

HENRY
ROYCE
INSTITUTE



UNIVERSITY OF
CAMBRIDGE

PHYSICAL VAPOUR
DEPOSITION AND
CHARACTERISATION
PLATFORM

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.



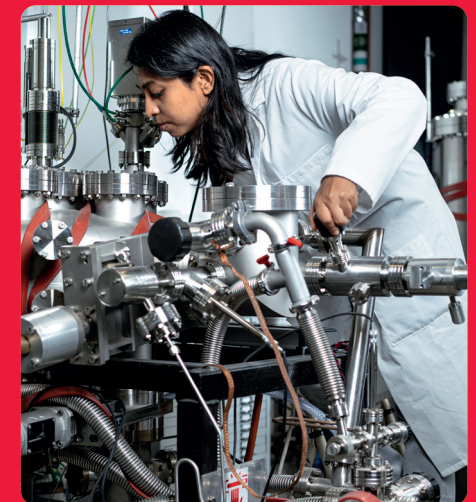
MAGNETIC CHARACTERISATION

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

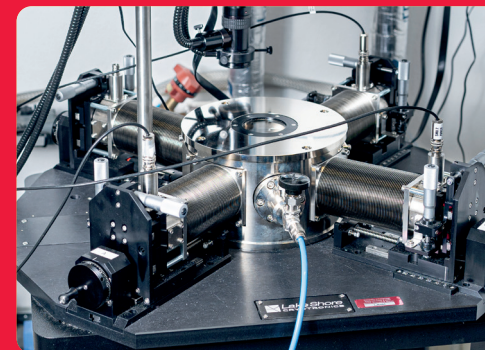
- Superconducting Quantum Interference Device and Vibrating Sample Magnetometer

DEVICE FABRICATION AND PATTERNING

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



Physical Vapour Deposition and Characterisation Facility



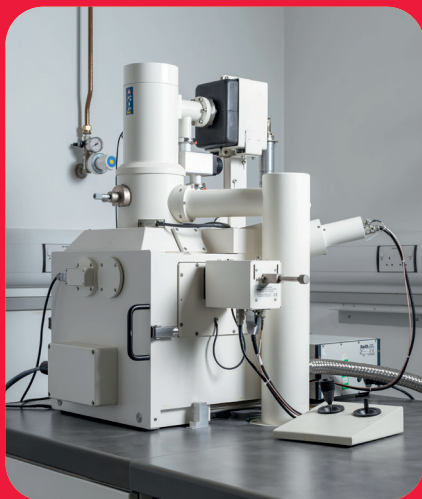


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