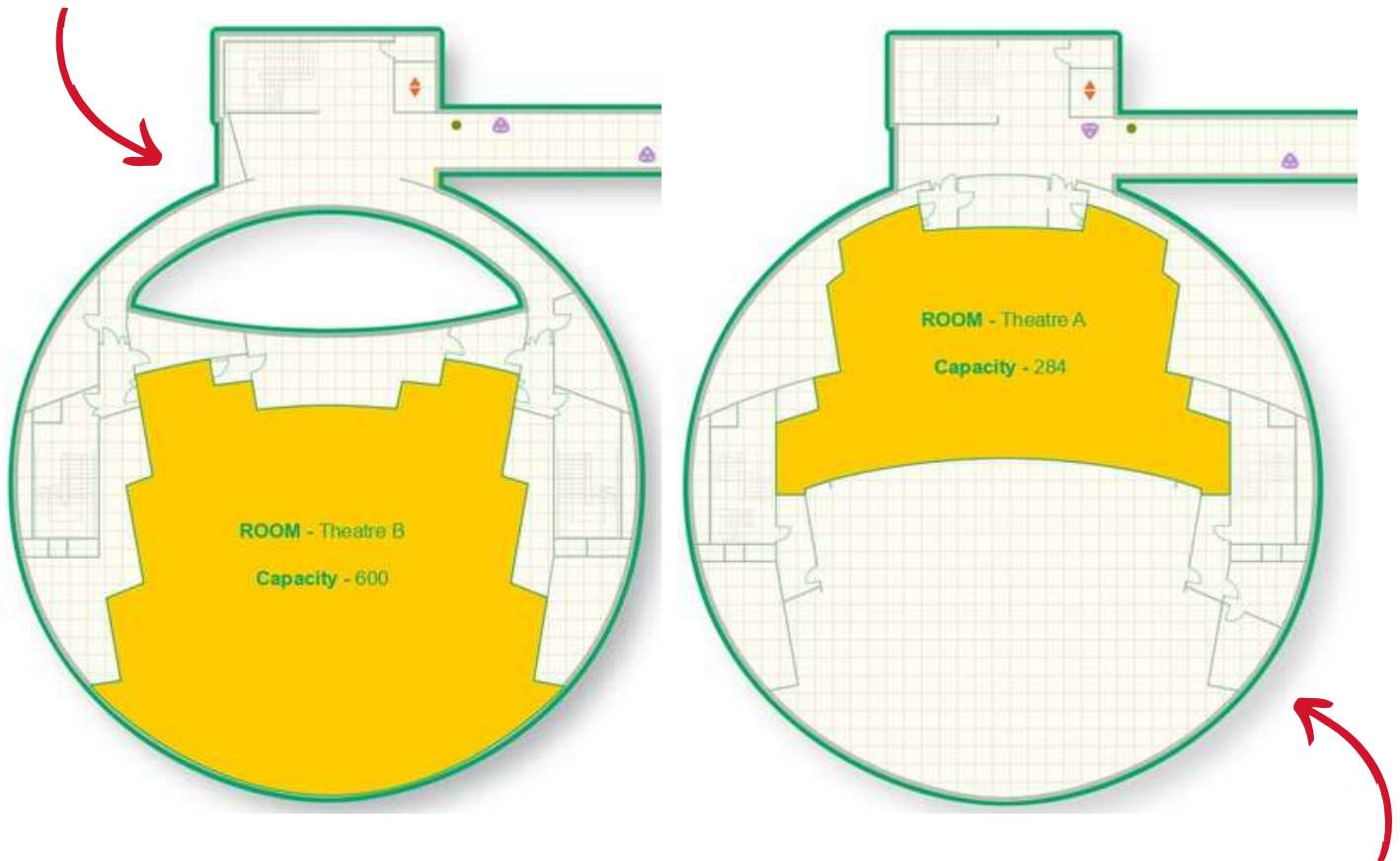
GROUND FLOOR: EXHIBITORS, EVENTS AND CATERING



FIRST FLOOR: LECTURE THEATRE B AND EXHIBITORS



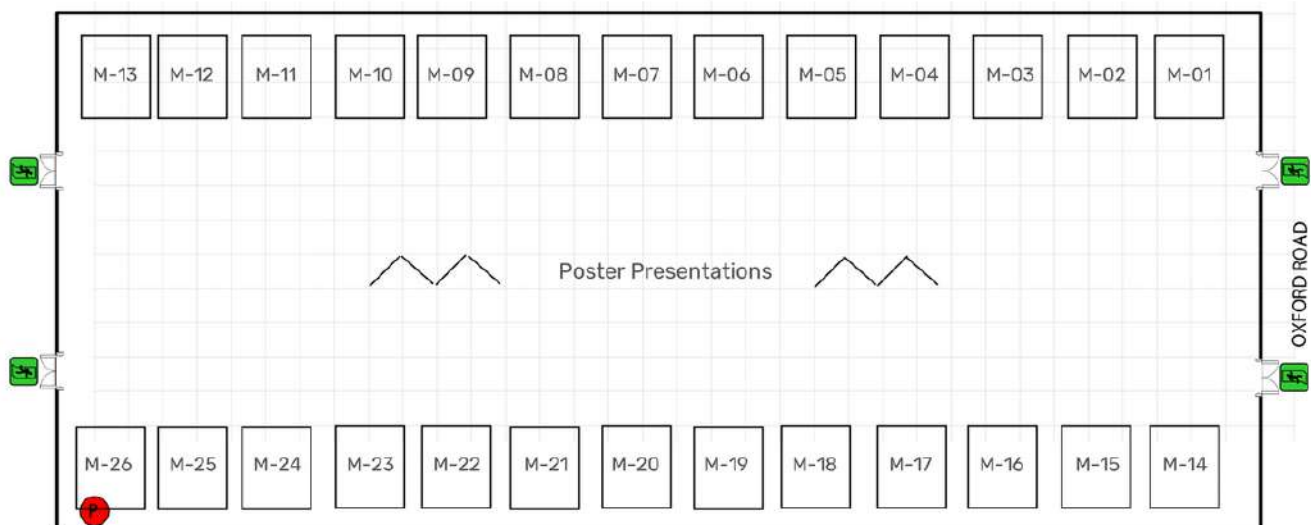
SECOND FLOOR: LECTURE THEATRE B



THIRD AND FOURTH FLOOR: LECTURE THEATRE A

MARQUEE

M-01 Lancashire Enterprise Partnership	M-10 Physics Society UoM	M-19 HiveSpace
M-02 Lancashire Enterprise Partnership	M-11 Astronomy Society UoM	M-20 GDST Enterprise
M-03 UKSEDS Road Show Stand	M-12 Nuclear Particle and Physics Society UoM	M-21 Altair Enterprises
M-04 UKSEDS Road Show Stand	M-13 TBD	M-22 TBD
M-05 Northern Space Consortium	M-14 UK Space Agency	M-23 TBD
M-06 UoM Space Systems Research Group	M-15 RAL Space	M-24 TBD
M-07 ManchesterSEDS	M-16 4wardFutures	M-25 TBD
M-08 Manchester Satellite Development Group	M-17 Exotopic	M-26 TBD
M-09 Aerospace Society UoM	M-18 Prospero	



Venue Location

The conference this year will be held at The University of Manchester, in the University Place Building. The address is 176 Oxford Rd, Manchester, M13 9PL, UK. Originally shaped by its success during the Industrial Revolution of the 19th century, Manchester's strong, pioneering character endures today. The University of Manchester looks to the future with a passion for progress, and is strongly bidding for the space sector.

Exhibition Spaces

There will be two lecture theatres used for talks, workshops and panels; Lecture Theatre A is located on the third and fourth floors, and Lecture Theatre B is located on the first and second floors.

Sponsor stands are located on the ground and first floors, and also at the outside marquee. The exhibition marquee is free to enter and will be home to sponsor and supporter stands as well as the start-up pavilion and UKSEDS Roadshow.

Saturday Evening Social

It is tradition for us to hold a social event after the first day of the Conference. It is a chance for all to relax and have a good time. Join us at University of Manchester Students' Union, Oxford Rd, M13 9PR, Manchester, United Kingdom.

Internet Access

If you are a student you should be able to connect to Eduroam using your own university login. Alternatively, you can use the university's free guest wi-fi - UoM_Guest.

Emergency Contacts & Procedure

In the unlikely event of an emergency, follow the instructions of the UKSEDS team. The fire assembly points for the venue are at either side of the main exhibitor area on the ground floor. In case of an emergency, please call or text us on 07484 748 527 starting your message with 'NSSC'. The university's emergency contact number is 0161 306 9966.

Breakout Room

The conference is an action-packed weekend, with long days and lots of people and talks. We understand that sometimes you might need a bit of peaceful space. To that end, we've allocated a quiet and prayer room 1.218 where you can go for as long as you like to have some peace and quiet. Please just knock on the door before you go in, to let anyone in there know that someone is entering, and be respectful of others sharing the room.

