

HENRY  
ROYCE  
INSTITUTE



UNIVERSITY OF  
CAMBRIDGE

PHYSICAL VAPOUR  
DEPOSITION AND  
CHARACTERISATION  
FACILITY

ROYCE

The Royce Physical Vapour Deposition and Characterization Facility (PVDCF) is a national, state-of-the-art facility at the University of Cambridge. It includes a versatile set of equipment for the physical vapour deposition, device fabrication and characterization of novel materials with thicknesses in the range from micrometres down to a single atomic layer.

The PVDCF, which is based at the Department of Materials Science and Metallurgy, facilitates research into energy-efficient materials and the development of metallic and insulating thin films for research by both academia and industry.

### PHYSICAL VAPOUR DEPOSITION

Synthesis of epitaxial, polycrystalline and amorphous thin films from a single atomic layer to hundreds of nanometres.

- High through-put Radio Frequency/Direct Current magnetron sputtering with 11 targets
- Ultra-high vacuum e-beam evaporator



### ELECTRONIC CHARACTERISATION

From room temperature down to 300 milliKelvin under applied fields of up to 9 Tesla under vacuum or inert gas conditions.

- Cryo-probation
- Transport measurements

### STRUCTURAL CHARACTERISATION

Interface, surface, crystallography and thin film quality measurements

- Atomic/Magnetic Force Microscope
- X-ray Diffraction

Additional equipment:

- X-ray suite for X-ray Reflectivity and Grazing Angle X-ray Scattering.



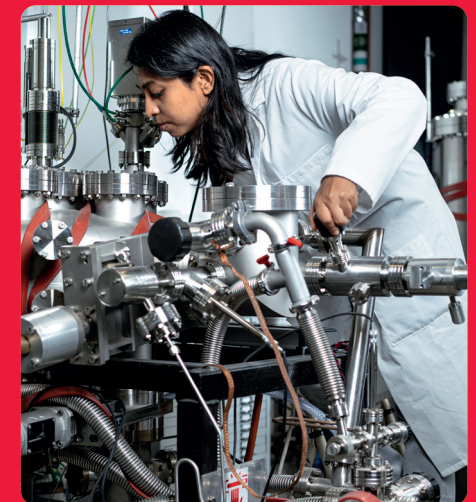
### MAGNETIC CHARACTERISATION

Magnetic Hysteresis as well as Alternating Current Susceptibility from 400 Kelvin down to 300 milliKelvin.

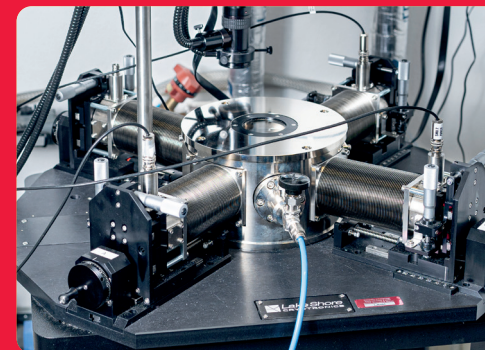
- Superconducting Quantum Interference Device and Vibrating Sample Magnetometer

### DEVICE FABRICATION AND PATTERNING

- Dual-beam focussed ion-beam
- 3 inch (75mm) mask aligner
- Electron-beam Lithography



Physical Vapour Deposition and Characterisation Facility





**Research Area Lead**  
Professor Manish Chowalla

**Technology Platform Lead**  
Professor Jason Robinson

**For technical enquiries, contact**  
Dr Adrian Ionescu, Facility Scientist  
ai222@cam.ac.uk

**For access enquiries, contact**  
royce@maxwell.cam.ac.uk



[bit.ly/roycecambridge](https://bit.ly/roycecambridge)

 [Royce Cambridge](#)

 [@RoyceCambridge](#)

 [henryroyceinstitute](#)

HENRY  
ROYCE  
INSTITUTE



UNIVERSITY OF  
CAMBRIDGE



Engineering and  
Physical Sciences  
Research Council