

PROGRAM

WEDNESDAY, 25 FEBRUARY 2015

Slade Lecture Theatre | School of Physics, The University of Sydney

- 09:00 - 09:10 Dr Luke Helt, Macquarie University
Welcome and Introduction
- SESSION 1** **Classical Quantum Connections (Chaired by Dr Luke Helt)**
- 09:10 - 09:40 Prof. John Sipe, University of Toronto
Classical and quantum nonlinear optics: Towards a common framework for integrated optics
- 09:40 - 09:55 Dr Marco Liscidini, University of Pavia
High-resolution measurement of energy correlations of photon pairs generated in silicon ring resonators
- 09:55 - 10:10 Ms Diana Antonosyan, Australian National University
Optical simulation of photon-pair generation in nonlinear lossy waveguides
- 10:10 - 10:25 Panel Discussion
- 10:25 - 10:45** **MORNING TEA**
- SESSION 2** **Sources (Chaired by A/Prof. Mike Steel)**
- 10:45 - 11:15 Prof. Geoff Pryde, Griffith University
Telecom photons from high-heralding-efficiency sources
- 11:15 - 11:30 Dr Alexander Solntsev, Australian National University
Tunable entangled photon states from a nonlinear directional coupler
- 11:30 - 11:45 Dr Peter Rohde, University of Technology, Sydney
Optical quantum computing in a fibre-loop architecture
- 11:45 - 12:00 Dr Alex Clark, Imperial College London
Organic dye molecule photon sources coupled to waveguides and cavities
- 12:00 - 12:15 Panel Discussion
- 12:15 - 13:15** **LUNCH**
- SESSION 3** **Processing (Chaired by Prof. Ben Eggleton)**
- 13:15 - 13:45 Prof. Tim Ralph, University of Queensland
Distributing entanglement and processing quantum information via linear and non-linear optics

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| 13:45 - 14:00 | Mr Keith Motes, Macquarie University <i>Linear optical quantum metrology with single photons - Exploiting spontaneously generated entanglement to beat the shotnoise limit</i> |
| 14:00 - 14:30 | Mr Geoff Campbell, Australian National University <i>Quantum nonlinear optics using optical memory</i> |
| 14:30 - 14:45 | Panel Discussion |
| 14:45 - 15:05 | AFTERNOON TEA |
| SESSION 4 | Communication (Chaired by Dr Chunle Xiong) |
| 15:05 - 15:50 | Dr Hiroki Takesue, NTT Corporation <i>Quantum photonics and communication using silicon devices</i> |
| 15:50 - 16:05 | A/Prof. Andrey Sukhorukov, Australian National University <i>Complete coherent photon conversion in dispersion-engineered nonlinear waveguides</i> |
| 16:05 - 16:20 | Panel Discussion |
| 16:20 - 16:30 | Dr Chunle Xiong, The University of Sydney <i>Closing Remarks</i> |
| 16:30 - 17:30 | Poster Session |
| Daniel Leykam | <i>Lattice topology and edge modes in spontaneous parametric down-conversion</i> |
| James Titchener | <i>Generation of photons with all-optically reconfigurable entanglement</i> |
| Diana Antonosyan | <i>Quantum and classical parametric processes in PT-symmetric quadratic nonlinear couplers with loss</i> |
| Allen Wu | <i>Nonlinear adiabatic couplers for photon pair generation with spatial pump filtering</i> |
| Alexander Solntsev | <i>Nonlocal parametric down-conversion in multi-mode nonlinear waveguide arrays</i> |
| Bruce Zhang | <i>Enhancing the heralded single photon rate from a silicon nanowire by time and wavelength division multiplexing pump pulses</i> |
| Iman Jizan | <i>Bi-photon spectral correlation measurements from a silicon nanowire in the quantum and classical regimes</i> |
| Zhizhong Yan | <i>On-chip high spectral purity and brightness idler single-photon source</i> |
| Jiakun He | <i>Degenerate correlated photon pair generation in an ultra-compact silicon chip</i> |