Refreshments

Tea and coffee will be served at break times and at the morning coffee reception but please ensure to clear the drinks stands and not crowd the room if already full to ensure everyone's access to refreshments. Lunch packs will be provided, please do not bring any food or drinks into the lecture theatres. If you require any further food and drink, there is a McDonalds and a Morrisons supermarket approximately 5-minutes walk from the venue.

Photos & Filming

Our photographers and videographers will be taking photos and videos throughout the weekend, and the lectures will be recorded. If you don't wish to be in any photos, or if you have any concerns regarding flash photography, please make our registration desk aware and we will give you a red lanyard. You are welcome to take photos yourself, and we'd be very grateful if you'd share them with us, as we're always on the lookout for good publicity shots. Please check before you take photos of other delegates.

Code of Conduct

We want this event to be safe and inclusive for everyone. We expect all attendees to be polite and respectful of others at all times, and to maintain appropriate behaviour when listening to talks, panels and workshops.

We also expect all attendees to abide by our COVID policy for the duration of the event by utilising the hand sanitising stations located around the venue and respecting the coloured indicators on other attendees' lanyards.

Social Media

You are encouraged to post about the conference on social media. Please use the hashtag #NSSC23.

Coloured Stickers

All attendees and volunteers will be issued with stickers for their badges upon arrival.

We're aware that many of our attendees may be cautious of large gatherings and as such have implemented a colour system to indicate preferences towards social distancing and physical contact:



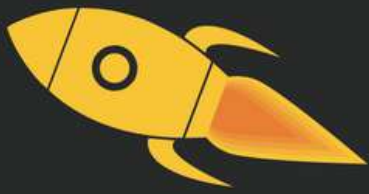
"I'm keeping my distance"



"Ok with talking but no physical contact"



"Ok with talking and hand shakes"



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SATURDAY



REGISTRATION + COFFEE RECEPTION
08:30-09:00

WELCOME

09:00-09:30 LTB

Join Zaria Serfontein, Chair of UKSEDS and Ian Annett, deputy CEO of UK Space Agency in opening the 35th National Student Space Conference.



ANITA BERNIE (MDA SPACE & ROBOTICS LIMITED)

"GROWING UP IN THE NEWSPACE INDUSTRY – LESSONS LEARNED"

09:30-09:40 LTB



Anita Bernie is the Managing Director of MDA UK which is based at the Harwell campus. Anita is an Honorary Group Captain in the Royal Air Force; a member of the Board of Directors of small satellite pioneers AAC Clyde Space; and a Trustee of The Air League. She possesses an Aerospace Engineering Degree and an MBA. She is passionate about nurturing talent from all backgrounds and levels; using her platform to be an ally and role model to those considering or developing their science and engineering careers, and is active in STEM and Diversity & Outreach activities.

I graduated with my Aerospace Engineering degree in the mid-1990s and feel incredibly lucky to have started my career in the space industry before "Newspace" was even a word! My career journey has led me to achieving my childhood dream of running a space company that is involved in some very cool projects – including returning to the moon. In this session I will share a few of MDA UK's exciting projects and contribute some of the lessons I've learned along the way to accomplishing my personal definition of success.



WE'LL TAKE YOU THERE

Serving the world from our Canadian home, MDA is a trusted international space mission partner and a pioneer in space robotics, in-orbit operations, satellite systems and Earth observation. With a 50+ year story of firsts on and above the Earth, today our 2,700 highly-skilled employees are leading the charge towards viable Moon colonies, enhanced Earth insight, and communication in a hyper-connected world.

Together with our many intrepid partners, we're working to change our world for the better, on the ground and in the stars.

SATURDAY

COLIN SNODGRASS

"OBSERVING THE NASA DART IMPACT FROM A NEW OBSERVATORY IN KENYA"

09:40-10:10 LTB

Colin Snodgrass is Professor of Planetary Astronomy at the University of Edinburgh, working on comets and asteroids. He studied astronomy at St Andrews and obtained his PhD from Queen's University Belfast in 2006, and has worked at the European Southern Observatory in Chile, the Max Planck Institute for Solar System Research in Germany, and the Open University. His research combines observations with telescopes and exploration of the Solar System with spacecraft, including roles in the ESA missions Rosetta, Comet Interceptor and Hera, and the recent NASA DART mission.



I will describe the NASA DART planetary defence mission, which successfully changed the trajectory of a small asteroid in September 2022, and our observations of the results using telescopes on Earth. As the spacecraft was destroyed during the controlled collision, Earth-based observations were critical for measuring the effectiveness of the experiment. The very moment of impact itself was only visible from areas around the Indian Ocean, where there are relatively few observatories. The University of Edinburgh led a programme to set up a new observatory in Kenya to capture images of the DART impact. I will discuss the results of the DART mission, and the challenges and future opportunities presented by establishing a new observatory in this remote location in Africa.

THALES ALENIA SPACE

10:10-10:30 LTB

CHARLOTTE MORRISON

"MULTI ANGLE POLARIMETER (MAP) ON BOARD THE COPERNICUS CO2 MONITORING MISSION"

Charlotte Morrison is a systems and optical engineer who has been with Thales Alenia Space in the UK for 4 years. Her primary focus is the MAP instrument that will fly on board the CO2M mission, for which she performs a variety of systems engineering and optical engineering activities. Her talk will discuss the MAP instrument that will fly on board the Copernicus CO2M mission. Copernicus is the ESA and the European Commission's Earth observation program. MAP (Multi-Angled Polarimeter) will launch on the CO2M mission in 2025 and will measure aerosols.

RUSSELL HILLS

"THE SKIMSAT VLEO PLATFORM"

Russell Hills is a spacecraft systems engineer for Thales Alenia Space in the UK. During his 7 years at the company, he has undertaken a wide range of satellite and mission studies across both the Systems Engineering and the Advanced Concepts teams, with a very heavy focus on VLEO concepts. He is currently the technical lead for the Skimsat VLEO platform IOD mission.

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NEW HORIZON TO BUILD A BETTER,
SUSTAINABLE LIFE ON EARTH.



SATURDAY

YASRINE IBNYAHYA (INMARSAT)
"INNOVATION IN THE SPACE SECTOR"
10:30-10:45 LTB

Yasrine is the Senior Director of Advanced Concepts and Technologies, within the CTO division at Inmarsat. She has worked over 17 years in the space industry and is now responsible for leading breakthrough innovations and mission concepts. She graduated from University of Cambridge, UK where she obtained in 2018 an Executive MBA degree. She also holds a Master in telecommunications engineering.

The presentation will cover the innovation that takes place in UK's largest mobile satellite operator.



AIRBUS
COMPETITION 22/23 PRESENTATIONS - IN-SPACE ASSEMBLY
09:30-10:45 LTA

With large costs and difficult requirements imposed by traditional space launches, there is an increasing focus on in-space assembly in the space industry. This year's Airbus Space Competition challenged

students to envisage what the in-space assembly industry might look like in 2040. Teams from all over the UK put their heads together to create a concept mission that could assemble a construct of their choice in space, challenging participants to not only create their concept, but also to demonstrate how their idea might work as a viable business.

Airbus is a global pioneer in the aerospace industry, operating in the commercial aircraft, helicopters, defence and space sectors. Airbus Defence and Space has accumulated over 30 years of in-orbit operation, launching its first Earth observation satellite in 1986. Whether mapping every star in our galaxy or looking back at planet Earth, Airbus has been helping to answer big questions from space and advance space exploration for more than 50 years. Supplying systems that range from electronic components to full telecommunications platforms, scientific satellites and crewed spacecraft – Airbus provides solutions for customers and their programmes around the globe.

The Airbus logo, consisting of the word "AIRBUS" in a bold, blue, uppercase sans-serif font, is positioned to the right of the text in the middle section.A wide background image showing a satellite with large solar panel arrays in space, with the Earth's horizon and atmosphere visible in the background.

A detailed view of a satellite in space, showing its complex structure and large solar panel arrays, set against the backdrop of the Earth's atmosphere and the blackness of space.

MORNING BREAK 10:45-11:00

SOLVING PROBLEMS IS A MATTER OF PERSPECTIVE



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AIRBUS

ENTREPRENEURSHIP PANEL & PODCAST LIVE SHOW

11:00-12:00 LTB

Join us for a dynamic panel discussion featuring leading entrepreneurs in the space sector. Hear from industry experts as they share their experiences and insights on the challenges and opportunities of starting a business in this exciting field. Gain valuable perspectives on innovation, funding, and creating impact in the space industry. Don't miss this unique opportunity to network with like-minded individuals and learn from the best in the business!

Isaac Caletrio (Host)

Podcast Producer

UKSEDS

Isaac Caletrio is an Engineering student at the Open University. In his spare time he is the Executive Producer and Host of UKSEDS' Preparing for Launch podcast. On the show, Isaac interviews guests from across the space sector to talk about their career journey and inspire students to join the industry. Isaac has experience working in defence and has been a UKSEDS volunteer for over 2 years.



