Quantum Phenomena

Superconductivity

Magnetism Devices

Levitation Dark matter

Superconducting

Magnets Tokamak

Bitter magnets

Hybrid magnets

Pulsed field magnets

UKRI Engineering and Physical Sciences Research Council

EMFL European Magnetic Field Laboratory

Super EMFL

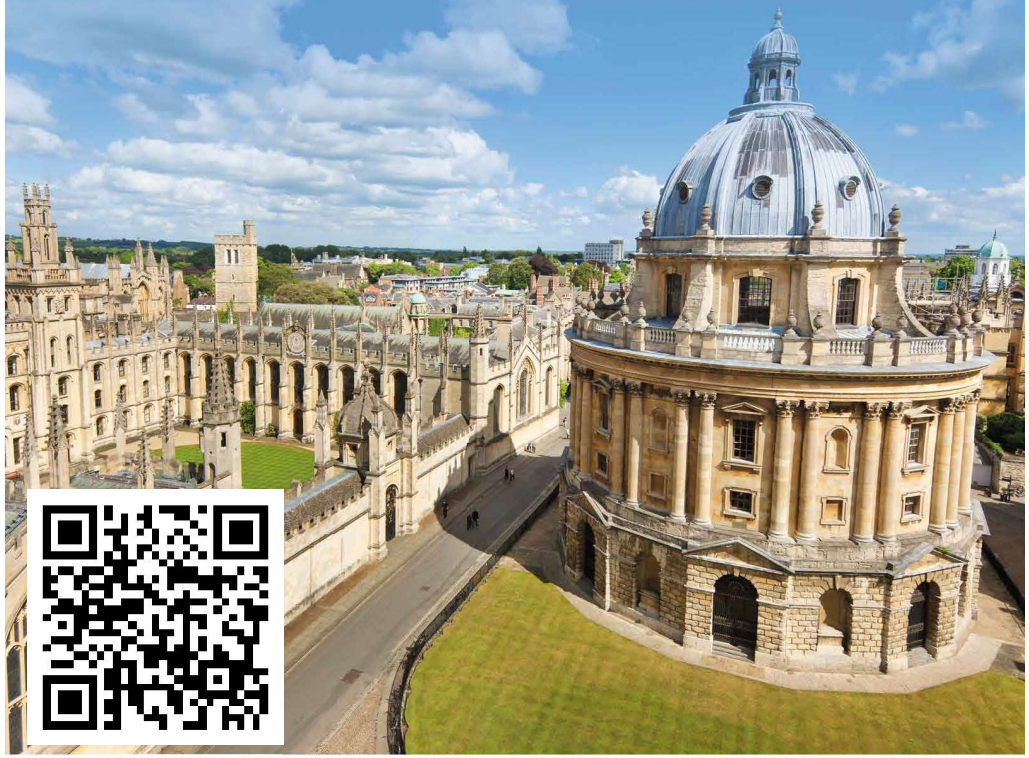
SAFEL

CFAS

SCIENCE & TECHNOLOGIES IN HIGH MAGNETIC FIELDS

6 December 2023

Wolfson College, Oxford



https://sthmf.web.ox.ac.uk/

INVITED TALKS

09.00 - 09.30 Coffee and registration (Buttery)

09:30-09:40 Welcome and Introduction (Leonard Wolfson Auditorium)
Amalia Patanè, University of Nottingham
EPSRC-EMFL National Research Facility

A. SCIENCE IN HIGH MAGNETIC FIELDS (CHAIR: AMALIA PATANÈ, University of Nottingham)

09:40-10:00 **Antony Carrington**, University of Bristol
High-magnetic fields for fundamental Science

10:00-10:20 **Richard Hill**, University of Nottingham
Diamagnetic levitation and related techniques in fluid and granular dynamics

10:20-10:40 **Shuqiu Wang**, University of Oxford / Bristol
STM Visualisation of unconventional superconductors at high-magnetic fields

10:40-11:10 Coffee break

B. SCIENCE IN HIGH MAGNETIC FIELDS (CHAIR: PAUL GODDARD, University of Warwick)

11:10-11:30 **Steven P. Brown**, University of Warwick
Solid-State NMR at High Magnetic Fields

