

# Principles and applications of quantum control engineering

Monday 12 – Tuesday 13 December 2011

The Kavli Royal Society International Centre, Chicheley Hall, Buckinghamshire

Organised by Professor John Gough, Professor Matthew James, Professor Hideo Mabuchi, Professor Klaus Mølmer and Professor Ian Walmsley

DAY 1				DAY 2			
09.00	Welcome by Royal Society & Professor John Gough			<b>SESSION 3: Quantum networks and coherent quantum control</b>		<b>SESSION 4: Mathematical and statistical challenges</b>	
<b>SESSION 1: Quantum trajectories, filtering and control</b>		<b>SESSION 2: Quantum control applications</b>					
09.15	Quantum measurements in continuous time, non Markovian evolutions and feedback <b>Professor Alberto Barchielli</b>	13.45	Hiking over quantum control landscapes <b>Professor Herschel Rabitz</b>	09.00	Quantum filtering for systems driven by fields in non-classical states using non-Markovian embeddings <b>Professor Matthew James</b>	13.30	<b>Dr Madalin Guta</b>
09.45	Discussion	14.15	Discussion	09.30	Discussion	14.00	Discussion
10.00	Rapid purification of quantum systems by measurement and control <b>Professor Howard Wiseman</b>	14.30	Ensemble controllability with periodic pulsing <b>Professor Navin Khaneja</b>	09.45	The series product and feedback reduction in quantum Markov control models <b>Professor John Gough</b>	14.15	Quantum state stabilization with Markovian dissipative dynamics <b>Professor Lorenza Viola</b>
10.30	Discussion	15.00	Discussion	10.15	Discussion	14.45	Discussion
10.45	Coffee	15.15	Tea	10.30	Coffee	15.00	Tea
11.15	Feedback control of a quantum oscillator revisited <b>Professor Andrew Docherty</b>	15.45	<b>Professor Ian Walmsley</b>	11.00	Quantum-coherent feedback in photonic circuits <b>Professor Hideo Mabuchi</b>	15.30	Pure Gaussian state generation via dissipation: a quantum stochastic differential equation approach <b>Dr Naoki Yamamoto</b>
11.45	Discussion	16.15	Discussion	11.30	Discussion	16.00	Discussion
12.00	<b>Professor Klaus Mølmer</b>	16.30	On structure preserving transformations of the Ito generator matrix for model reduction of quantum feedback networks <b>Dr Hendra Nurdin</b>	11.45	Absolute stability of quantum systems <b>Professor Ian Petersen</b>	16.15	The characterization of quantum systems <b>Dr Daniel Oi</b>
12.30	Discussion	17.00	Discussion	12.15	Discussion	17.00	CLOSE
12.45	LUNCH	17.15	CLOSE	12.30	LUNCH		