Zainab Qasim

Start-up & Venture Lead

Seraphim Space VC

Zainab is part of the investment team at Seraphim Space and has been working with founders of early stage companies in the SpaceTech ecosystem for the last two years. Before joining Seraphim, Zainab was an analyst at Goldman Sachs, where she added investment and business knowledge to her existing skillset as an aeronautical engineer.



After taking part in many aerospace projects throughout university, she has a dedicated interest in innovative Space technologies and their commercial opportunities. This combination of experiences provides a unique perspective to support Space start-ups in their growth. Zainab holds a degree in BEng (Hons) Aeronautical Engineering from the University of Glasgow.

ENTREPRENEURSHIP PANEL & PODCAST LIVE SHOW

11:00–12:00 LTB

Yuk Chi Chan
Founder and CEO
Charter

Yuk Chi Chan is the Founder and CEO of Charter, the first British space company backed by the Techstars Space Accelerator. Charter is building the OS for the space industry to run, grow, and thrive. He is a published space lawyer and former Army logistics officer, and has spoken at the United Nations on space sustainability law.

He also previously led a team to advise the government of Uganda on their national space policy. He is also a high school dropout, the survivor of a ruptured lung from his time in the Service, and a published science fiction author.



Craig Brown
Investment Director
UKSA

Craig is UKSA's Investment Director, responsible for our innovation, levelling up, and catalysing investment priorities. This role will forge strong relationships with space investors, suppliers and customers, create opportunities to bring new investment and revenue into the sector, and lead the delivery of Agency programmes.

Craig has worked across a range of different types of space organisation in his career: an SME, a large multinational, government and ESA. Craig holds a PhD from Leicester University. He is an active member of the UK space community and leads the equality, diversity, and inclusion work for the Space Skills Advisory Panel.



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SATURDAY

DR JOHN GLOVER AND ADAM PARTRIDGE (CGI) "A CAREER JOURNEY IN IT FOR THE SPACE SECTOR"

11:00–11:10 LTA

John (Director Consulting Delivery within Space, Chartered Engineer, MIET and SMIEEE) and Adam (Technical Graduate in Space) will share their experience of working in the space sector with CGI. John will discuss the diverse career pathways available, including technical, project management and business development. Adam will share his journey of joining CGI as a graduate and his thoughts on CGI's program for university graduates.



John's work ranges from short research studies through to large scale fixed price developments of high integrity systems in both the Space and Defence sectors. He has an interest in signal and image processing, a PhD within the field of Artificial Neural Networks, and is currently the Project Manager for GENS (GNSS Event Notification System), leading a team in the development of a demonstrator for the detection, identification and classification of GNSS interference events. Before joining CGI 6 months ago,

Adam studied maths at Warwick University with some computer science modules, then did a gap year in which he worked part-time in healthcare and travelled. Since joining CGI, Adam has quickly become involved in the exciting and varied tasks which his team undertakes, performing technical maintenance and bug fixing on satellite simulation software, and he is very eager to share his experience.



Professor Javier Martín-Torres is a NASA Award-winning theoretical physicist and one of the world's most widely cited planetary researchers, with more than 20 years experience working on space missions to study Earth and other planets. He boasts an extensive international career, starting as a Guest PhD at the University of Oxford, followed by an ESA Postdoctoral Fellowship in Germany and spent many years in the US at NASA Langley Research Centre, the Jet Propulsion Laboratory/CalTech, the California Institute of Technology, the Lunar and Planetary Institute at the University of Arizona, and most recently at the Luleå University of Technology, Sweden.

JAVIER MARTIN-TORRES

"Is Mars Habitable?"

11:10–11:40 LTA



**UNIVERSITY OF
ABERDEEN**



Assessing the habitability of Mars has been an objective of the scientific community for a long time, but has recently become a sustained focus in light of data returned from the planet and growing knowledge of life in extreme environments. NASA's Curiosity rover has analysed the Martian environment to assess whether Mars could have supported life since August 2012 and has acquired an unprecedented data record of near surface measurements, providing an invaluable ground truth about the environmental conditions on Mars. These discoveries, with other data from previous and current Martian missions, sparked speculation about the past or present existence of life on Mars, opening many scientific questions and challenges. Javier will revise, based on our current understanding of the environmental conditions on Mars, and definitions of life, the quest of Martian habitability.

SATURDAY

ANN SWIFT AND CY KEOGH (MTC)

"HOW WE ARE WORKING COLLABORATIVELY WITH THE SPACE SECTOR FOR A MORE SUSTAINABLE FUTURE"

11:40-12:00 LTA

The Manufacturing Technology Centre (MTC) is focussed on the accelerated growth of industrial sectors including Space. Through development and application of innovative manufacturing technologies, the MTC supports industrial sectors to reach the next step in their commercial journey.

We are involved in a number of UK space activities and initiatives and will talk about our work. We will also share news on our latest space related training courses and our work in UK space clusters.

Ann Swift is the Space Sector Development Manager and has worked to support the growth of the space sector in various roles since 2014. Ann is leading on expanding the MTC's involvement in the space sector in the UK and is enabling projects and programmes of work to support the sector now and for the future. Cy Keogh is an MTC technical lead in the design and delivery of a high level capability- based Supply Chain Readiness Assessment (SCRA) tool which also provides a measure of organisational resilience. CY is also supporting some national work on Space Based Solar Power and is actively contributing to the UK Space Energy Initiative which will lead the development of Space Based Solar Power for the UK, offering large scale, safe, and secure energy day and night, through all seasons and weather.



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SATURDAY

There are now more than 100 million human-made pieces of space debris circling our planet – the vast majority of them in the same low Earth orbit as thousands of satellites that support and enable everyday life on Earth. This talk is based on my exhibition *Our Fragile Space*, which raises awareness around space sustainability.

It combines reportage and portraiture to demonstrate the fragility of space, highlight the increasing threat of space debris to our environment (and our way of life), and to centre the people and initiatives trying to do something about it. The photography exhibition is also a catalyst for wider science communication and engagement, for the public, industry and policymakers.

An international photographer and creative director, Max Alexander specialises in science communication through visual storytelling. He works for a large number of prestigious organisations around the world including the UK Space Agency, European Space Agency, European Southern Observatory, UK research councils, book publishers and magazines. He has photographed Nobel Prize winners, astronauts and world leaders. Max has had two science-led exhibitions at the Royal Albert Hall: *Explorers of the Universe* and *Illuminating Atoms*. His passion for understanding the universe and making it meaningful to others has motivated him to work in this arena – and he is a Fellow of the Royal Astronomical Society.

MAX ALEXANDER "OUR FRAGILE SPACE – PROTECTING THE NEAR- SPACE ENVIRONMENT"

12:00–12:35 LTB



LUNCH 12:35–13:35 SPONSORED BY **BAE SYSTEMS**

YOUR PATH TO THE STARS

13:35-14:40 LTB

Experience the thrill of space exploration with our astronaut adjacent panel discussion. Meet astronaut preparators and hear about how they support incredible journeys to space and back. Learn about the training and preparation, get inspired by their stories of perseverance and determination, and gain valuable insights into what it takes to become an astronaut.

Vix Southgate (Panel Moderator)

Engagement, Communication, Facilitator, and Connector

Vix Southgate is a multi-skilled entrepreneur who specialises creative communications across many industries. She started her first business in 1996, which has evolved into a multi-faceted range of services, including event coordination, VIP management, publishing and graphic design, and since 2008 has made a successful career within the space sector. Vix wrote her first children's book in 2010 and developed CASSIE the Cosmic Hedgehog (a creative communication initiative for Primary aged children and STEM Mascot) in 2012.



In 2015 Vix became the European Manager to Col. Al Worden (NASA Astronaut and Apollo 15 CMP) and they worked together at over 50 events until his death in 2020 - sharing their passion for STEM engagement. Vix is still the manager for alworden.com, on behalf of the Worden Estate, and continues his legacy through support of the Al Worden Endeavour Scholarship and The Al Worden Collection, which promotes high quality designers and artists. Vix has been awarded the Sir Patrick Moore Medal in December 2016, and won a Sir Arthur Clarke Award for Education and Outreach (individual) for her work with The British Interplanetary Society's World Space Week UK, as well as her STEM work in primary schools in 2018.

Anna Fogtman

*Crew Operations Scientist
European Astronaut Centre*

Crew Exploration Scientist at the European Astronaut Centre (EAC) in Cologne, Germany. Her work is focused on health risk assessment of astronauts during exploration-class missions beyond Low Earth Orbit and coordination of ESA founded science experiments with the focus on radiation research and radiation protection.

She is studying the biological effects of space radiation environment on the human body, especially in the context of individual sensitivity to ionising radiation. Before she joined EAC, she was working at the Faculty of Biology, University of Warsaw and the Institute of Biochemistry and Biophysics, Polish Academy of Sciences. Her research was focused on the influence of changing environmental conditions on cellular genetic networks. She has obtained her PhD in Biology at the Polish Academy of Sciences in Warsaw, Poland.



