DSTL BRISTOL QUANTUM INFORMATION TECHNOLOGIES WORKSHOP 2014

Engineer's House, The Promenade, Clifton Down, Bristol, BS8 3NB, United Kingdom

Tuesday 25th February

09:00 – 10:00	**Arrivals and Registration**
Industry Perspective Chair: TBC	
10:00 – 10:10	**Welcome by Sir Peter Knight**
10:10 – 10:30	**Stephen Till, Defence Science and Technology Laboratory** Quantum Technologies in MoD's Future Research Program
10:30 – 10:45	**Tim Spiller, University of Leeds** Perspectives on the Commercialisation of New Quantum Technologies
10:45 – 11:00	**Patrick Gill, National Physical Laboratory** Quantum Enhanced Sensing for Positioning, Navigation and Timing
11:00 – 11:30	**Panel Discussion on Industry Perspective** Chair: TBC, Panel members: Alastair Sinclair (NPL), Jonathan Pritchard (DSTL), Stephen Till (DSTL), Robert Lamb (Selex ES), Jonathan Coleman (Liverpool)
Quantum Enhanced Sensing and Metrology Chair: Pieter Kok	
11:40 – 12:10	**Geoff Pryde, Griffith University** Review of State of the Art in Metrology
12:10 – 12:25	**Jonathan Mathews, University of Bristol** Practical Quantum Metrology
12:25 – 14:00	**Lunch**
14:00 – 14:15	**Kai Bongs, University of Birmingham** iSense: A Technology Platform for Cold Atom Based Quantum Technologies
14:15 – 15:00	**Panel Discussion on Quantum Enhanced Sensing and Metrology** Chair: Pieter Kok (Sheffield), Panel Members: Brendon Lovett (St Andrews), Madalin Guta (Nottingham), Jacob Dunningham (Sussex), Elanor Huntington (New South Wales), Animesh Datta (Oxford)
Quantum Computation Applications Chair: Sougato Bose	
15:00 – 15:30	**Ashley Montanaro, University of Bristol** Quantum Computing Applications
15:30 – 16:15	**Panel Discussion on Quantum Computing** Chair: Sougato Bose (UCL), Panel members: Janet Anders (UCL), Oscar Dahlsten (Oxford), Shashank Virmani (Brunel), Simone Severini (UCL)
16:15 – 16:30	**Tea/Coffee**
Quantum Simulation Chair: Enrique Solano	
16:30 – 17:00	**Enrique Solano, University of the Basque Country** Review of State of the Art in Quantum Simulation
17:00 – 17:15	**Paul Warburton, London Centre for Nanotechnology** Quantum Annealing with the D-Wave Machine
17:15 – 17:30	**Anthony Laing, University of Bristol** Quantum Simulation

17:30 – 18:00	**Panel Discussion on Quantum Simulation** Chair: Enrique Solano (U. of Basque Country), Panel members: Jiannis Pachos (Leeds), Mauro Paternostro (Queen's U. Belfast), Frank Langbein (Cardiff)
18:00 – 19:00	**Drinks Reception** Engineer's House
19:00 –	**Dinner** Taxis at 19:00 for arrival at Bordeaux Quay by 19:30. Bordeaux Quay, V-Shed, Canons Way, Bristol, BS1 5UH

Wednesday 26th February

Quantum Communications and Networks Chair: John Rarity	
09:00 – 09:30	**Tea/Coffee**
09:30 – 10:00	**Nicolas Gisin, University of Geneva** Review of State of the Art in Quantum Communications
10:00 – 10:15	**Ian Walmsley, University of Oxford** Photonics Quantum Networks
10:15 – 10:30	**Sven Hoefling, University of St Andrews** Semiconductor Platform for Quantum Applications
10:30 – 10:45	**Erika Andersson, Heriot Watt University** Quantum Digital Signatures
10:45 – 11:00	**Tea/Coffee**
11:00 – 11:15	**Antonio Acin, ICFO-The Institute of Photonic Sciences** Device-Independent Quantum Information Processing
11:15 – 11:30	**Roger Colbeck, University of York** Device-Independent QKD: what it can provide and open challenges
11:30 – 12:15	**Panel Discussion on Quantum Communications and Networks** Chair: Antonio Acin (ICFO), Panel members: Dan Shepherd (CESG), Erika Andersson (Heriot Watt), Roger Colbeck (York), Ian Walmsley (Oxford), Nicolas Gisin (Geneva)
12:15 – 13:45	**Lunch**
Hardware (Solid State) Chair: Mark Newton	
13:45 – 14:15	**Gavin Morley, University of Warwick** Review of State of the Art in Hardware (Solid State)
14:15 – 14:30	**Stephen Lynch, University of Cardiff** Coherent Quantum Control of Donor States in Silicon: Towards a Scalable Quantum Computing Architecture in the Ubiquitous Semiconductor
14:30 – 14:45	**John Rarity, University of Bristol** Spin-photon interfaces
14:45 – 15:30	**Panel Discussion on Hardware (Solid State)** Chair: Mark Newton (Warwick), Panel members: Crispin Barnes (Cambridge), Irene D'Amico (York), John Morton (UCL), Mark Everitt (Loughborough), Brian Gerardot (Heriot Watt)
15:30 – 15:45	**Tea/Coffee**

Hardware (Cold Atoms/Ions) Chair: Barry Garraway	
15:45 – 16:15	**Winfried Hensinger, University of Sussex** Review of State of the Art in Ions
16:15 – 16:45	**Stefan Kuhr, University of Strathclyde** Review of State of the Art in Cold Atoms
16:45 – 17:00	**Mark Fromhold, University of Nottingham** Using Quantum Electronic Devices to Trap and Manipulate Ultra-cold Atoms
17:00 – 17:45	**Panel Discussion on Hardware (Cold Atoms/Ions)** Chair: Barry Garraway (Sussex), Panel members: Silvia Bergamini (OU), Mark Fromhold (Nottingham), Winfried Hensinger (Sussex), Stefan Kuhr (Strathclyde)
19:00 -	**Dinner** The Clifton Pavilion, Bristol Zoo Gardens, Clifton, Bristol, BS8 3HA

Thursday 27th February

Hardware (Integrated Photonics) Chair: Martin Dawson	
09:15 – 09:45	**Paolo Mataloni, Sapienza University of Rome** Review of State of the Art in Integrated Photonics
09:45 – 10:00	**Andrea Fiore, Technische Universiteit Eindhoven** Full Integration of Quantum Photonic Functionalities on a GaAs Chip
10:00 – 10:15	**David Hutchings, University of Glasgow** Quasi-phase-matched Correlated Photon Pair Source on a III-V chip
10:15 – 10:30	**Mark Fox, University of Sheffield** Semiconductor Integrated Quantum Optical Circuits
10:30 – 10:45	**Tea/Coffee**
10:45 – 11:00	**Robert Hadfield, University of Glasgow** Superconducting Single Photon Detectors
11:00 – 11:15	**Peter Mosley, University of Bath** Engineered Photon-Pair Sources – Achievements and Challenges
11:15 – 11:30	**Mark Thompson, University of Bristol** Silicon Quantum Photonics
11:30 – 12:30	**Panel Discussion on Integrated Photonics** Chair: Martin Dawson (Strathclyde), Panel members: Alberto Politi (Southampton), Marc Sorel (Glasgow), Douglas Paul (Glasgow, Maurice Skolncik (Sheffield)
12:15 – 14:00	**Lunch**

Quantum Technologies Discussion

14:00 -	**Quantum Technologies Discussion**