

Tuesday 25th

Time	Room	Session	Topic	Speakers
12:30		ECR Registration		
13:00		Welcome coffee	From academia to industry: various career paths	
13:30	A	ECR session 1	AEGIQ J-IJ Fraunhofer Institute	C. Duncan R. Grassie C. ODwyer
15:00		Coffee break and networking		
15:30	A	ECR session 2	Oxford Ionics Psi Quantum University of Strathclyde	H. Knaack A. Nazir J. McGilligan
17:30	A	Closing of first day	Casual panel /Q&A discussions	all

Wednesday 26th

Time	Room	Session	Topic	Speakers
9:15	Theatre	ECR session 3 and closing	Handling academic toughness	Fistral Training
10:15		Coffee break and registration		
11:00	Theatre	Opening Plenary	Experimental/Theoretical Limitations of Quantum Simulations: what is actually possible?	A Daley S. Kuhr
12:30		Lunch		
13:30	Exp: A Th: B	Knowledge exchange: session 1	Exp: Lasers: Stabilisation and Shaping	Theory: Tensor networks tips and tricks
15:00		Coffee break		
15:30	Exp: A Th: B	Knowledge exchange: session 2	Exp: Cold atom: state preparation, trapping and addressing	Theory: Numerical techniques
17:30		Closing of first day		
18:30		Social event	Pub + Games on the Greens!	

Thursday 27th

Time	Room	Session	Topic	Chair
9:00	Exp: A Th: B	Knowledge exchange: session 3	Exp: Imaging techniques	Theory: Analytical directions
10:30		Coffee break		
11:00	Exp: A Th: B	Knowledge exchange: session 4	Exp: Interfaces with experiments	Exp: Building a Quantum Machine
12:30		Lunch	Group picture in front of The Social Hub	
13:30	Cafe	Poster sessions		
15:30		Coffee break		

16:00	Uni	Lab tours	Stefan's lab, Elmar's lab, Jon's labs	
17:30		Closing of second day		

Friday 28th

Time	Room	Session	Topic	Speakers	Chair
9:00	Theatre	Science talk	Exploring Vortex Dynamics in Binary Superfluids	Dr. Kali Wilson	J. Pritchard
9:40	Theatre	Meta-Science	Commercializing Research: Pathways for Deep Tech Research	James Bain	
10:20		Coffee break			
11:00	Theatre	Science talk	Crossover between collective dynamics and information scrambling in quantum systems with long-range interactions	Dr. Pablo Poggi	P. Kirton
11:40	Theatre	Meta-Science	Unconscious biases in Science	Dr. Abbie Bray	
12:20	Theatre	Closing workshop	Closing and future announcements		
12:45	Cafe	Lunch break			

Experiment Sessions:

Lasers : Stabilisation and Shaping

- SLM beam shaping and calibration techniques (Paul Schroff)
- Digital micromirror devices for programmable potentials (Paul Catterson)
- Phase stabilisation of an optical kagome lattice (Liam Crane)

Cold atom: state preparation, trapping and addressing

- Laser Locking using Modulation Transfer Spectroscopy (Ruijia Li)
- Tweezer Trapping Techniques (Ian Moodie)
- Methodologies to conduct annealing on a Rydberg ladder platform (Max Wells-Pestell)

Interfaces with experiments

- Modular experiments with Artiq (Paul Ireland)
- Artiq: The principles and reality of RTIO systems in cold atoms (Benjamin Millward)
- An API for cloud-based quantum physics experiments (Leanne Reeve)
- A Python Toolkit for Experimental Data Analysis: improving workflow and teamwork in the lab (Tobias Marozsak)

Imaging techniques

- Analysis of multi-band time-of-flight images (Luca Donini)
- Talbot interferometry for probing coherence (Christopher Parsonage)
- Quantum gas magnification and single-site probing for an optical quasicrystal (Zhuoxian Ou)

Building a quantum machine

- Building a Lithium Quantum Gas Microscope: Design, Construction, and Current Progress (Shaurya Bhawe)
- Progress towards a Dual Species Magneto-Optical Trap for Rubidium and Potassium (Iain MacCuish)
- A LEGO-Compatible Modular Optical Platform for Cold Atom Experiments (Binayak Rout)

Theory sessions:

Tensor networks tips and tricks

- Quantum Molecular Vibrational Dynamics with Tensor Network Techniques (Alessandro Civolani)
- Application of Tensor network (Lorenzo Carfora)
- Tensor network methods for simulation of compressible flows (Ryan Connor)

