

**The Faculty of Science
and
The Institute for Quantum
Information Science**

Presents:

DISTINGUISHED LECTURER SERIES

The Dean invites you to a lecture by

Professor Sir Peter Knight FRS

<http://www3.imperial.ac.uk/people/p.knight>

Quantum entanglement: weird but useful



3:00 – 4:00 pm Monday 1 May 2006 in ES162

Abstract:

Entanglement is one of the most curious features of quantum physics, and has engendered much debate, from the days for the founders of quantum physics to the present day. In the last decade or so, we have realised that entanglement offers new opportunities to encode, process and transmit information in ways quite different from classical physics. I will discuss how parallelism and entanglement enable precise measurements and information processing tasks which are peculiar to the quantum world: secure encryption, teleportation and the speed up of certain algorithms. Central to all this is the use of quantum bits, which allow us to encode and manipulate information in the quantum world.

Biography:

Peter Knight is Principal of the Faculty of Natural Sciences at Imperial College, London U.K., and is past Head of Imperial's Department of Physics. Peter is Editor of both the Journal of Modern Optics and Contemporary Physics, a past President of the Optical Society of America and a past Chair of the European Physical Society's Quantum Electronics and Optics Division, and has been Chief Scientific Advisor to the UK National Physical Laboratory. He is renowned for research in quantum optics, strong field physics and quantum information and is widely recognized for both his research and communication abilities and achievements, including having been a Parsons Memorial Lecturer in 1991 and Wood Memorial Lecturer in 1996, winner of the Thomas Young Medal and Prize in 1999 and joint winner of the Einstein Medal and Prize for Laser Science of the Society of Optical and Quantum Electronics and Eastman Kodak in 1996.