

SKYMATTERS

Blackrock Castle Observatory www.bco.ie
Download monthly *skymatters* newsletters from www.bco.ie/sky-matters

November 2021

Things to watch out for

November 4

The New Moon falls on this date this month. The Moon will be located on the same side of the Earth as the Sun and will not be visible in the night sky. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere.

November 5

The ice-giant Uranus will be at Opposition. This is similar to a Full Moon as Uranus will be directly opposite the Sun behind the Earth. Just like a Full Moon, this means that Uranus will be fully illuminated and will stay in the sky all night long, rising at sunset and setting at sunrise. Although this is the best time to view Uranus, it is still incredibly distant and tough to see even with powerful telescopes.

November 17/18

The Leonids Meteor Shower will peak this month on the night of the 17th into the morning of the 18th, although it technically runs from the 6th-30th. The Leonids generally produces 15 meteors per hour at its peak, although this varies from year to year on a 33 year cycle, sometimes causing up to 100 meteors an hour. The last peak of this sort was in 2001, so we won't see such a peak this year. The Leonids is produced by dust grains left behind by comet Tempel-Tuttle, which was discovered in 1865. Unfortunately the nearly full moon will dominate the sky this year, blocking all but the brightest meteors. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Leo, but can appear anywhere in the sky.

November 19

The Full Moon will fall on this date this month. The Moon will be located on the opposite side of the Earth as the Sun and its face will be fully illuminated.

This Full Moon will feature a Partial Lunar Eclipse. A partial lunar eclipse occurs when the Moon passes through the Earth's partial shadow, or penumbra, and only a portion of it passes through the darkest shadow, or umbra. The eclipse will be visible throughout most of eastern Russia, Japan, the Pacific Ocean, North America, Mexico, Central America, and parts of western South America. Unfortunately this eclipse won't be visible from Ireland or anywhere in Europe.

Below we see sunset on the 5th of November at 8pm. Although Uranus rises with the sunset, it is best to wait until the sky has fully darkened, as this will give you a better view through your telescope and give time for Uranus to rise up from the eastern horizon. Although Uranus is in the constellation Aries, it is easier to find it in relation to the Pleiades or Seven Sisters, which can be seen in the top left corner of the below image. Uranus, invisible to the naked eye, is highlighted here with red cross-hairs. Jupiter and Saturn are both visible further to the south, on the right side of this image.





ENTERPRISE IRELAND

where innovation means business



arianespace

arianeGROUP

Above left we have the European Space Agency logo, showing the flags of the member states and associated states.

Top right we have the logo and slogan of Enterprise Ireland, the Irish state agency that acts as an intermediary between ESA and Irish businesses.

Bottom left we have the logo of Arianespace, a commercial launch provider, one of the many private companies with a relationship with ESA.

Ireland and ESA

ESA is the European Space Agency, Europe's equivalent of NASA. However, thanks to its very different history, ESA works quite differently to NASA, ROSCOSMOS and JAXA. ESA is not a national space organisation, rather it is a pan-European, and even trans-European, intergovernmental organisation. ESA's 22 member states include non-EU states, and its cooperating states include Canada. ESA works with national space agencies, of which there are several in Europe, and it also works with the European Union on European Space Policy, ensuring good collaboration and aligned goals between the two organisations. This does not however mean that ESA is the EU space agency, rather it is a space agency that works with the EU, as well as other states and private organisations. For example, the French company Arianespace, the oldest commercial launch provider, builds and supplies the Ariane and Vega rockets used by ESA. As ESA began as a space research organisation, rather than aiming initially for human spaceflight, the goal and priorities of ESA are quite different. Sending humans to space and exploring other planets are often secondary to ESA's goals of earth observation and telescopic surveys of stars, exoplanets and other galaxies using both ground-based and space telescopes. Of course, there have still been a number of ESA astronauts on board the ISS, which has some ESA components including the Columbus module, as well as ESA missions to other planets, comets with the Rosetta mission which placed a lander on comet 67P/Churyumov-Gerasimenko, and moons with the Huygens probe which landed on Saturn's moon Titan.

Each ESA member state connects with ESA in a different way. Some countries collaborate with ESA using their national space agency, such as France's CNES. Other countries connect directly through governmental bodies, such as ministries for transport or ministries for economic affairs. Here in Ireland, it is state agency, Enterprise Ireland, which is under the purview of the Department of Enterprise, Trade and Employment. Enterprise Ireland supports Irish business in general, and so is in a perfect position to coordinate ESA supports for space industry. Enterprise Ireland supports both new space start-ups and older companies hoping to branch into space technologies. Enterprise Ireland also support Ireland's National Space Strategy for Enterprise (NSSE), which are essentially 5 aims or goals to ensure Ireland's involvement in space industry internationally. The goals and aims of the NSSE are often achieved and supported by ESA programmes in Ireland. Furthermore, funding from Ireland given to ESA is matched by investments in Irish business and in contracts tendered to Irish businesses. Irish companies have not only developed space technologies with ESA support, they have solved problems which allowed ESA missions to continue, such as the Enbio heat-resistant coating on the Solar Orbiter.

Ireland's NSSE is our national step into the international space arena. Any Irish company with a good enough relevant idea can seek funding from ESA through Enterprise Ireland, and any Irish company can register to respond to ESA tenders and take up ESA contracts, but people need to know about it to take full advantage of it. Promoting an interest in space and science has always been a primary goal of Blackrock Castle Observatory, but in showcasing the possibilities that ESA collaborations put on our doorstep, and highlighting the governmental commitment to Ireland's future in space, we hope to encourage real participation in space industry. Rockets and satellites are fun to watch and study, but we have the chance here in Ireland to make them, design them, control them and help developments in space make a concrete difference for people here on the ground.