11:30-11:50 **David Collison**, University of Manchester
Electron Paramagnetic Resonance Spectroscopy at High-Fields and High-Frequencies

11:50-12:20 **Flash Talks**

12:20-13:00 **Discussion on Science in High Magnetic Fields**

13:00-14:00 Lunch / Posters / Group Photo

C. TECHNOLOGIES IN HIGH-MAGNETIC FIELDS (CHAIR: M'HAMED LAKRIMI, Siemens)

14:00-14:20 **Xavier Chaud**, European Magnetic Field Laboratory, CNRS/LNCMI
Towards High field magnets using HTS inserts at EMFL

14:20-14:40 **Oleg Kirichek**, ISIS Neutron and Muon Source
High-Magnetic Field Sample Environment at ISIS Neutron and Muon Source

14:40-15:00 **Stephen Blundell**, University of Oxford
High-magnetic fields and muons

15:00-15:30 Coffee break and poster session (Buttery)

D. TECHNOLOGIES IN HIGH-MAGNETIC FIELDS (CHAIR: BEN BRYANT, Oxford Instruments)

15:30-15:50 **John Burgoyne, Oxford Instruments**
State of the art in commercial superconducting magnets for high field

15:50-16:10 **Colin John Humphreys**, Paragraf /Queen Mary University of London
Measuring High Magnetic Fields using a Graphene Hall-effect Sensor

16.10-16:30 **Roland Gyuraki**, Tokamak Energy
HTS magnet technology applications beyond fusion at Tokamak Energy

16:30-17:00 **Discussion on Technologies in High Magnetic Fields**

17:00 Closing down of the meeting – Collection of posters

FLASH TALKS

E. FLASH TALKS (CHAIRING: JOHN PEARCE & IOANA PAULESCU, University of Oxford)

11:50-11:55 **Fengyu Zhang**, University of Nottingham
Advancements in Cryogenic Technologies: Harnessing Magnetic Fields for Transportation Innovation

11:55-12:00 **Jan Knapp**, University of Oxford
High Magnetic Fields for Quantum Gravity

12:00-12:05 **Nathan Cottam**, University of Nottingham
Functionalised graphene in high magnetic fields

12:05-12:10 **Yannik Dieudonne**, UK Atomic Energy Agency (UKAEA)
Ultrasonic Additive Manufacturing for REBCO Tape Assemblies

12:10-12:15 **Jeremy Good**, Cryogenic Ltd.
NMR at high field without liquid helium

12:15-12:20 **Lev Levitin,** Royal Holloway, University of London
Hyperfine interactions and antiferroquadrupolar order: their role in PrOs4Sb12

POSTERS

F. POSTERS (9:00-17:00)

1. **Ioana Paulescu,** University of Oxford
   Quantum Oscillations of a candidate bulk Dirac system
2. **Weixin Song** University of Oxford
   Atomic-scale structure characterisation of battery materials
3. **James Tufnail,** University of Oxford
   Understanding Irradiation Damage Mechanisms in High Temperature Superconductors for Fusion
4. **William Iliffe,** UK Atomic Energy Agency (UKAEA)
   STEP's plan for understanding REBCO coated conductors in the Fusion Environment
5. **John Pearce,** University of Oxford
   Torque Magnetometry in a Stripe-Ordered Triangular Antiferromagnet
6. **Shroya Vaidya,** University of Warwick
   Uncovering magnetic and electronic properties in two-dimensional van der Waals magnet Fe3GeTe2
7. **Andrew Varney,** Oxford Instruments NanoScience
   Quench modelling of high field magnets
8. **Petr Zagura,** University of Oxford
   Ultra-low resistance joints in high temperature superconductors
9. **Kirk Adams,** University of Oxford
   In-situ measurements of REBCO coated conductor performance under ion irradiation
10. **Muslum Guven,** University of Oxford
    Persistent MgB2 Joints for React and Wind Magnet
11. **Jan Plechacek,** CAN Superconductors
    New Generation of HTS Bulks for High-Field Applications
12. **Dirk Honecker,** ISIS Pulsed Neutron and Muon Source
    Investigating mesoscopic vortex matter with neutrons