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People and facilities

Academic Staff

- **Professor MJ Lancaster (/staff/profiles/eece/lancaster-michael.aspx)** - Head of Research Group
- **Dr F Huang (/staff/profiles/eece/huang-fred.aspx)**
- **Dr TJ Jackson (/staff/profiles/eece/jackson-tim.aspx)**
- **Dr P Smith (/staff/profiles/eece/smith-paul.aspx)**
- **Dr E Tarte (/staff/profiles/eece/tarte-edward.aspx)**

The EDT centre anechoic chamber for antenna measurements.

Facilities

The EDT group has established substantial facilities for research which are used by the staff and students in the centre. These facilities are also available for use by collaborators both internal and external to the university and industrial usage is encouraged.

The following is a list of the facilities available in the research group:

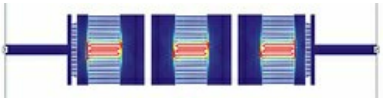
A selection of microwave measurement equipment including three microwave network analysers and probe station covering the frequency range 0.45 - 110 GHz

A cryogenic microwave probe station which measures down to 4.2K and up to a frequency of 50GHz

A selection of low frequency and d.c. measurement apparatus including state-of-art semiconductor parameter analyser and low frequency impedance analyser

A 27m3 anechoic chamber which is used for accurate, interference free antenna measurements

- A number of both closed cycle and liquid cryostats covering the temperature range 4.2K to room temperature. Most of these are configured for both low frequency and microwave measurements.
- A class 10,000 clean room with thin film deposition and processing facilities. Thin films can be produced by both sputtering (d.c. and r.f.) and thermal evaporation. Both wet etching and ion beam milling are available for patterning the thin films and the ion beam miller has a secondary ion mass spectrometer for analyses of the milling process.
- A selection of equipment for packaging and analysis of electronic devices including flip chip bonder, wire bonders, saws and optical microscopes.
- A selection of the fastest computers and workstations which include both SUN workstations and PCs. The systems have a number of microwave design and simulation packages, including:
    - The Sonnet suite of software for electromagnetic simulation using Method of Moments
    - Agilent ADS for both circuit simulation and electromagnetic modelling
    - Microwave Office, a circuit and 2.5D electromagnetic simulation
    - Microstripes for 3D EM Simulation using Transmission Lines Matrix model.



The diagram above shows a simulation using Sonnet em of the current distribution on an ultra miniature superconducting filter.

In addition to the facilities described which are available in the EDT centre substantial facilities exist in the rest of the university which are commonly used by members of the group through collaborative research programs. These facilities include:

- The university laser ablation facility, producing many different types of thin films by laser ablation. This unit is housed in the EDT centre
- X-ray diagnostic tools for identification and characterisation of materials.
- A selection of microscopes including optical, scanning electron beam as well as transmission electron and atomic force.
- Direct write electron beam lithography and focussed ion beam milling and deposition
- An STS reactive ion etcher for milling silicon substrates

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