YOUR PATH TO THE STARS

13:35-14:40 LTB

Antonio Fortunato
Ground Segment and Project Engineer
European Space Agency

Antonio Fortunato's academic background is in science, engineering and business. He earned a MSc in Aerospace Engineering from the University of Naples Federico II, a MSc in Space Studies from the International Space University, and a Master of Business Administration from Warwick Business School. Antonio has worked for many years in the field of human spaceflight operations at the European Astronaut Centre as Lead European Spacecraft Communicator (EUROCOM), and Lead of the EAC Crew Operations Support (ECOS) team.

He also supported numerous launch and landing campaigns for both the Soyuz and Space Shuttle, as well as a number of space analogue missions such as ESA CAVES and NEEMO. He currently holds the position of Ground Segment and Project Engineer. In this capacity, Antonio coordinates a diverse portfolio of projects related to both the flight and ground segment of the Columbus module.



Livia Savioli
Astronaut Instructor
European Astronaut Centre

Livia Savioli has an academic background in Space Engineering and Science. She earned a MSc in Aerospace Engineering and a Ph.D. in Space Science and Technologies from the University of Padova, and a specialising Master in Space Exploration and Development Systems from Politecnico of Torino, ISAE Supaero of Toulouse and University of Leicester.

She worked as Rover Operations Engineer at the Rover Operations Control Centre for the ExoMars mission, at Altec in Italy. She is currently working under the same company as Astronaut and Ground Support Personnel Instructor at the European Astronaut Centre in Cologne. Her training activities are mainly focused on Environmental Control and Life Support System for Columbus module, Operations for Ground Personnel, Simulation Officer and Basic Training for the new class of European astronauts.





SUSTAINABILITY

We at UKSEDS are committed to promoting environmentally friendly practices and reducing our impact on the planet. In-person conferences and events have a significant impact on the environment, from the energy used to power the event, to the waste generated and the carbon footprint of attendees travelling to the event. As responsible organisers, it is important for us to address these issues and strive to make our event as sustainable as possible.

SUSTAINABLE DEVELOPMENT GOALS

The United Nations Sustainable Development Goals (SDGs) aim to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030. The space sector plays a critical role in supporting the achievement of these goals. At NSSC we aim to raise awareness of these contributions and discuss how the space sector can continue to support sustainable development and mitigate the effects of climate change.

At this year's NSSC we're asking sponsors to tell us which SDGs they address for the sustainability report we will be publishing following the conference.



CONFERENCE TIPS & TRICKS

- Recycle your name badges in one of our designated bins at the end of the conference
- Use reusable water bottles and coffee cups. We have water refilling stations throughout the conference venue
- Use public transport or car share
- Make use of the electronic copy of our programme
- Take part in The Good Goal sustainability challenge we are running over the conference weekend, until the 31st March
- Share your LinkedIn rather than using paper business cards. Prepare your LinkedIn QR code beforehand!
- Take part in our sustainability survey for our sustainability report to help us improve the sustainability of future events

TAKE PART IN OUR
SUSTAINABILITY SURVEY



THE GOOD GOAL X UKSEDS: NSSC SUSTAINABILITY CHALLENGE

14:40 - 14:50 LTB

The Good Goal is a mobile application made in Spain created to promote the environmental involvement of people, companies and institutions by reducing their footprint through gamification, motivation and the adoption of new sustainable habits.

As part of the UKSEDS sustainability approach to the conference, we are partnering up with The Good Goal to launch a sustainability challenge and track the positive impact of our conference delegates! **Download The Good Goal and use the code NSSC23 to sign up to the sustainability challenge.**

Are you a company interested in measuring the positive impact of your organisation and employees and improving your environmental impact? Drop them a line now: hello@thegoodgoalapp.com

**The
Good
Goal**



SATURDAY



KEYNOTE SPEAKER

IAN ANNETT (UK SPACE AGENCY)

"SPACEFLIGHT OF THE FUTURE"

14:50-15:20 LTB



This talk will be about the successful aspects of UK spaceflight and the future plans for spaceflight from the UK.



Ian joined the UK Space Agency in January 2020 as Deputy CEO for Programme Delivery. He is responsible for the delivery of all national space programmes across the Agency, including the UK Spaceflight programme. He chairs the UK Space Agency Delivery Board and is the Agency's head of profession for programme and project delivery. He was formerly in the Royal Navy as a weapons and communications specialist and was the Programme Director to the Skynet 6 programme, a Senior Responsible Officer for maritime Information Warfare programmes and the Chief Information Officer for the Royal Navy.

SATURDAY

ROBERT MASSEY (ROYAL ASTRONOMICAL SOCIETY)

"WORKING FOR ASTRONOMERS AND SPACE SCIENTISTS"

14:50-15:00 LTA



Royal
Astronomical
Society



At 203 years old, and with than 4,000 members from 70 countries, the Royal Astronomical Society is one of the largest organisations for space scientists and astronomers in the world. Early career space professionals are one of our priorities, and we are very happy to be supporting the National Student Space Conference. In this talk you can find out more about our work, about the benefits for membership, our plans for the future, and what we can offer you as you start your space career.

Dr Robert Massey is Deputy Executive Director of the Royal Astronomical Society. Robert began his career in astronomy at the Universities of Leicester and Manchester, completed his PhD studying the Orion Nebula, worked as a teacher in Brighton, and spent eight years at the Royal Observatory Greenwich, where he developed an unbridled passion for bringing astronomy and space science to the wider public. These days he looks after the outward facing work of the Royal Astronomical Society, including being a standing guest on the number one Supermassive podcast, and enjoys the darker night skies of his family home in Sussex.



KATHERINE COURTNEY

"SPACE NEEDS YOU! WHY CARE ABOUT SPACE SUSTAINABILITY?"

15:00-15:45 LTA

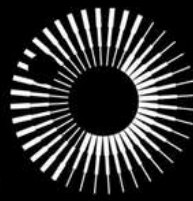
Katherine is a Strategic Advisor, Non-Executive Director, former UK Space Agency CEO and Chair of the Global Network on Sustainability in Space. Her career spans business innovation, start-up and growth in the UK, Europe, North America and other geographies; and she spent nearly 15 years leading UK government policy and programmes. While at the UK Space Agency, she initiated the UKLaunch Programme, introduced the Space Industries Act and led €1.4bn investment in collaborative space missions through the European Space Agency.



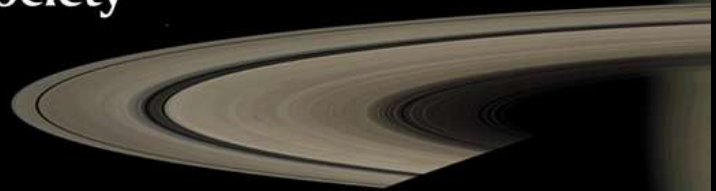
We are increasingly reliant on space for our everyday lives. And space-based data and applications have a critical role to play in meeting the UN's Sustainable Development Goals. Yet, we seem to take the space environment largely for granted. Is there enough space in space for all the things we want to do there? Do we understand the space environment well enough? What are the risks and the future opportunities? This talk will consider these questions and how YOU can be part of protecting space for future generations.



RAS200 Celebration Event
Credit: RAS/Richard O'Sullivan



Royal
Astronomical
Society



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As a member (Fellow) of the RAS, you'll benefit from our support for science and scientists. We promote research, public engagement, political advocacy, run scientific conferences, and offer a programme of grants and awards, access to our historic library, and our bimonthly A&G (Astronomy & Geophysics) magazine.

RAS student Fellows are eligible to be part of the Early Careers Network, our platform to support and nurture everyone in the first stage of their journey through the space and astronomy world. Whether you're looking at pathways in academia or industry, at home or abroad, this is for you - and we want to help you succeed. Join our mailing list via the QR code above.

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space work for humanity.



SATURDAY

ROSIE HULL (SKYRORA)
"SUSTAINABLE LAUNCHERS"
15:20-15:45 LTB



Skyrora is a launch vehicle provider based in Scotland, that is developing an orbital rocket, Skyrora XL. As the space sector continues to grow in the UK, the potential environmental effects of rocket launch are becoming a prevalent consideration. This talk will cover how Skyrora is taking step changes towards becoming a more environmentally responsible launch vehicle provider through ground breaking innovations in manufacturing and design.



Rosie is a Geology with Planetary Science graduate of the University of Manchester. After graduating she began working as a Business Analyst for Skyrora, and now works as a Senior Business Development Associate. Rosie primarily works towards finding collaboration and grant funding opportunities for Skyrora, while also working in general business development which includes attending conferences and events. She regularly works alongside the engineering team at Skyrora, following closely with their work to allow for the best possible opportunities to be found for the team.

