

» Physics of Information Colloquium «

Quantum Technology for a Networked World: Clocks, GPS and Metrology



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Date and time: Tuesday 21 May 2019, at 16:00

Location: VA6, Civil Engineering Building, IST, Lisbon

Abstract:

Parallelism and entanglement, the characteristic features of the quantum world, enable us to perform precise measurements and to undertake information processing tasks which are peculiar to the quantum world: secure encryption, teleportation of quantum states and the speed up of certain classes of algorithms. The 21st Century has seen the emergence of a networked world, connected by global fibre-optic communications and mobile phones, with geo-location provided through GPS, and all this has changed our lives more dramatically than at any time since the industrial revolution. Quantum-enabled technology is at the heart of this change. I will describe these developments and how the UK has invested substantially in the basic science and its exploitation. Some of these include communication systems immune to GPS jamming (of real importance for global security), as well as quantum sensors for medical applications (including cardiography, neurophysiology, etc), sensitive magnetometry, gyros, and geophysical surveying.

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