



FLEET

ARC CENTRE OF EXCELLENCE IN
FUTURE LOW-ENERGY
ELECTRONICS TECHNOLOGIES

TUESDAY 19th March

11:00-12:00

FLEET SEMINAR

Controlling materials for advanced and quantum technologies

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Abstract

Quantum materials must be the building blocks for future new quantum technology priorities, yet we are currently at the stage of discovery and classification of these materials. To enable future robust quantum technologies, we must bring these materials into the realm of controllable and directed processing for controlled performance. Key to this concept is the synthesis of new materials chemistries and heterostructures as well as the technique agnostic characterization of the structure of these materials across multiple length scales in the context of their electronic/quantum properties. I will give two examples where applying the idea of synthesis driven property control enables potential new technologies. First I will present my work on molecular beam epitaxy of multiferroic oxides and the use of heterostructure engineering to drive a new lead free antiferroelectric state in BiFeO_3 . I will then present work on using strain and pressure to control the topology and superconductivity in MoTe_2 , a Weyl semimetal and possible topological superconductor.



DATE: Tuesday 19th March
TIME: 11:00-12:00
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