AFTERNOON BREAK 15:45-16:00

BEN SCHOFIELD (SPACE FORGE)
**"SPACE FORGE: REVOLUTIONISING
RETURN FROM SPACE"**
16:00-16:10 LTB



Learn how Space Forge is leveraging the unique conditions of the space environment to develop next generation materials and experiments, and how we are employing novel heat shield and high-accuracy prediction software to bring down costs at every stage and improve landing accuracy.






Ben is a Systems Engineer at Space Forge, having recently graduated from the University of Sheffield with an MEng in Aerospace Engineering.


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ENGINEERING CAPABILITY WITH ENVIRONMENTAL CONSCIOUSNESS



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SATURDAY

NICHOLAS BOOTH

"HOW I LEARNED TO STOP WORRYING AND HAD A CAREER IN SPACE COMPLETELY BY ACCIDENT"

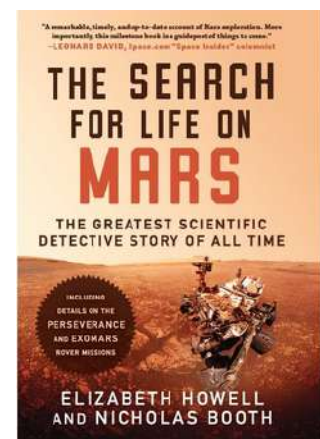
16:00-16:30 LTA

Nicholas Booth is the youngest Briton to have worked at NASA JPL but embarked on a career in the media. He covered space for newspapers in the nineties, then television and online publishing but now writes books and scripts. He still wants to be the first person to land on Mars. Nick's career is testimony to the fact that you will always find a niche in space and have some fantastic experience.

Nick originally wanted to be an astronomer who thought he would write about his research, but not being numerate enough, realised words rather than equations were his forte - and had many adventures in covering space research including meeting Richard Feynman, asking Arthur C. Clarke what animal he would like aliens to be like ("Doggy"), covering the first Hubble missions and witnessing history in the making without realising it at the time.

Join Nicholas after his talk to get your own signed copy of his book "The Search For Life on Mars" .

BOOK SIGNING



The Sir Arthur Clarke Awards 2022, Liverpool 13 October 2023

2023 Award Categories:

Space Achievements by:-

1. Industry/Project Team
2. Industry/Project Individual
3. Academic Study/Research Team
4. Academic Study/Research Individual
5. Education and Outreach
6. Student
7. Media, Broadcast and Written, Team
8. Media, Broadcast and Written, Individual
9. Lifetime Achievement
10. International Achievement



The Sir Arthur Clarke Awards recognise and reward those individuals and teams that have made notable or outstanding achievements in, or contributions to, all British space activities. Better known as 'The Arthurs', they have been presented annually since 2005.

If you have been impressed or inspired by any aspect of space activity or outreach, then submit a nomination in any or all of the categories above and join us in Liverpool to celebrate our 90th anniversary

Nominations Open (www.bis-space.com): 10 March 2023

Nominations Close: 16 June 2023

Announcement of 3 Finalists/Award: 7 July 2023

Presentation of Awards in Liverpool: 13 October 2023

At the 20th Reinventing Space Conference Dinner



At UKSEDS we currently run 5 competitions, on rover design, satellite design, IOSM and rocketry. Each year our competitions launch in October. Although the requirements for each competition differ, they all aim to emulate industry practice. Each competition concludes with students building and showcasing their designs at the competition events in summer.

Competing teams are given industry mentors, who supports the development of their design and can provide advice about working in the space industry. We also offer opportunities for training in areas including project management and systems engineering, as well as the chance to undertake outreach activities.

Our competitions aim to provide students with the key technical and soft skills for a career in space, and provide students with a direct connection to the industry through the support of advisors, sponsors and supporters including Airbus, Inmarsat, the Satellite Applications Catapult and more!



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PREPARING FOR LAUNCH



MOON RACE 2.0

16:10–17:10 LTB [Online]

The 19th of December 1972 marked the last time a human was walking the lunar surface until our current day. Could the technological advancements humanity has achieved over the last half a century allow us to go back to the moon and land both Man and Woman to establish lunar settlements on the surface of the moon? And even if it is possible, why would humanity want to do that, and how could we achieve such goals? Join the panel to hear industry specialists, world leading space agencies representatives, and engineers from sector leading companies discuss both the technical and non-technical aspects of humanity's next biggest step and biggest challenge as of yet, the Moon Race 2.0!

Charlotte Croison (Panel Moderator)

Senior Consultant
Euroconsult

As a Senior Consultant, Charlotte works for Euroconsult's consulting team. She is the editor-in-chief of the Government Space Programs report which provides a detailed insight into rising government space budgets in civilian and defense applications for the decade ahead. She has been leading and contributing on various consulting missions supporting industry stakeholders and governments in their decision-making related mainly to space policy and strategy, with a focus on legal aspects.



She holds a Master's Degree in International and European Public Law as well as a Master's Degree in Space and Telecommunication Law both from the University of Paris-Saclay.

Anita Bernie

Managing Director
MDA UK

Anita Bernie is the Managing Director of MDA UK which is based at the Harwell campus. Anita is an Honorary Group Captain in the Royal Air Force; a member of the Board of Directors of small satellite pioneers AAC Clyde Space; and a Trustee of The Air League. She possesses an Aerospace Engineering Degree and an MBA.



She is passionate about nurturing talent from all backgrounds and levels; using her platform to be an ally and role model to those considering or developing their science and engineering careers, and is active in STEM and Diversity & Outreach activities.

Amna Busoud

Mechanical Engineer
Mohammed Bin Rashid Space Centre

Amna is an experienced mechanical engineer with a specialization in space system. She has been involved in several notable projects through her career, including working on Emirates Lunar Mission. During her work on Rashid Rover, Amna has played a critical role in the design and development of the rover's mobility subsystem, which included the wheels, suspension, and steering mechanism.



Moreover, she has led the mast and gimbal subsystem of the rover. She is also an integral part of the operations of the mission, where her responsibility is to ensure that the rover various systems are functioning as expected, and that any issues or anomalies are identified and resolved in a timely manner.

MOON RACE 2.0

16:10-17:10 LTB [Online]

Paolo Ridolfi
Chief Engineer
Airbus UK

Paolo Ridolfi is a Chief Engineer at Airbus UK, currently leading the development of lunar rovers. With a background in mechanisms, robotics and optical systems, he specialised in the design of mobile systems for planetary exploration. He worked on the ESA ExoMars Rover and Sample Fetch Rover before moving to lunar exploration.



Sharon Cobb, Ph.D.
Associate Program Manager
Space Launch System Program
NASA Marshall Space Flight Center

Dr. Sharon Cobb is the Associate Program Manager of NASA's Space Launch System (SLS) Program at Marshall Space Flight Center. As the third-ranking manager within the office, Dr. Cobb assists with overall programmatic and technical planning, coordination, management, and integration activities. Cobb has 34 years of management and technical expertise.



She began her NASA career in 1986 as a senior research scientist conducting pioneering studies on the effects of reduced gravity processing on a variety of complex semiconductor materials. She went on to be Materials Science team lead and element scientist and program executive for the In-Situ Resource Utilization and Fabrication and Repair programs at NASA Headquarters. Cobb has been honored with a NASA Exceptional Service Award, NASA Space Flight Awareness Management Award, Federal Women's Program Outstanding Achievement Award, and numerous special service and group awards. A native of Birmingham, Cobb received bachelors and masters degrees in materials engineering from the University of Alabama in Birmingham, and a doctorate in materials science and engineering from the University of Florida.

DR Mamatha Maheshwarappa
Payload Systems Lead
UKSA

Dr Mamatha Maheshwarappa is Payload Systems Lead at the UK Space Agency (UKSA). She provides technical leadership on various UKSA programmes and projects. Also, the technical lead on UKSA's initiative on Space Based Solar Power (SBSP). Before this, she was the technical lead on SPEQTRE satellite project and has worked on ESA's Sentinel 4 & 5 test campaigns at RAL Space.



Mamatha has worked on transceivers for ExoMars and Lunar Polar Sample Return projects while at QinetiQ. She has a PhD in Software Defined Radios for Multi-Satellite Communications from the University of Surrey, UK. She was the technical lead for STUDSAT-1, India's first pico-satellite, launched by Indian Space Research Organisation, listed in the Limca Book of Records. Mamatha is the co-chair of the Women in Aerospace UK committee representing UKSA.

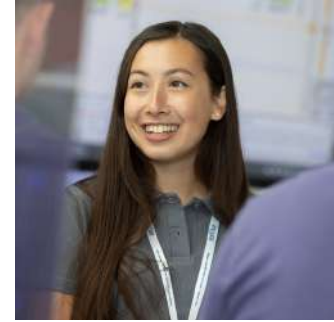
SATURDAY

SOPHIA LEE-ROBERTS (BAE SYSTEMS) "LAUNCHING CAREERS IN THE SPACE SECTOR"

16:30-16:40 LTA

BAE Systems has decades of experience in space technologies, including telemetry tracking and command processors, waveforms, electronics, antennas and digital signal processing and analytics. With the acquisition of In-Space Missions, we can now design, build and operate full satellites. Our space business sits in BAE Systems Digital Intelligence, which is home to 4,800 digital, cyber and intelligence experts. Sophia will discuss her experience as a Graduate at BAE Systems Digital Intelligence and the opportunities to get involved in emerging space projects.

