UNIVERSITY OF CAMBRIDGE

Institute of Continuing Education

Astronomy days: Rocky worlds and gas giants

Date	13 March 2016	**Time**	09:30 – 16:45
Venue	Madingley Hall Madingley Cambridge		
Tutor:	Robin Catchpole Simon Hodgkin Neil Trentham	**Course code**	1516NDX038

Director of Programmes	Emma Jennings
For further information on this course, please contact	Clare Kerr, Public Programmes Coordinator 01223 746237 clare.kerr@ice.cam.ac.uk

To book See: www.ice.cam.ac.uk or telephone 01223 746262

Tutor biographies

Dr Robin Catchpole

Robin Catchpole, recent Senior Astronomer at the Royal Observatory Greenwich, currently works at the Institute of Astronomy in Cambridge. He took a BSc at University College, London, before being posted to the Royal Observatory at the Cape of Good Hope. He received his doctorate from the University of Cape Town. In 1991 he returned to the Royal Greenwich Observatory, where he worked until it closed in 1998. He has authored and co-authored over 100 research papers and has used telescopes around the world including the Hubble Space Telescope. His research interests include the composition of stars, exploding stars, the structure of our Galaxy and galaxies with central black holes. He gives numerous popular lectures and radio and TV interviews.

Dr Simon Hodgkin

Simon Hodgkin was born in Newcastle and spent his early years just outside Dundee, home of the Mills Observatory, a source of great inspiration. After schooling in London, then Bristol, he obtained a degree in Physics with Astrophysics from Leeds University in 1989. His PhD was completed in 1995 with the X-ray astronomy group at Leicester University, working on ROSAT observations of late-type stars. After a postdoc position at Leicester, searching for and characterizing very low mass stars and brown dwarfs, Simon moved to the Institute of Astronomy (Cambridge) in 1999 to work

with the Cambridge Astronomical Survey Unit, specializing in the processing and analysis of wide-field survey data from large-format CCD and Infrared cameras. More recently, he has become especially interested in time-resolved astronomy, including searches for young eclipsing binary and transiting planetary systems, and studies of the transient Universe with the Gaia satellite.

Dr Neil Trentham

After attending school in Philadelphia and London, Neil Trentham did his undergraduate degree studying natural sciences specializing in physics at the University of Cambridge. He then did a PhD in astronomy at the University of Hawaii, graduating in 1997. Since then, he has worked at the University of Cambridge as a researcher in extragalactic astronomy and cosmology. He has studied a wide range of objects from Gamma Ray Bursts to lowmass galaxies and dark matter. More recently he has become interested in astrobiology and the search for extraterrestrial life.

Day school content:

How do planets form? Is there life elsewhere in the Universe? In the first of a new series of astronomy day schools, we will explore the planets and other rocky bodies of our solar system, catch up on the rapidly advancing hunt for planets around other stars, and discuss the origins of life and the prospects for finding it in the solar system and beyond. No previous astronomy experience is needed, and each astronomy day is self-contained so you are welcome to attend one or more.

Programme:

09:30	Terrace bar open for pre-course tea/ coffee
10:00 – 11:15	Origin and contents of the solar system (Dr Robin Catchpole) Within this session Dr Robin Catchpole will cover the main constituents: rocky 'terrestrial-like', gas giants, asteroids, TNOs, comets, terrestrial planets and gas and ice giants, recent missions and new results (water on Mars, Pluto and Cassini).
11:15	Coffee
11:45 – 13:00	Is our Solar System unique? (Dr Simon Hodgkin) Within this session Dr Simon Hodgkin will discuss planet detection methods and their first discoveries, Pulsar planets, RV - 51 Peg, Transits - HD209458b, microlensing, imaging, characterizing exoplanets - results and limitations (mass-radius space) and our growth of understanding - sensitivities and bias (all done in mass-separation space).
13:00	Lunch
14:00 – 15:15	Properties of other worlds (Dr Simon Hodgkin) Within this session Dr Simon Hodgkin will discuss the Galaxy, Kepler, population statistics, and multiplicity, Hot Jupiters (migration), towards a first estimate of Eta Earth, atmospheres and habitability.
15:15	Tea
15:30 – 16:45	Life in the Universe (Dr Neil Trentham) Within this session Dr Neil Trentham will discuss what is meant by "life" and the history of evolution of life on Earth and under what conditions life as we know it can exist. This will be followed by a discussion of biosignatures and what we would need to do to identify life on another planet around another star. Recent estimates of the number of such planets in our region of the Galaxy will also be presented as well as some recent observations of our solar system and the implications for astrobiology
16:45	Day school ends

Additional information

Venue

Details of how to find Madingley Hall can be found on our website:
http://www.ice.cam.ac.uk/who-we-are/how-to-find-the-institute

Refreshments

Tea and coffee and a light sandwich lunch will be provided. If you have any specific dietary requirements or allergies and have not already advised us, please inform our Admissions Team on ice.admissions@ice.cam.ac.uk or +44 (0)1223 746262.

Note Students of the Institute of Continuing Education are entitled to 20% discount on books published by Cambridge University Press (CUP) which are purchased at the Press bookshop, 1 Trinity Street, Cambridge (Mon-Sat 9am – 5:30pm, Sun 11am – 5pm). A letter or email confirming acceptance on to a current Institute course should be taken as evidence of enrolment.

Information correct as of: 26 February 2016