

# Quantum technology for the 21<sup>st</sup> Century

Monday 9 – Tuesday 10 May 2016

Scientific discussion meeting organised by Sir Peter Knight FRS, Professor Ian Walmsley FRS, Professor Gerard Milburn, Dr Stephen Till and Dr Jonathan Pritchard

<b>DAY 1</b>			
<b>SESSION 1: Fundamentals 1</b> Chair: Peter Knight FRS		<b>SESSION 3: Quantum imaging</b> Chair: John Rarity FRS	
<b>09:00</b>	Welcome by the Royal Society and Peter Knight		
<b>09:05</b>	<b>Ed Hinds FRS</b> Atom interferometry for navigation	<b>13:30</b>	<b>Miles Padgett FRS</b> Single pixel imaging
<b>09:30</b>	<b>Michelle Simmons</b> Quantum computing in silicon with donor electron spins	<b>14:00</b>	<b>Robert Boyd</b> The promise of quantum imaging
<b>10:00</b>	Discussion	<b>14:30</b>	Discussion
<b>10:30</b>	Coffee	<b>15:00</b>	Tea
<b>SESSION 2: Fundamentals 2</b> Chair: Ian Walmsley FRS		<b>SESSION 4: Quantum information processing 1</b> Chair: Elham Kashefi	
<b>11:00</b>	<b>Alain Aspect</b> Suppression and revival of weak localisation of ultra-cold atoms by manipulation of time-reversal symmetry	<b>15:30</b>	<b>Gerd Leuchs</b> Quantum communication with coherent states of light
<b>11:30</b>	<b>Anton Zeilinger</b> Entanglement as a resource in quantum technology	<b>16:00</b>	<b>Kae Nemoto</b> Noise: the fundamental obstacle for scalable quantum information systems
<b>12:00</b>	Discussion	<b>16:30</b>	<b>Andrew Shields</b> Quantum communications in telecoms networks
<b>12:30</b>	LUNCH	<b>17:00</b>	CLOSE

<b>DAY 2</b>			
<b>SESSION 5: Quantum enhanced sensors Chair: Gerard Milburn</b>		<b>SESSION 7: Quantum information processing 2 Chair: Tim Spiller</b>	
<b>09:00</b>	<b>Kai Bongs</b> Progress in the UK National Quantum Technology Hub in sensors and metrology	<b>13:30</b>	<b>Jeremy O'Brien</b> Photonic quantum computing
<b>09:30</b>	<b>Mark Kasevich</b> Atomic interferometers	<b>14:00</b>	<b>Masahide Sasaki</b> Quantum photonic network and physical layer security
<b>10:00</b>	Discussion	<b>14:30</b>	Discussion
<b>10:30</b>	Coffee	<b>15:00</b>	Tea
<b>SESSION 6: Quantum clocks and networks Chair: Patrick Gill</b>		<b>SESSION 8: Quantum information processing 3 Chair: Tim Spiller</b>	
<b>11:00</b>	<b>Qudsia Quraishi</b> Entangling quantum memories for multi-node quantum networking	<b>15:30</b>	<b>Christine Silberhorn</b> Quantum information processing with photon temporal modes
<b>11:30</b>	<b>Leo Hollberg</b> Lasers and atoms for time and position	<b>16:30</b>	<b>Artur Ekert</b> Closing remarks
<b>12:00</b>	Discussion	<b>17:00</b>	CLOSE
<b>12:30</b>	LUNCH		

*Draft programme – correct as of 18 April 2016 – subject to change*