

Dundee Astronomical Society – Winter Talks Programme 2020 – 2021

9th October 2020

James Wurster, University of St Andrews - “Modelling the Birth of Stars”

Stars are the lifeblood of the Universe. They provide light so that we can study the dynamics of galaxies, host planets upon which life may live, and when massive stars die, they collapse into black holes. Since a star's evolution is dictated by its mass at birth, understanding the star formation process, and by extension star forming regions, is incredibly important for all aspects of astronomy.

23rd October 2020

Michael Petersen, Royal Observatory, Edinburgh - “How do astronomers model gravity?”

Gravity is one of the most straightforward physical effects. Newton's simple formulation has proved adept at describing many simple systems in the Universe, such as our solar system. However, as systems increase in complexity, understanding the subtler effects of gravity is best accomplished through computer simulations.

13th November 2020

Matjaz Vidmar, Royal Observatory, Edinburgh - “Satellite Data and (Trans)Planetary Ecology: How Space is Changing our World-view?”

Data from satellites is changing the way we perceive natural environment and life on Earth. From protection of wildlife, mapping the climate change or disaster relief, remote sensing from space is enabling us to monitor most of Earth's surface in near real-time allowing for a very different perspective on our planet and the global consequences of local actions.

27th November 2020

Stephanie Campbell, University of St Andrews - “Measuring the Invisible: Shining a Light on Dark Matter in Galaxies”

We now know that dark matter plays a crucial role in our universe: it forms the cosmic web which acts as the scaffolding for large scale structure in the universe. On smaller scales it is also a fundamental component in forming galaxies and explaining how they behave. As the name suggests, we can't detect dark matter directly, so how can we learn more about it and test our theories?

11th December 2020 : Christmas Quiz

With Jeanette Noble & Graham Young - Our regular fun quiz night, in an online format this year.

15th January 2021 : Members' Evening

Your chance to shine!! Short talks, demonstrations, show & tell items, on any relevant subject – all contributions welcome.

29th January 2021

Harry Chittenden, University of St Andrews - “Mocking the Universe Using Machine Learning”

The generally accepted basis for galaxy formation is that galaxies are formed from the contraction of the baryonic gas bound gravitationally to a dark matter halo. The use of regressional neural

networks to model the galaxy-halo connection has very promising implications. Existing approaches to the problem such as gravity-hydrodynamical simulations are limited in terms of the size of the cosmic structures and fine detail which can be handled accurately. New methods may reduce the estimated computation time from multiple weeks or months to a matter of minutes.

12th February 2021

Pete Kuzma, Royal Observatory, Edinburgh - "The Great Galactic Graveyard of the Milky Way"

The peacefulness of the night sky is hiding a horrendous secret - the Milky Way is littered with remains of smaller galaxies that met an unfortunate end when attempting to interact with our larger galaxy. Even those star clusters born here are being torn apart by the Galaxy's appetite. We will explore the vast reaches of the Milky Way for these remains and explore how this is all part of the natural evolution of galaxies.

26th February 2021

Matteo Cataneo, Royal Observatory, Edinburgh - Talk related to cosmology. Details to follow.

12th March 2021

Andrew Paliwoda, Responsive Access - "Reducing Barriers to Space"

NewSpace has massively reduced financial costs for accessing space, but many barriers remain. This talk will investigate some of these hurdles and potential solutions. Responsive Access are an ESA incubated company based in the Royal Observatory of Edinburgh founded by industry professionals. They are investigating software solutions to the issue of mission management.

26th March 2021: AGM - Possibly including a brief talk or presentation.