

## Specialist Talks for Physics Classes in Schools

Please contact Dr Maria Pavlidou, Schools Liaison Officer, to arrange a talk at your school. Examples are shown below:

Title	Brief Synopsis	Lecturer	Age Group
Molecular Motors	Molecular motors are the “shakers and movers” that drive the basic processes of life on the molecular scale inside living cells. Billions of actomyosin motors work together to keep our hearts beating, propel sperm during reproduction, transport material inside our brain cells while we think.	Dr Neil Thomas, Medical Physics Research Group	A Level
Big Science in the Nanoworld	Latest developments in research in this interesting and fast moving area.	Dr Quanmin Guo, Nanoscience Research Group	A Level/interested GCSE
Searching for new particles at the CERN Large Hadron Collider	This lecture will briefly summarise our knowledge of the smallest particles that seem to be the fundamental constituents of our universe and the forces that act between them. The Large Hadron Collider (LHC) at CERN produces the most energetic proton-proton collisions yet studied at accelerators. This talk will introduce some of the challenges of using huge detectors to search for new particles and new phenomena at the LHC, including some recent results.	Prof Peter Watkins, Particle Physics Researcher	A Level/interested GCSE
The Search for Elementary Particles	What is matter ultimately made of and what are the forces that hold it together? These are the elementary particle physicists are grappling with. The talk describes our current understanding and also experiments being designed to complete the picture.	Prof Ian Kenyon, Particle Physics Research Group	A Level/interested GCSE
Particle Physics and the Mysteries of the Early Universe	This interactive presentation will reveal some of the secrets of the world’s largest accelerator, the Large Hadron Collider (LHC), and how the LHC experiments hope to answer some of the most fundamental questions about the Universe and our existence.	Prof Cristina Lazzeroni, Particle Physics Research Group	A Level/interested GCSE

Was Einstein Right? Exploring the ``dark'' side of the universe"		Dr Alberto Vecchio, Astrophysics Research Group	A Level/interested GCSE
Exploring our Dark Universe	An introduction to how astronomers learned that the matter-energy content of the Universe is dominated by the invisible "dark matter" and the yet more mysterious "dark energy". How are we able to measure the properties of dark matter and dark energy using astronomical observations, both today and in the future?	Dr Graham Smith, Astrophysics Research Group	A Level
Journey to the centre of Gravity		Prof Clive Speake, Astrophysics Research Group	A Level
The Oscillating Sun	The Sun oscillates with its own particular set of frequencies – the research group at Birmingham have designed telescopes which operate around the world, collecting data to reveal the secrets inside the stars.	Prof Bill Chaplin, Helioseismology Research Group	A Level/interested GCSE
Sounding Stars and the Search for New Planets	Helioseismology and using data from the NASA Kepler Mission to look for new planets.	Prof Bill Chaplin, Helioseismology Research Group	A Level/interested GCSE
Astrostatistics: 'seeing' black holes, 'hearing' merging galaxies, and counting extra-solar Earths		Dr Will M. Farr, Astrophysics Research Group	A Level students in physics and maths
What we are really made of: From alpha particles to carbon-12 and beyond	In stars, elements are formed via the fusion of protons. To produce heavier elements necessary for all life on earth, alpha-particles themselves fuse together. This talk discusses the formation of the elements and how recent advances are expanding our knowledge of Carbon-12.	Dr Tzany Kokalova Wheldon	A Level/interested GCSE

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<http://www.stemnet.org.uk/educators/secondary-schools-and-sixth-forms/>