



Daresbury Science
& Innovation
Campus

Micro and Nano Technology

Shaping the Future of Science and Innovation

Daresbury Science and Innovation Campus (Daresbury SIC) is an internationally recognised location for high-tech businesses and leading-edge science, recognised recently as the Outstanding Science Park by members of the United Kingdom Science Park Association.¹

It represents a fundamentally new approach to driving UK competitiveness in global science and innovation. Daresbury SIC was formed by the Northwest Regional Development Agency (NWDA), the Science & Technology Facilities Council (STFC), Halton Borough Council and the research intensive universities of Lancaster, Liverpool and Manchester. It is one of two national Science and Innovation Campuses, the other being at Harwell in Oxfordshire.

The Campus provides a unique environment for innovation and business growth with knowledge sharing, collaboration and networking, and offers major opportunities to the Micro and Nano Technology sector for knowledge exchange and the development of collaborative activities. Partners on the Campus include the STFC Daresbury Laboratory, the Cockcroft Institute (the UK Centre for Accelerator Science) and the Daresbury Innovation Centre.



Daresbury Science & Innovation Campus

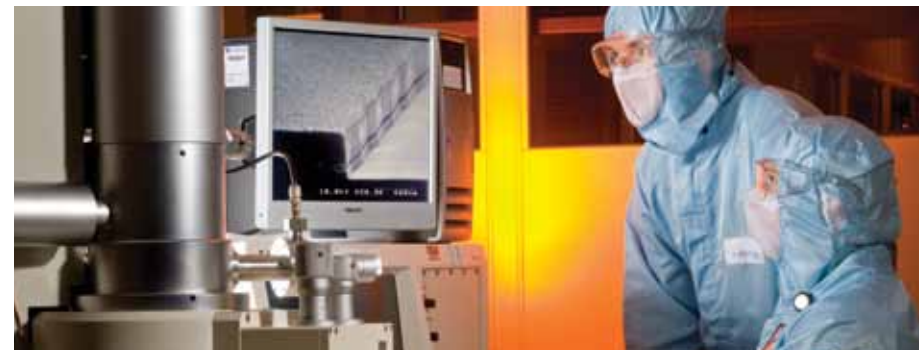
¹2009 Award

A National Technology Pool

STFC's Micro and Nano Technology Centre (MNTC) is the ideal partner for commercial and academic R&D, offering technical expertise and proof of concept production of Micro and Nano Technology based devices and products. The Centre has facilities both at the Daresbury and Harwell Science and Innovation Campuses.

The Centre's facilities are focused around 700m² of Class 100 and Class 1000 clean rooms that provide an excellent foundation for a broad range of applications including MNT device

fabrication. Extensive equipment and tools are available for complete life cycle design and test in conjunction with expertise and advice from highly experienced process engineers and scientists.



www.daresburysic.co.uk/sectors/micro-and-nano-technology

Technology Exchange

Facilities such as MNTC and the wider services of STFC can be accessed through its knowledge transfer organisation STFC Innovations Ltd, which progresses individual projects through various business models to the point of implementation as commercial licences or spin-out companies.



Science & Technology Facilities Council

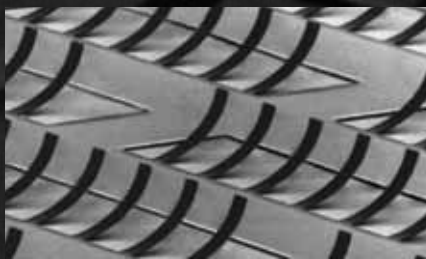
STFC Innovations Ltd

At the forefront

Having been at the forefront of MNT research for over thirty years, the STFC has been successfully delivering innovative solutions to a diverse range of companies, varying from newly formed SMEs to multinational giants. As such the STFC has formed strong relationships with the emerging Nano and Bio-Technology industries.

Microcantilevers

Microcantilevers form an essential component of many MNT devices. They can be used to mechanically manipulate device elements, measure environmental properties or even provide textured surgical probes. The MNTC has a strong focus in the development of novel microcantilevers for a broad range of applications. Initial research into the measurement of fluid rheology using these devices, led to the spinout of Microvisk, a company which is using the technology to measure blood coagulation which can be used to determine the correct dosage of anticoagulants for people who suffer from thrombotic disorders.



