



SAS Lecture/Talk - Speakers List for 2015/2016

Date	Time	Lecture / Talk Title	Speaker	Society/ Organisation	Trans- port Reqd. (Y/N)	Abstract / Talk outline
15 March 2015	7:00pm	"Our Variable Magnetic Sun"	Dr Anthony Yeates	Durham University	N	On the morning of 20th March we will witness a partial solar eclipse, though we won't see totality in the UK. Recent total eclipse observations have enabled stunning images of the Sun's corona to be recorded, spectacularly demonstrating that the magnetic field is the primary structuring force in the solar atmosphere. Fortunately, we no longer have to wait for total eclipses: modern satellite observations give us a high-resolution, 24-7 view of the solar corona. Yet far from clarifying our understanding of the Sun's magnetic field, these observations are revealing new intricacies and complexities. In particular, when we observe the Sun continuously, we see that the magnetic field is far from the static picture suggested by traditional eclipse pictures, but is highly dynamic. In this talk, I will use modern observations and models to illustrate our current understanding of this time variation. This question is not an academic one, for the Earth sits right inside the Sun's varying magnetic field!
19 April 2015	7:00pm	Future of Extremely Large Telescopes (ELTs)	Professor Richard Myers	Durham University, Centre for Advanced Instrumentation	N	A new generation of giant telescopes is being designed. They will have primary mirrors with diameters ranging from 25 metres to 39 metres. We will look at the new astronomy that these systems will be able to do and some of the new technologies that they will use. We will concentrate on the largest of these new telescopes: the European Extremely Large Telescope.
17 May 2015	7:00pm	SAS Astrophotography competition.	SAS	Sunderland AS	N/A	Hosted by SAS.

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			Chairperson			
Talk Season 2014/2015 Ends						
20th September 2015	7:00 pm	The Warped Century: Celebrating 100 years of General Relativity, 1915-2015	Dave Newton	Sunderland Astronomical Society	N	The years around 1915 conjure up dark images of the Great War and the destruction that went with it. Yet 1915 was also the year that Einstein's master work, General Relativity, first appeared and forever changed our view of this Universe we live in. This talk gives the background to the theory and how our understanding of the universe has changed profoundly over the last 100 years – Black holes, the big bang, gravitational lenses and the accelerating universe have all sprung from Einstein's insight into gravity.
18th October 2015	7:00 pm	The dark side of the Universe	Dr. Pratika Dayal	Durham University. Institute for Advanced Study and Institute for Computational Cosmology	N	The standard model of cosmology tells us that the Universe is mostly made up of 'Dark Matter', with normal matter contributing only about 15% of the total budget. However, direct detections have not yielded any results about the nature of this mysterious dark matter, leaving us with only indirect means of inferring its existence and distribution. Pratika will try to answer tantalising questions including: What is the nature of this Dark Matter? Where is it? How did it shape the Universe that we see around us, and are there any possibilities that we will ever see it?
15th November 2015	7:00 pm	New Eyes on the Cosmos - Astronomical Technology for the 21st Century	Prof. Ray Sharples	Department of Physics, University of Durham	N	Many great breakthroughs in astronomy have come as the direct result of the applications of new technology. In this talk I will review the development of astronomical technology over the last 300 years and look forward to a new era of

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						giant telescopes and multi-wavelength facilities which will come on-line in the early part of this century.
20th December 2015	7:00 pm	The twelve "Dames of Christmas". Female Astronomers through the ages.	Graham Edwards	Sunderland Astronomical Society	N	The talk will consist of looking at women from history, going back as far as Hypatia of Alexandria, to the present. Graham will look at the problems they had to deal with, i.e. male dominance and how they fought against it and finally broke through some of the barriers, male- chauvinism , heresy, etc.
17th January 2016	7:00 pm					
21st February 2016	7:00 pm	Extra-terrestrial life: An evolutionary biologist's view	Wallace Arthur is Emeritus Professor of Zoology	National University of Ireland, Galway, and a volunteer at Kielder Observatory	N	The rate of exoplanet discovery over the last 20 years has been incredible. But do any of these newly-discovered worlds act as a home for life? And what about the other planets and moons of our own solar system - might we yet find evidence of present or past life on Mars, Europa or Enceladus.
20th March 2016	7:00 pm	The Big Bang, Dark Energy and Cosmic Sound	Prof. Shaun Cole	Department of Physics, University of Durham	N	Shaun will give a general review of the Hot Big Bang and the accelerating expansion of the universe. I will then focus on how sound waves from the early universe can be used as a yard stick to measure the expansion history of the universe. This will lead to a description of some of the big projects (Euclid and DESI) that are being planned to exploit this to measure the properties of Dark Energy.
17th April 2016	7:00 pm					
15th May 2016	7:00 pm	SAS Astrophotography competition.	SAS Chairperson	Sunderland AS	N/A	Hosted by SAS.

All talks unless otherwise stated will be given on a Sunday evening for the date and time shown above in the Discovery Room at the WWT Washington Wetland Centre, Pattinson, Washington, Tyne and Wear, NE38 8LE.

Travel & location instructions.

Projector will be provided for the talk.

A laptop, speakers, laser pen, etc can be provided upon request.