Numerical techniques

- Simulating Bosonic Fractional Quantum Hall States with Deep Learning (Daniel Spasic-Mlacak)
- Numerical Linked-Cluster Expansions (Sohail Dasgupta)
- Modelling with usage of native multiqubit gates (Stephanie Foulds)

Analytical directions

- One-to-one correspondence between the hierarchical equations of motion and pseudomodes; Open quantum systems, quantum simulation (Kai Müller)
- Continuous measurements: A resource for the preparation of entangled states in cold atomic systems (Diego Barberena)
- Efficient ground state preparation in many-body systems using counterdiabatic driving (Oliver Lunt)

Posters:

- Quantum Geometry and Topology in Nonequilibrium Systems (Cara Faulkner)
- Fibonacci Steady-States and Persistent Oscillations in an Ordered Multimode Dicke Model (Miriam Leonhardt)
- Geometry, Scrambling, and Quantum Metrology in Sparsely Coupled Quantum Spin models (Sridevi Kuriyattil)
- Haldane phases of the interacting Creutz ladder (Huanzhi Hu)
- Towards the Strathclyde Lithium Quantum Processor (Timon Hilker)
- Insulating phase on the Bose-Hubbard ladder (Lorenzo Carfora)
- Imaging vacuum fluctuation in a quantum field (Feiyang Wang)

- Digital Micromirror Devices for Engineering Hubbard Systems in Cold-Atom Simulators (James Howel)
- Geometry, Scrambling, and Quantum Metrology in Sparsely Coupled Quantum Spin models (Sridevi Kuriyattil)
- Simulation of Quantum Scrambling Using Pauli Propagation (Thelonious Omori)
- Strontium Tweezer-Lattice Hybrid Platform (Mariame Karzazi)
- Rydberg dressing of ultracold strontium-88 for quantum simulation and metrology (Isaac Nicol)
- Supersolid light in lasers and feedback systems (Thorsten Ackemann)
- Non-linear transmission in Rb vapour cell (Dinesh Mothsara)
- Light Mediated Long Range Interactions, Supersolidity, and Droplet Collisions in Bose Einstein Condensates (Kelsey O'Donnell)
- Quantum Vortex Pinning in a Dual-Species Bose Einstein Condensate (Elizabeth Farr)
- Towards binary supersolids and dipolar polarons (Lauritz Klaus)
- Attractive Bose gases far from equilibrium (Martin Gazo)
- Probing the Rung-Mott Insulator in Bosonic Two-Leg Ladders (Lennart Koehn)
- Simulation of Quantum Scrambling Using Pauli Propagation (Thelonious Omori)

Invited talks:

- Commercialising Research - Pathways for Deep Tech Research (James Bain)

'Deep tech', by definition, emerges from the frontiers of research and therefore the journey to commercialisation is often long, highly uncertain and expensive. In some circumstances the 'deep' part can give a significant commercial advantage and viable, profitable businesses can emerge. As researchers, how can we evaluate an opportunity, make decisions about whether or not to attempt commercialisation and what are the options for bringing an idea to market? This talk will explore these questions and also consider what kind of skills and mindset are helpful in tackling the entrepreneurial aspects of innovative research.

- Exploring Vortex Dynamics in Binary Superfluids (Kali Wilson)

Superfluidity is found in systems as disparate as dense, hot neutron stars and ultracold dilute-gas Bose-Einstein condensates (BECs), and has direct parallels to another important macroscopic quantum effect - superconductivity. Quantised vortices, topologically-protected defects, play a critical role in the dynamics of these macroscopic quantum systems. I will discuss the specific case of vortex dynamics in binary superfluids, its application to other superfluid systems, and will present the Rb-K apparatus currently under development in my lab to enable these studies.

- Biases in Quantum Science (Abbie Bray)

Bias is something we routinely identify and manage in our data, experiments and calculations. Yet biases also shape recruitment, retention and everyday experiences across the quantum technologies sector.

This talk will explore unconscious bias, fairer recruitment, and practical approaches to building more inclusive and supportive workplaces.

- Crossover between collective dynamics and information scrambling in quantum systems with long-range interactions (Pablo Poggi)

In this talk, I will discuss how spin systems featuring long-range interactions can exhibit both collective dynamics and quantum information scrambling. I will show how the crossover between these regimes can be controlled by merely changing the initial state, and how simple structural properties of the coupling graph can predict the onset of scrambling. These results provide a framework for exploring such phenomena in near-term neutral-atom quantum simulators.