

OXFORD SYMPOSIUM ON QUANTUM MATERIALS 2022

22-23 September 2022

Thursday 22 September 2022

8:15-8:45 am Registration and coffee, posters displayed

8:45-9:00 **Paolo Radaelli**, Oxford Physics

Welcome and updates on Oxford Quantum Materials

A. Model Systems

9:00-9.30 **Clifford Hicks**, University of Birmingham

The stress-strain relationship of Sr_2RuO_4

9:30-10:00 **Geetha Balakrishnan**, University of Warwick

Crystal Growth and investigations of magnetic skyrmion materials

10:00-10:30 **Paolo Radaelli**, Oxford Physics

Topological textures in oxide heterostructures

10:30-11:00 Coffee break and Posters

B. Synthesis of novel materials

11:00-11:30 **Mike Hayward**, Oxford Chemistry

Topochemical methods for the preparation of Quantum Materials

11.30-12:00 **Jamie Neilson**, Colorado State University

Excitons and Entropy in Hybrid Halide Semiconductors

12:00-12:30 **Hiroshi Kageyama**, Kyoto University

Bismuth and antimony based oxyhalides for catalytic applications

GROUP PHOTO

12:30-13:45 Lunch Somerville College / Posters Martin Wood and Beecroft foyer

C. Magnetism

14:00-14:15 **Leonie Woodland**, Oxford Physics

Tuning the confinement potential of spinons in an Ising chain using magnetic fields

14:15-14:30 **Jack Ballard**, Oxford Physics

Reflectivity ferromagnetic resonance (RFMR) for layer-resolved dynamic study of multi-layered systems

14:30-14:45 **Kylie MacFarquharson**, Oxford Physics

Non-collinear magnetic order in honeycomb Na_2PrO_3 revealed by single crystal torque measurements

14:45-15:00 **Niccolò Fontana**, Oxford Physics

Characterization of the Spin-electric Coupling of Gd^{3+} Ions in GdW_{10} Molecular Nanomagnets

15:00-15:15 **Nicola Kelly**, Oxford Chemistry

New layered vanadium oxychalcogenides

15:15-16:00 pm Coffee break

D. Superconductivity

16:00-16:15 **Shuqiu Wang**, Oxford Physics

Visualizing Intra-unit-cell Orbital Ordering in $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+x}$

16:15-16:30 **Susie Speller**, Oxford Materials

Understanding radiation damage in high temperature superconductors using X-ray absorption spectroscopy

16:30-16:45 **Étienne Lantagne-Hurtubise**, California Institute of Technology

Spin-orbit enhanced superconductivity in Bernal bilayer graphene

16:45-17:00 **Shane O'Mahony**, University College Cork

On the Electron Pairing Mechanism of Copper-Oxide High Temperature Superconductivity

17:00-18:30pm Poster session and Drinks

18:30-19.30 Quantum Materials Public Lecture

Seamus Davis, Oxford Physics

Macroscopic Quantum Physics

(Please register at <https://www.physics.ox.ac.uk/events/universal-quantum-matter>)

The lecture can also be followed on Zoom at <https://zoom.us/j/96386536702>.

Friday 23 September 2022

E. Theoretical Aspects of Quantum Matter

9:00-9:30 **Claudio Castelnovo**, University of Cambridge

Dynamical fractal and anomalous noise in clean magnetic crystal

9:30-9.50 **Nick Bultinck**, Oxford Physics

Strong interaction physics in synthetic superlattices

9.50-10:10 **Anirudh Chandrasekaran**, Loughborough University

Flat bands and higher order van Hove singularities: the example of strontium ruthenates

10:10-10:30 **Sam Azadi**, Oxford Physics

Three-dimensional quantum Fermi liquid by Quantum Monte Carlo

10:30-11:20 Coffee break and Posters

F. Magnetism and spin effects

11:20-11:40 **Safeer Chenattukuzhiyil**, Oxford Physics

Spin Hall effect in proximitized graphene

11:40-12.00 **Lapo Bogani**, Oxford Materials

Quantum spin states in atomically-precise graphene

12.00-12:40 **Steve Blundell**, Oxford Physics

The quantum muon

12:40-13:00 **Amalia Coldea**, Oxford Physics

Extreme conditions for exploring Quantum Matter and ISABEL access

13:00 The end of the meeting.

Zoom link

<https://zoom.us/j/98107779270?pwd=MVE2MWppNis2UEhCaGNqWXNZZURPZz09>

Meeting ID: 981 0777 9270

Passcode: 620002

POSTERS

	NAME	AFFILIATION	TITLE
1.	Ludmila Babicova	Oxford Chemistry	Tuning magnetism and superconductivity in layered nickel- and cobalt-based chalcogenides
2.	Pascal Manuel	ISIS Neutron & Muon source	Neutron diffraction studies of (uniaxial) pressure tuned magnetic systems
3.	Alex Gee	Oxford Materials	Exceptionally-clean Single-Electron-Transistors from Solutions of Molecular Graphene Nanoribbons
4.	Katherine Steele	Oxford Chemistry	The effects of alkali metal intercalation on the structure and superconductivity of Niobium Selenide
5.	Paul Davis	Oxford Chemistry	Topochemical Synthesis and Properties of Low-Valent Early Transition Metal Oxides
6.	Mikhail Vaganov	Oxford Physics	Linear electric field effect in Mn(II) trigonal bipyramidal complexes
7.	Zhilin Liang	Oxford Chemistry	Topochemical reduction of Ru-containing perovskite
8.	Joshua Bibby	Oxford Physics	Quantum phenomena driven by spin-orbit interactions in nanocrystalline topological insulators
9.	Angadjit Singh	University of Oxford	Electrical Transport in Cd ₃ As ₂ Dirac Semi-metal Nanowires
10.	Emily Heppell	Oxford Physics	Ferrimagnetic [Co _{1-x} Tb _x /Pt] _n multilayers with bulk perpendicular magnetic anisotropy for spintronic applications
11.	Tobias Chatfield	Oxford Physics	A tunnel diode oscillator study of an iron-based superconductor under pressure
12.	Siobhan Tobin	Oxford Physics	Magnetic structure and spin waves of the doped cobalt oxide La _{2-x} Ba _x CoO ₄
13.	Anuradha Vibhakar	Diamond Light Source	Magnetic Scattering at the I16 Beamline: Highlights and Progress

14.	Dan Porter	Diamond Light Source	Guiding antiferromagnetic transitions Ca_2RuO_4
15.	Archie Morfoot	Oxford Physics	The nematic electronic phase of $\text{FeSe}_{1-x}\text{Te}_x$ explored via angle-resolved photoemission
16.	James Murrell	Oxford Chemistry	Synthesis and magnetic properties of topochemically reduced Ruddlesden-Popper phases containing 5d transition metals
17.	Shinichi Sunami	Oxford Physics	Probing Non-Equilibrium Dynamics of 2D Quantum Gases via Matter-Wave Interferometry
18.	Ylias Sadki	Oxford Physics	Mapping Fermi surfaces with quantum oscillations
19.	Zachary Zajicek	Oxford Physics	The electronic behaviour of the high-pressure phase of Cu-FeSe
20.	Radu Coldea	Oxford Physics	Quantum effects in the spin dynamics of a spin-1/2 near-Heisenberg triangular antiferromagnet
21.	George Gill	Oxford Physics	Data Analysis For μSR Experiments with Negative Muons
22.	Caitlin Walsh	Royal Holloway University of London	Prediction of anomalies in the velocity of sound for the pseudogap of hole-doped cuprates