Sophia is a Graduate Project Manager at BAE Systems Digital Intelligence, working primarily on projects within their space business. She graduated from King's College London in 2021 with a degree in Physics and Philosophy. During her time at university, Sophia sat on committees for a number of space outreach organisations, including UKSEDS and the Space Science and Engineering Forum (SSEF).



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SATURDAY

ROBERT WALSH

"IT IS ROCKET SCIENCE! THE NASA-UCLAN SOUNDING ROCKET PROGRAMME"

16:40-17:10 LTA

For over 40 years NASA's Sounding Rocket Program has provided vital scientific, technical, and educational contributions to space science and is still one of the most robust and versatile ways to undertake innovative space-based research. While the time in space is brief (typically approx. 15 minutes from launch to landing), sounding rockets are low cost due to being sub-orbital and the reusability of rocket hardware. The University of Central Lancashire have been collaborating with NASA's programme for over a decade and this talk will address what it is like to part of such a "successful rocket team" (and what happens when things don't go according to plan!). The presentation will focus on results from the unique solar datasets obtained UCLan researchers and outline future flights in 2023 and 2024.

Robert is a Professor of Solar Physics in the Jeremiah Horrocks Institute for Mathematics, Physics and Astronomy at the University of Central Lancashire (UCLan). He is a leading expert on the analysis of space-based solar observations coupled to computational modeling of the Sun. With over 50 journal papers and >£1M of personal research funding, Robert has developed many international collaborations, including being institutional lead on NASA's Marshall Space Flight Center's sounding rocket programme. He has received a number of national awards for science communication during his career including the BAAS Lord Kelvin Award (2005); and the IOP in Ireland's Tyndall Lecturership (2008) and the Royal Astronomical Society Annie Maunder Medal (2021).



UKSEDS NATIONAL AWARDS

17:10 - 17:40 LTB

SPONSORED BY  **The Institution of Engineering and Technology**

The Institution of Engineering and Technology (IET) provides support and resources to the engineering community and aims to promote and advance the profession of engineering. Through its sponsorship of the UKSEDS National Awards, the IET supports and recognises the achievements of students in the field of space, helping to inspire and encourage future generations of space professionals.

DRINKS RECEPTION 17:40 - 18:40

STARRY NIGHT CONFERENCE SOCIAL

FREE FOR CONFERENCE DELEGATES



Following an intense day at the Conference, blast off to an evening of intergalactic fun at our Saturday Social! Join us for a night filled with food and drinks, cosmic connections, and out-of-this-world entertainment. UKSEDS will provide some snacks to get the night started, and the bar will be fully stocked with an array of non-alcoholic and alcoholic drinks and additional food for purchase.

Soak up the atmosphere and make some new friends as you mingle with attendees, speakers, and professionals from the space industry. Whether you're a student looking to network with employers or a seasoned veteran looking to connect with the next generation of space enthusiasts, this social is the perfect opportunity to expand your connections and enjoy a night of space-themed fun.

Don't miss your chance to explore new opportunities and build lasting relationships at our Saturday Social, free to attend for conference delegates. See you there!



**University of Manchester Students' Union, Oxford Rd, M13 9PR,
Manchester, United Kingdom**



7 pm – 10 pm, Saturday 4th of March

**Thousands of
students.**

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One vision.

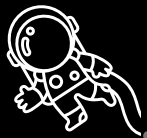
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Events & competitions



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 ukseds.org

 spacecareers.uk



SUNDAY

REGISTRATION + BREAKFAST
09:30-10:00



KEYNOTE SPEAKER

JENNY TURVEY

**"THE NATIONAL SPACE STRATEGY: UK
PRIORITIES AND HOW TO GET INVOLVED"**

10:00-10:30 LTB



Department for
Science, Innovation
& Technology

The UK Government published its first ever National Space Strategy in September 2021, setting out the current strengths of the UK space landscape and its ambitious vision for the future. This talk will summarise that vision, some of its challenges, and how you can get involved.



Currently leading on UK space strategy following the publication of the UK National Space Strategy in 2021, Jenny has a strong background in government infrastructure and strategy. Some of her priorities for UK space policy include developing a strong skills pipeline for the sector, delivering regional growth and ensuring the space supply chain decarbonises alongside the wider UK economy in the coming years.

SUNDAY

CIARA MCGRATH

"UNIVERSITY OF MANCHESTER WELCOME AND USING SPACE TO MAKE THE WORLD A BETTER PLACE"

10:30-11:10 LTB

Dr Ciara McGrath is a Lecturer in Aerospace Systems at the University of Manchester, with expertise in Astrodynamics and Space Mission Design. She was the IET's Young Woman Engineer of the Year 2021, and has appeared on TV, radio, and podcasts, and given a TEDx talk, promoting engineering and the space industry to a wide audience. She has worked and studied in the field of space engineering in five countries, and is an Associate Editor at the AIAA Journal of Spacecraft and Rockets.

More than 6000 spacecraft are currently orbiting just above our heads, less than 1000km above the surface of the Earth. These spacecraft look down on us – providing vital services that we use every day, and underpinning our work to address the UN Sustainable Development Goals. In this talk we'll look at how these spacecraft are making the world a better place, and talk about the opportunity for future engineers and scientists to develop radically new approaches to space mission design that will continue to provide vital data needed on Earth, while protecting our environment for future generations.



DEREK HARRIS

"IMPORTANCE OF COMMUNICATION FOR CAREER DEVELOPMENT"

11:10-11:40 LTB

I have worked as the Business Operations Manager since 2018 for Skyrora, which means I generally guide our commercial departments ensuring that the efficiency and smooth running of our commercial requirements. On top of the HR and sales functions I carry out I have also stepped up to become the CEO of Ecosene Limited. Ecosene is a spin out from Skyrora bringing technology to process waste plastics to usable fuels.

This is a session where I will take part with my mentee Divyanshi Gupta. I will discuss how being seen by potential employers can build a personal brand.



SUNDAY

CV WORKSHOP & SPEED NETWORKING

10:40-11:40 LTA

Boost your job prospects and make valuable connections in the space industry with this workshop! Learn from experts on how to write a standout CV, and then put your skills to the test in our speed networking session. Meet industry professionals and connect with potential employers.

This is a must-attend event for anyone looking to take their career in the space sector to the next level!



MORNING BREAK 11:40-11:55

POSTER SESSIONS

If you're grabbing a coffee on your morning break, why not come and visit the poster exhibition in the outdoor marquee? UKSEDS members will be presenting projects they have been involved in this past year. Learn more about the work teams have completed taking part in UKSEDS competitions, for their projects and their industry internships.



DIVERSITY IN SPACE CAREERS PANEL

11:55–13:00 LTB

This panel aims to champion equality, diversity, and inclusion in the space sector.

Hear from a wide range of professionals, spanning space industry and academia, through a series of talks and panel discussions. This will give insight into their work, research, and experiences in overcoming personal barriers.

Join us in discussing the importance of diversity and hear from experts in how to support yourself and others in making the sector truly inclusive.

Anushka Sharma
Founder

Naaut 
PANEL MODERATOR

Anushka Sharma (Nush) is the Founder of Naaut and Co-founder of the London Space Network. Nush is a connector, and technology generalist and has focused on AI, Web3.0 and deep technology for space applications. She builds communities and partnerships across the space and technology ecosystems and champions diversity and inclusion.

She's worked with NASA Frontier Development Lab, has been a mentor and judge for the NASA Space Apps Challenge, and brought Space to the London Tech Week agenda. Nush is keen to delve into the ethics for space and technology deployment on and off Earth. Naaut is hosting a programme of unique events to gather likeminded people with purpose working to scale impact across the space and technology ecosystems.



Dr Maryam Sani
Education Lead
Space Prize

Dr. Maryam Sani is a Chartered Chemist and a Royal Society of Chemistry Fellow. A leading STEM educator with over 30 years of experience in teaching, leadership, and research in the UK and Saudi Arabia. Dr. Sani received her PhD in STEM-related Education and Careers at Staffordshire University.

She founded ABS Educational Services, coaching and mentoring students worldwide and serving as a role model particularly for women and underrepresented minorities in STEM fields. She was recently appointed as the Education Lead for Space Prize Foundation which empowers young women to participate in the growing space economy.



DIVERSITY IN SPACE CAREERS PANEL

11:55-13:00 LTB

Fernando Salvador
Executive Director
STEM the Violence

Fernando is actively trying to inspire change at a grass root level with a non profit organisation which he started in 2020. Applying the experience he has gained in working with youth and different communities, he has combined his own passion for STEM to help create a platform which aims to use STEM as a tool to empower youth to veer away from a life of crime.