Cantilever Nano-technology developed by STFC scientists

Industry Focus

The co-location of the MNTC with other key scientific facilities and centres of expertise on both Campuses, makes this the ideal environment for industrial partners and new company incubation.

Examples include Applied Microengineering Ltd (AML), and Qudos Technology Ltd. AML was formed specifically to exploit MNT and now provides unique in-situ wafer bonding machines and associated services. Qudos works in partnership with the MNTC to provide prototype production facilities through a custom built standalone MiniFab - national prototype facility for processing semi-conductors.



Electrospinning

The process of electrospinning has the unique ability to produce nanofibres of different materials. Recent research at Daresbury and Harwell has seen the development of MNT-based electrospinning nozzle arrays and delivery systems.

These innovations enable novel nanofibre platforms to be made in volume, a key criterion if the process is to be accepted for industrial production.

Applications currently being investigated by organisations world-wide lie within healthcare, environmental, energy and security markets and include:

- Tissue regeneration and wound care
- Drug delivery
- Membranes for polymer batteries, fuel cells etc
- Protective clothing e.g. battlefield, first responders.

Development of this technology has led to the spin-out of The Electrospinning Company Ltd located at Daresbury SIC, which is offering access to electrospinning equipment and expertise on a commercial basis to organisations that would like to explore the technique's potential in their specific applications. There are also collaborative opportunities to develop specific applications to prototype stage, including the application specific equipment design and engineering, electrospinning of raw materials and process development.



www.daresburysic.co.uk/sectors/micro-and-nano-technology

The Future

Micro and Nano Technology will continue to be a vibrant hub of activity at Daresbury and Harwell SICs, building on their knowledge exchange strengths in areas such as life sciences, to further exploit new technology for the benefit of the private and public sectors.

The MNTC will bring together academic, government and industrial communities to address the challenges of the medicine and healthcare for the 21st Century through the exploitation of Micro and Nano Technology.

The Future for Daresbury SIC

As part of a wider £104m investment in technology gateway centres (outward focused hubs for collaborative R&D into large scale scientific challenges) the government has earmarked over £60m for two centres at Daresbury SIC. The Hartree Centre will be a new kind of computational science institute for the UK enabling cutting-edge research in computer modelling playing a key role in areas such as climate modelling and radiation containment. The Hartree Centre will be joined by a centre for sensors and detector systems.



Micro Technology – Micro Business

The MNTC currently has several commercial spin-outs and industrial partners commercialising MNT based technology.

Oxsensis Ltd is pioneering a new breed of optical instrumentation for precision controls in super harsh environments.



Microvisk Ltd is bringing a new MNT cantilever-based fluid probe to market for point-of-care blood coagulation tests.



Micronanics Ltd offers innovative laser solutions, which are unique in the UK, addressing material processing problems and opportunities in science and industry.



Business at the Heart of Science

The Campus is home to almost 100 high-tech businesses, ranging from small start-ups to strategic units of large multi-national corporations, and offers high quality office space alongside its multidisciplinary laboratory facilities.

Business support facilities and accommodation on the Campus provide:

- A recognised research & development focused environment with an STFC account manager and links to a wide network of research-intensive universities
- Fully equipped materials laboratory within the STFC Innovations Technology Access Centre



- Opportunities for technological and commercial collaboration, and fast access to commercial and academic contacts through a high-tech focused ecosystem
- Excellent transportation links
- Tailored business support and connections to major funding streams
- A spacious rural location in Cheshire

For further information please contact:

Daresbury Science and Innovation Campus Ltd, Daresbury Innovation Centre, Keckwick Lane, Daresbury, Cheshire WA4 4FS, United Kingdom

General Enquiries:

Tel: +44 (0)1925 607000
Email: dsic@nwda.co.uk
Fax: +44 (0)1925 607398

www.daresburysic.co.uk/sectors/micro-and-nano-technology



Putting Business at the Heart of Science