

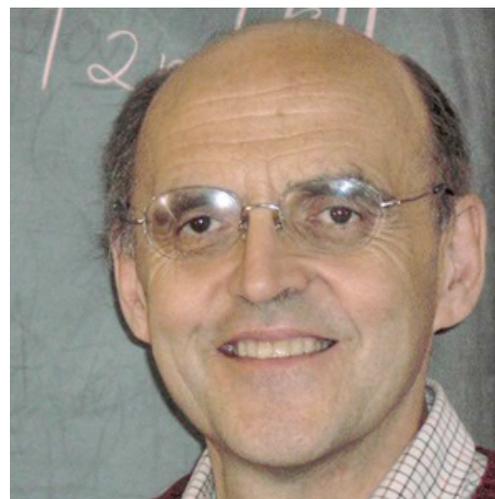


215th Lecture Series 5th April 2017

Professor Laurence Eaves Graphene: physics, technology and challenges

ABSTRACT

Professor Eaves present research is focused on the electronic properties of graphene and its sister materials, the so-called van der Waals crystals, which include hexagonal boron nitride, molybdenum disulphide and indium selenide. These materials are made up of atomically-thin crystalline sheets in which the atoms are held together by strong covalent forces. Weaker van der Waals bonds hold adjacent planes together. Atomic sheets can be easily exfoliated by breaking the van der Waals bonds using the “Scotch tape” method. Sheets of different materials can then be put together in a stack to make heterostructures, which have novel electronic and optical properties. These van der Waals heterostructures have been used to make functional devices such as tunnel transistors with high on-off switching ratios, resonant tunnelling devices with negative differential conductance, sensitive photodetectors, and light-emitting diodes. Progress in the science and technology of graphene and van der Waals heterostructures made from atomic layers of these materials will be the focus of the talk.



BIOGRAPHY

Laurence Eaves is a physicist who studies the electronic and optical properties of semiconductor devices and materials, including graphene. He has also undertaken experiments using high magnetic fields to investigate quantum chaotic phenomena and to levitate spinning liquid droplets, fruit flies and bacteria. In addition to his primary research, he has a part-time interest in developments in cosmology. Following studies and research appointments at the University of Oxford and the University of California, Berkeley, he joined the Physics Department at the University of Nottingham in 1976, where he is currently a Research Professor. Since 2012, he has also worked as Professor of Physics at the University of Manchester on graphene transistors with Andre Geim and Konstantin Novoselov. Laurence has served on numerous committees, including the HEFCE RAE2008 and REF2014 physics sub-panels.

LINKS

<https://www.nottingham.ac.uk/Physics/People/laurence.eaves>

<https://royalsociety.org/people/laurence-eaves-11374/>

**All lectures take place in Lecture Theatre K3.25, John Anderson Building,
University of Strathclyde, Rottenrow East, Glasgow G4 0NG.**

The John Anderson Building is in the pedestrianised area between Rottenrow and Rottenrow East.
Free car parking is available behind the building. From High Street enter Rottenrow East at the Barony.
Refreshments will be served at 9.00pm.