Having been brought up in one of the most deprived areas of west London he is using his strong community connections to grow his network and encourage kids to take part with STEM related activities such as water rocket challenges.

Ciara McGrath
Lecturer in Aerospace Systems
University of Manchester

Dr Ciara McGrath is a Lecturer in Aerospace Systems at the University of Manchester, with expertise in Astrodynamics and Space Mission Design. She was the IET's Young Woman Engineer of the Year 2021, and has appeared on TV, radio, and podcasts, and given a TEDx talk, promoting engineering and the space industry to a wide audience. She has worked and studied in the field of space engineering in five countries, and is an Associate Editor at the AIAA Journal of Spacecraft and Rockets.



Alan Cross
Development Manager
North West Space Cluster (STFC-UKRI)

After serving four years as the ESA Business Applications Regional Ambassador, Alan co-authored the North West Space Strategy along with UKRI-STFC colleagues. Subsequently, with the creation of the North West Space Cluster by UKRI-STFC and other key stakeholders, Alan was appointed as its Manager, and is tasked with identifying, coordinating and overseeing strategic interventions to grow and diversify the region's emerging Space economy.



Alan also serves as the region's representative within 'Space North'; a collaboration between the North West Space Cluster, Space Hub Yorkshire, and Space North East to support the development of an internationally competitive pan-Northern space economy.

DIVERSITY IN SPACE CAREERS PANEL

11:55–13:00 LTB

Anna Veldman

***UKSEDS Executive Trustee - Treasurer
KISS (Caltech) Study Member***

Anna is on the UKSEDS 2022/23 Executive Committee, point of contact for the diversity and outreach teams, and is a final year Mathematics student at Queen Mary. She will be starting a graduate program in Environmental Science and Policy at either Cornell or Columbia University later this year and was a recent intern at NASA JPL in the Earth Science Directorate.



In the future, she would love to contribute to bridging the gap between scientists and politicians working on environmental policy and she is already getting a taste of this as the youngest member of a multi-agency study run by the Keck Institute of Space Studies at Caltech entitled "Developing a U.S. Continuity Framework for Satellite Observations of Climate".

Susana Domene Marin

***UKSEDS Executive Trustee - At Large
Brooke Owens Fellow***

Susana is one of the 2022/2023 UKSEDS Executives At-Large. She is finalising her Integrated Master's in Aerospace Engineering at the University of Bristol while preparing to enter the industry as a Spacecraft Systems Engineer. In university, she has been president of Bristol SEDS, a speaker for the Women In STEM society, and a Global Lounge Ambassador for the university's international community.



Last year, she was selected for the Brooke Owens Fellowship, a competitive American programme for gender minorities in aerospace, and interned at Joby Aviation, in California. Her background in art, film and marketing has also helped her to maintain an interdisciplinary perspective of the space sector and a resulting love for communication and outreach.

SUNDAY

MIRANDA BARKER (EAST LANCASHIRE CHAMBER OF COMMERCE)

"LANCASHIRE IN SPACE"

11:55-12:05 LTA

Miranda Barker is CEO of East Lancashire Chamber of Commerce and Chair of RedCAT. The Chamber works for its members and the wider East Lancashire business community, providing advice, support and commercial services, spanning international trade, creative design, business training including CIPs and low carbon support. Miranda is a Lancashire LEP Director and is co-chair of the LEPs Energy & Low Carbon strand, and Co-Chair of the British Chambers of Commerce Chambers' Climate Challenge Group.



Lancashire has ambitions to be a leading destination for the development and support of the Space sector in the UK, contributing to the work of the North West Space Cluster. At the geographical centre of Great Britain with significant assets in academia, defence and cyber-security, manufacturing, energy and low carbon and a rich history of innovation, Lancashire is uniquely placed to deliver a first-class contribution to the emerging Space sector.



EWAN WRIGHT (SPACECAREERS.UK)

FIND YOUR PLACE IN SPACE

12:05-12:20 LTA



Looking for advice and opportunities to work in the space sector? SpaceCareers.uk is here to help you find your place in space. Come along to our talk for insights into the huge variety of different career opportunities, and advice on making your first steps in the sector. We look forward to seeing you there!

Ewan is a volunteer with SpaceCareers.uk in the leadership team. He is currently studying for a PhD at the University of British Columbia, Vancouver, focusing on the sustainability of outer space. Outside of work he enjoys being on the sides of (preferably snowy) mountains.



Looking for a
space career?

Need help with
hiring?

- Connecting
- Educating
- Supporting
- Advocating



SPACE
CAREERS.UK



SUNDAY

"GEOBOOST – PITCHING A WINNING IOSM IDEA"

12:20–12:40 LTA



The University of Bristol's GeoBoost team talk through their pitch for a space startup building geostationary orbital life-extension vehicles. Having won the inaugural UKSEDS In-Orbit Servicing & Manufacturing competition, the team breaks down the tech idea and business model that got them first place.

Presenters: Reuben Carter, Anton Stöger, Alejandro Engel Kurson, Hanna John, Prajakta Lad

IOP Institute of Physics

TONY WHITEHEAD (INSTITUTE OF PHYSICS) "The Institute of Physics and our Limit Less Campaign"

12:40–13:00 LTA



Tony is the Fellowship Officer at the Institute of Physics, with a main focus on the Fellows member category. However, he also works with the Student Engagement team and is a Team Leader for the IOP's Limit Less Campaign.

Tony is a graduate of the University of Greenwich, where he was involved in student engagement at the students' union and later at the university as a graduate. He then moved to the Institute of Physics in 2018 as the Student Engagement Officer before moving over to the Fellowship Officer role.

In this talk, Tony will take you through the benefits of the Institute of Physics' Associate Membership and how they can help students to develop, make contacts and prepare for work after graduation. He will then talk about the IOP's Limit Less campaign which aims to support people from backgrounds underrepresented in physics, to do physics after the age of 16. A brief introduction to campaign activities and how you can support young people to change the world and fulfil their potential by doing physics.

LUNCH 13:00–13:45 SPONSORED BY **BAE SYSTEMS**

Lancashire in Space

Lancashire in Space is a collaboration between Lancashire Enterprise Partnership, University of Central Lancashire, Lancaster University, and Edge Hill University.

Visit our stand to learn about Lancashire's world-class space and satellite assets, including its powerful R&D ecosystem. Sector strengths crucial to the development of the national and global space economy - such as cyber, aerospace, energy, data and electech - will also be explored.

In addition, Lancashire in Space will look at what future commercial space opportunities lie ahead, and discuss how Lancashire can maximise its position as a dynamic hub of future flight, space and satellite innovation.



Lancashire
Enterprise Partnership



University of
Central Lancashire
UCLan



Edge Hill
University



Join the heart of the physics community

Wherever physics takes you, membership of the IOP can support your personal and professional development throughout your career. Stand out to employers while taking advantage of benefits including:

- Being part of a network of physics students and professionals
- Special interest groups, local branch networks and volunteer opportunities
- Discounted rates for IOP conferences
- Tailored careers support and resources
- Physics World magazine every month
- Professional registration and chartered status
- Affiliate your student society to unlock support and funding for events

Become a member today at iop.org/join

IOP Institute of Physics

BUILDING A THRIVING NORTHERN SPACE SECTOR

14:00–15:00 LTB

Get a glimpse into the thriving space industry in the North at our panel discussion. Hear from leaders in the field as they share their experiences and insights on the challenges and opportunities of building a space sector in the region.

Learn about the innovative projects, cutting-edge technologies, and exciting new frontiers being explored.

Discuss with industry experts and discover the potential for growth and impact in the Northern space sector. This is a unique opportunity to learn and connect with the best in the business.

Phil Carvil
Head of North West Clusters
Science, Technology and Facilities
Council (STFC–UKRI)

Moderator

Phil is the Head of Clusters (NW) for UKRI–STFC, working with colleagues & stakeholders in developing High-Tech innovation regional clusters in key strategic sectors for the UK (including space). A scientist by background, he undertook his PhD for the European Space Agency at King's College London, conducting numerous studies on a SkinSuit, designed to provide axial loading to support astronauts in space and reduce the risk of spinal issues post-flight. This was used on several ESA astronaut missions. At a European Level, he serves as the elected President of European Low Gravity Research Association (ELGRA).



Bob Morris
Chair
Northern Space Consortium

Bob Morris, engineer and manager with a lifelong interest in astronomy and especially space. Electronics graduate whose experience of working in the Defence, Space and Commercial software industries led to dealings with a wide variety of people including some very senior individuals. Fellow of the British Interplanetary Society. Chairman of The Northern Space Consortium.



BUILDING A THRIVING NORTHERN SPACE SECTOR

14:00–15:00 LTB

Nathan Shoesmith

*Emerging Sectors Strategic Development
Lancashire Enterprise Partnership*

Nathan Shoesmith works on the strategic development of emerging economic sectors for Lancashire Enterprise Partnership. Following the publication of the UK's first ever national space strategies, Nathan has been developing and leading the coordinated Lancashire approach to the emerging Space economy. Outside of his work, Nathan is an award-winning young leader and social entrepreneur. As an awardee of the Diana Award, he champions and advocates Princess Diana's belief that young people can change the world.



