NANYANG TECHNOLOGICAL UNIVERSITY

The Photonics Institute

PAP Seminar Announcement

Photonic contributions to quantum technology

By

Professor Sir Peter Knight FRS

Quantum Metrology Institute, National Physical Laboratory & Blackett Laboratory, Imperial College, London

Date: 18 February (Thursday)
Time: 10.30am - 11.30am
Venue: SPMS Hilbert Space (PAP-02-02)
Host: Prof N. Zheludev

Abstract

Quantum Physics has focused on light, matter and their interaction, from the early days of quantum mechanics right down to the present day. Much of this work has concentrated on the nature of quantum correlations beyond what is allowed classically. The emergence of quantum optics and especially studies of the nature of nonclassical light and its exploitation in quantum computing and quantum cryptography have put this back at the heart of current physics Progress in identifying, generating and characterizing nonclassical states has been spectacular. Quantum Information Science in part has grown out of this progress: the quantum world allows information to be encoded, manipulated and transmitted in ways quite different from classical physics. This talk will discuss the formation, propagation and manipulation of single photon wavepackets, explain how these can be used in simple quantum networks (for example in quantum walks and in Boson Sampling), and describe recent work on detecting single photons non-destructively.

Short Biography

Knight is Senior Research Investigator at Imperial College and Senior Fellow in Residence at Chicheley Hall and a past President of the Institute of Physics. He retired in 2010 as Deputy Rector (Research) at Imperial. He was knighted in 2005 for his work in optical physics. Peter Knight was the 2004 President of the Optical Society of America. He is Editor of Contemporary Physics, a member of the UK Quantum Technology Initiative Strategy Advisory Board, chairs the new Quantum Metrology Institute at the National Physical Laboratory, was until 2010 chair of the Defence Scientific Advisory Council and remains a Government science advisor. His research centres on quantum optics. He has won the Thomas Young Medal and the Glazebrook Medal of the Institute of Physics, the Ives Medal of the OSA and the Royal Medal of the Royal Society. He is a Trustee of the Royal Institution and Council Member at Sussex University

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