A National Conversation on Research in Ireland



Rialtas na hÉireann
Government of Ireland



An Roinn Breisoideachais agus Ardoideachais,
Taighde, Nuálaíochta agus Eolaíochta
Department of Further and Higher Education,
Research, Innovation and Science

Creating our Futures

Creating our Futures is a campaign being run by the Irish government to get ideas from the public about what research Irish scientist should pursue. The COVID-19 pandemic has highlighted the importance and impact of research. In order to ensure that Irish researchers are working on projects and ideas that matter to the Irish public, the Government would like to learn what matters to the Irish public. Not only will ideas from the public inform the government, they may inform changes in policy and allocation of funding to different research projects. As much Irish research is funded using public funds, it makes sense to learn what the public would like that money spent on and what should be prioritised. It is also important that research has benefits for the public. What we research today decides what we know tomorrow. Fundamentally, the question being asked is, what do you think we need to understand to create a better future for ourselves? This question is broken down into what you may find interesting and what challenges facing you, your community or the country need to be solved. Research can both give us a greater understanding of problems and provide solutions to those problems.

Of course, different people have different priorities. While the provision of education may be the biggest challenge in your community, in other areas it could be pollution, or poverty. Some people may want to focus Ireland's research in solving problems close to home, while others may wish to concentrate Irish research on global issues that affect Ireland. Others may prefer to research and develop products that can create more state revenue and jobs. All of these things are important, and by getting ideas from diverse communities around the country, the government can get a better idea of what matters most to the most people. It may also highlight areas of research that have not yet been pursued by Irish researchers. There is always the chance that some Irish resident will point out a problem that has never been highlighted before, or phrase a research opportunity from a perspective that has never been seen. Scientists are generally quite good at science, but they too make mistakes and overlook things. The Creating our Futures campaign gives us all the chance to chime in and contribute to these decisions, which over time affect us all.

Research occurs in almost every discipline. In the arts, hospitality, healthcare and economics, research & development is how we produce new things and create solutions to problems, in all walks of life. Whatever the problem or idea, regardless of what it relates to or who it affects, if you believe the government needs to be made aware, drop it in. We only have until the end of November to submit ideas. After that, all the ideas, hopefully tens of thousands, will go to a committee of experts. With so many ideas, they will need to be collated and compressed to form a report for the government. One person on this expert committee is Dr. Niall Smith, as part of the Munster Technological University, is also involved in the steering committee for Ireland's National Space Strategy for Enterprise (NSSE) mentioned overleaf. Once the final document is presented to the government, it will represent the ideas of a whole country. At least, it will represent the ideas of any one who contributed. This call for ideas and input is open to everyone, you just need to participate. If you don't have a particular area of research that calls to you, then tell a friend. Even if you gave hundreds of ideas, still spread the word to others. The more people contribute the more diverse ideas will be collected and the more representative of the country the final document will be. If you want to have a say in Ireland's future, now is a chance to have an effect. Don't let it slip past!

Tips for “Creating Our Future” Events

The “Creating Our Future” campaign is described inside this issue, it is a campaign to gather ideas and opinions from the Irish public to help inform national policy and suggest where funding should be allocated for research. What Irish researchers study and how much money they have to do it is something we can influence.

First, you can participate in an event! As well as research institutes and private companies hosting brainstorming sessions, there is a roadshow touring the country which gives an opportunity for many members of the community can come together and think about ideas together. This also provides a place where you can ask questions about the campaign.

Secondly, you can host your own event! Not only can you host a brainstorming session, with support from the Creating our Future such as slides and suggestions, you can also host a quick brainstorm, just 15 minutes at the end of any other meeting or event that you happen to be hosting. Not only is the relevant information and resource for submitting ideas provided for, any gathering of people can have a quick session of ideas tacked on to the end, making them very easy events to host.

Lastly, you can do this on your own, with your friends or your family, no official event is necessary. All you need to do is put ideas into the website, and encouraging others to do so is a big help, whether it's your classroom, your fitness group, your hobby society, any group at all. You don't need to create an actual public event that strangers might turn up to, it need only be yourself and whoever else you think has good ideas. The more people contribute, the better the ideas we will get.

Website of the month

creatingourfuture.ie

The above webpage is where to go, not only to submit ideas, but to host events, find events to attend, stay up-to-date on news about the campaign and learn more about how to get involved and how it may effect you if you yourself are a researcher or research organization.

Quote of the month

“People ask me to predict the future, when all I want to do is prevent it. Better yet, build it. Predicting the future is much too easy, anyway. You look at the people around you, the street you stand on, the visible air you breathe, and predict more of the same. To hell with more. I want better.”

Ray Bradbury, Beyond 1984: The People Machines. (1979).

Some Upcoming Events at MTU Blackrock Castle Observatory

Here at Blackrock Castle Observatory, we too will be running some Creating our Future events during November, you can keep an eye on our website for details or you can take a look at the Creating our Future website which will also host event details.

Science week is also running this November from the 7th to the 14th, so keep an eye on the Science week website for upcoming events as well.

Public Opening Hours are subject to change due to COVID-19 mitigation measures.

Phone: +353-21-4326120 / Email: info@bco.ie

Blackrock Castle Observatory is operated by Munster Technological University and is a partnership with Cork City Council.