Elaine Scott

*Centre manager
North East Satellite Applications Centre of Excellence*

Elaine is leading on the delivery of support activities and development of the North East's space ecosystem to help grow the region's economy. The NE Satellite Applications Centre of Excellence are funded by the SA Catapult and UK Space Agency to stimulate the space sector and build a community that thrives in the North East by working alongside businesses, academia, research technology organisations, investors and other agencies.



Elaine has over 15 years' experience in economic development and supporting businesses to innovate and commercialise their technologies.

Alan Cross

*Development Manager
North West Space Cluster (STFC-UKRI)*

After serving four years as the ESA Business Applications Regional Ambassador, Alan co-authored the North West Space Strategy along with UKRI-STFC colleagues. Subsequently, with the creation of the North West Space Cluster by UKRI-STFC and other key stakeholders, Alan was appointed as its Manager, and is tasked with identifying, coordinating and overseeing strategic interventions to grow and diversify the region's emerging Space economy.



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SUNDAY



HUGH LEWIS

"THE ILLUSION OF SPACE SAFETY
AND SUSTAINABILITY"

15:00-15:30 LTB

Hugh is a Professor of Astronautics at the University of Southampton. He has worked in the fields of space debris and space sustainability for more than 20 years. Hugh represents the UK Space Agency at meetings of the IADC and at meetings of the United Nations Committee on the Peaceful Uses of Outer Space as an expert on space debris, space operations and space situational awareness. He provides expert opinion to industry and academia, and commentary to journalists worldwide. Hugh has appeared on the BBC's Horizon programme and in a special feature accompanying the DVD release of the movie "Gravity".



Space safety and space sustainability have become critical concepts across industry, academia, and government, with efforts being made by all actors to ensure the safe and sustainable use of Earth orbits over the long term. But what do we really mean by "safe" and "sustainable"? How do we know if our behaviour in orbit will meet these principles? And do we fully understand the environmental, technological and economic consequences of meeting them?



The IAC 2023 Student Paper Competition, Baku Azerbaijan

The International Astronautical Congress (IAC) is the world's largest Space Conference. The 74th IAC will be in Baku on 2 to 6 October. The British Interplanetary Society runs the UK Individual Paper Competition for Graduates and Undergraduates. The Graduate and Undergraduate winners will receive cash prizes to assist them in going through to the finals in Baku.

Abstracts must be submitted by 24 April 2023 via www.bis-space.com.

Judging will be by a team from the BIS, the IET, the Space Universities Network and UKSEDS. Finalists will be invited to give 15-minute presentations at the BIS HQ, London on Saturday 29 April or 6 May 2023.



Submit your papers and
join the adventure.



SUNDAY

DESIGNING AN OFF- WORLD HABITAT

15:30 – 16:30 LTB

Join this workshop to explore and discuss the challenges humans are going to face in creating off world habitats. In this workshop, the mission of creating a sustainable society on Mars will be used to explore these challenges and how they can be addressed. You will work in teams to look at the different challenges humans will face travelling to and living on Mars – and the people and technology that will be required to address these challenges.



George graduated in 2019 from Cranfield after completing an MSc in Astronautics and Space Engineering. He went on to work for Inmarsat as a Systems Engineer looking at a UK sovereign capability for a standard Global Navigation Satellite System (GNSS). Post this, he explored and evaluated multiple concepts for the UK Space Agency (UKSA) to deliver various GNSS capabilities across a variety of orbits and architectures, as well as working on various Position, Navigation and Timing (PNT) projects. As a Senior Systems Engineer, George is now the Technical Manager on a number of Inmarsat, UKSA and ESA projects, delivering System Engineering expertise and technical knowhow in the PNT domain. Outside of work, George enjoys an adventure and using his Private Pilots Licence to fly around the UK and Europe.



Mark is Head of Programme Development at the careers education Charity 4wardFutures. 4wardFutures works to empower young people of all backgrounds to take control of their future career opportunities by engaging with employers, universities and professional organisations against the backdrop of a world that is rapidly changing through the impact of innovation and technology. Mark has spent over 30 years working across a range of education sectors. Throughout his career, he has always had a keen interest in how the development of collaborative partnerships between employers and young people can support their successful progression into their future lives and careers.

SUNDAY

HUNTING EXOPLANETS: A JWST WORKSHOP

15:30 - 16:30 LTA



The University of Manchester

In the Great JWST Exoplanet Challenge the Exoplanet Group here at the Jodrell Bank, University of Manchester, is teaming up with UKSEDS to recruit as many of you as possible to look for evidence of water within the atmosphere of one of the exoplanets that JWST has been observing. If you want to take part then visit <https://www.jb.man.ac.uk/~ekerins/nssc2023-exoplanet.html> for more details, or scan the QR code here:



Eamonn Kerins is an astrophysicist working at Jodrell Bank, University of Manchester. He is an expert in the detection of exoplanets using gravitational lensing, and his team recently announced the first exoplanet discovered from space using the microlensing technique. He leads the global SPEARNET survey that is probing the atmospheres of hot exoplanets. He also leads the Exoplanet Science Working Group for the European Space Agency's Euclid mission, which is due for launch in July 2023.



Ida is a first year PhD student in Astrophysics, who specializes in the field of exoplanets. Before moving to Manchester, she finished her undergraduate course at the University of Sheffield, where her personal tutor inspired her to pursue an academic career. Apart from exoplanets she is also actively involved in the space sector and has attended/launched rocket and balloon missions in Esrange Space Centre, Sweden.



Akshay is a PhD student at JBCA, University of Manchester. His research is focused on studying exoplanets demographics, which involves statistical methods to understand the overall population of exoplanets. As part of his PhD, he is also the maintainer and co-developer for the TransitFit, which is an open-source python package to fit light curves from exoplanet transits.

SUNDAY

UKSEDS ANNUAL GENERAL MEETING

16:30-17:30 LTB

In addition to talks and exhibitions, the National Student Space Conference (NSSC) hosts the UKSEDS Annual General Meeting (AGM). UKSEDS is the national student space society, and its team of student and graduate volunteers organises the NSSC every year.

UKSEDS' 2023 AGM will be held on Sunday 6th March at 16:30. The officers will present their reports for the year, and members of UKSEDS will be able to stand for positions on the Executive Committee. It is an opportunity for members to review the Committee's progress and ask any questions regarding the direction the organisation will take in the future. This year, our impartial returning officer for the exec election will be Em Truman.

The Executive Committee

The Executive Committee leads UKSEDS, creating and implementing our strategy and activities. They manage the staff, control the budget, and are legally responsible for the good-running of the charity as its charitable trustees. The Executive Committee are accountable to the other Trustees and to the Membership.

Executive Committee roles require a significant time commitment and should not be taken on lightly, but offer the opportunity to gain valuable management, communication, and teamwork skills. Experience of similar roles in university societies is recommended but not required, provided applicants are enthusiastic and willing to learn.

Agenda

- Approval of minutes of the 2022 AGM held at King's College London
- Reports from the Committee
- Approval of the accounts
- Review of new policies; Anti-Harassment and Anti-Bullying Policy, Disciplinary Policy and Online Code of Conduct Policy
- Elections
- Any Other Business

I'm not a member, can I attend?

Yes. Non-members are not allowed to vote or stand, but may attend the meeting. If you would like to become a member it's free - check out our website for more details!

I'm a member but don't have a conference ticket, can I attend?

Yes. Members can attend the AGM without a ticket for the conference, but should notify the Secretary (secretary@ukseds.org).

I'm a member but can't attend, can I still vote?

Yes. Any members who cannot attend the AGM in person but still wish to vote should appoint a proxy or make their voting intentions known to the Secretary (secretary@ukseds.org).

UKSEDS

UKSEDS - UK Students for the Exploration and Development of Space - are the UK's National Student Space Society.

A registered charity, UKSEDS was formed in 1988, and is the UK chapter of SEDS - the world's largest space enthusiast organisation for both school and university students. SEDS was founded in 1980 by students at MIT and Princeton University and now has more than 60 chapters worldwide.

UKSEDS supports students and industry by running space projects, conferences, workshops, and outreach to promote involvement in the space sector.



1500 **52**

**BECOME A
MEMBER FOR FREE**

MEMBERS

BRANCHES

COMMUNITY HUB

The UKSEDS Community Hub is your go-to destination for all things space-related. It's a dynamic online platform that brings together space enthusiasts, students, and professionals from all over the UK to share knowledge, ideas, and resources.

Whether you're looking for information about the latest space missions, seeking advice on career opportunities in the space industry, or simply want to connect with like-minded individuals who share your passion for space, the UKSEDS Community Hub has got you covered.

With a range of opportunities, events, and resources at your fingertips, you'll be able to stay up-to-date with the latest developments in space and network with others who are as enthusiastic about space as you are.



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