

Quantum Technology Centre



Quantum Technology is a term to describe electronic materials and devices, where effects caused by the quantum nature of matter become significant in their design and performance. The Lancaster Quantum Technology Centre provides a UK focus for future quantum technologies and is based in Lancaster University's Physics Department, a working community of 145 researchers and 80 students.

Access Expertise

- Accelerator science
- Biophotonics
- Low temperature physics
- Nanoscale dynamics and mathematical physics
- Nanoscale engineering
- Nanostructures and nanoelectronic devices
- Quantum computing and communications
- Semiconductor physics
- Superconductors

Forming Partnerships

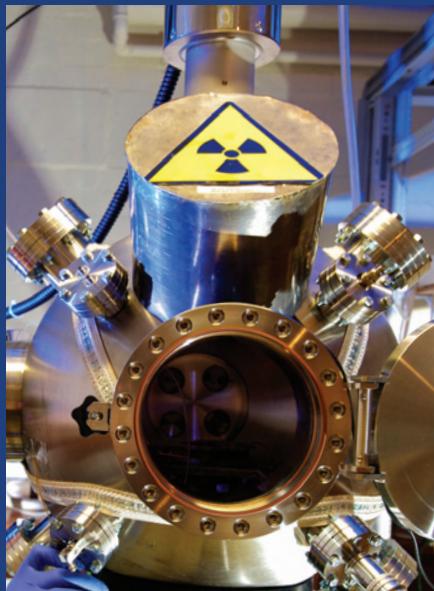
- Organisations can access our expertise through five types of collaborative partnership:
- Collaborative research
 - Facilities for research and development
 - Commercialisation of intellectual property
 - Professional training
 - Student engagement

Benefits of Collaboration

- Access unique knowledge
- Use our new £4m class 100 and class 1000 clean rooms equipped with devices for molecular beam epitaxy, plasma etching, electron-beam e-lithography, microresonators, optical coherence tomography, photolithography, scanning electron and scanning probe microscopy

"I was immediately impressed with commitment of the team led by Professor Tony Krier, and a real understanding of the requirements of industrial led projects. The initial project was a success, and we secured follow-up funding from the TSB for another two years to take the concept to a working demonstrator."

Dr Wyn Meredith, Commercial Director, Compound Semiconductor Technologies Limited.



Mark Visontai, Business Partnerships Manager

Working in Partnership

We have collaborations with major international manufacturing and ICT corporations such as BP Exploration, IBM, Alcatel, Pilkington Glass, Varta, Fiat and a range of medium sized research intensive companies within the UK and across Europe.

We have strong regional partnerships, particularly with Manchester University through the Northwest Nanoscience Doctoral Training Centre. We have strong international partnerships, for example through The Cockcroft Institute, an international centre for accelerator science and technology which Lancaster University co-founded. We are particularly interested in forming partnerships with organisations in the areas of photonics, nanoelectronics, healthcare, security, energy, coatings and semiconductors.

We work as part of a wider multidisciplinary team across Science and Technology at Lancaster. Our colleagues have expertise in advanced manufacturing, chemistry, the demand and supply of energy, environmental sciences, health and human development, information and communication technologies, mathematics and statistics, and security and protection sciences.

Partnership Examples

- Photodiodes for imaging, communications, and gas monitoring, e.g. for compact disc players and camera light meters
- Non-destructive nanoscale resolution using a carbon nanotube scanning thermal probe, e.g. for accurate screening of biological samples
- Graphene research for innovation in materials science, chemistry, and engineering, e.g. for electronics, flexible touch screens, sensors and in composite materials
- Quasiparticle imaging and superfluid flow experiments at ultralow temperatures, e.g. for the acquisition of dynamic information applicable to chemistry, oil and gas sectors
- Wafer-scale epitaxial graphene, e.g. position sensing, automotive ignition and fuel injection, wheel rotation sensing, and spacecraft
- Accelerated discovery of new organic semiconductors for optical and electrical sensor concepts, systems-on-a-chip architectures
- Molecular design and mesoscale modelling of complex fluids for oil-fields

Route to Access

"My role is to support large corporations and small and medium enterprises who want to develop novel technologies, products and services by facilitating partnerships with the relevant experts from the Department of Physics.

"The other part of my role is to spot potential opportunities for commercialisation, find practical applications for the latest research in physics, and identify businesses to help develop and apply our research in key areas such as advanced information processing, sustainable healthcare, developing a greener future and a secure society.

"Quantum technologies have huge potential in almost every industry sector and we are keen to develop more partnerships with businesses. Please contact me for more information and to discuss your individual requirements."

Mark Visontai
Business Partnerships Manager

For further information contact:

Mark Visontai, Business Partnerships Manager
Physics Department, Lancaster University, Lancaster, LA1 4YB
Tel: +44 (0)1524 593 276 Email: m.visontai@lancaster.ac.uk

Science and Technology
www.lancs.ac.uk/sci-tech/enterprise