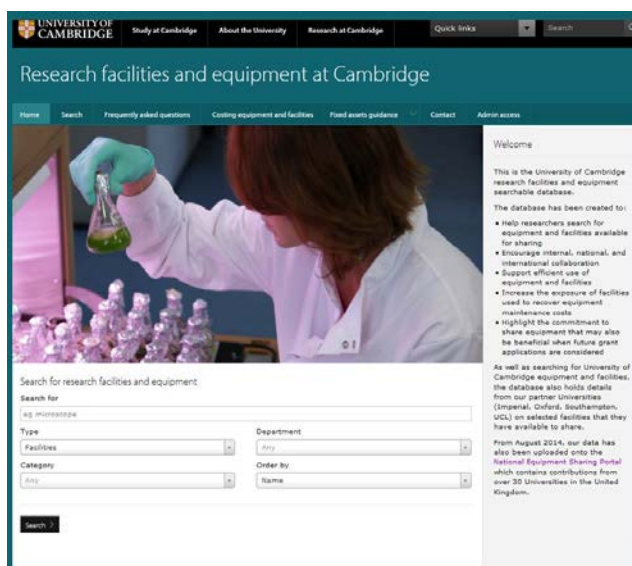


Opportunities to engage with the Cambridge Equipment Sharing Project

With the generous support of University academics and researchers, the Equipment Sharing Project Database currently provides access to 59 Facilities and over 2430 individual items of equipment within Cambridge, and access to 237 facilities across the partnership institutions of Cambridge, Oxford, UCL, Imperial and Southampton.

The project began in 2012 in response to changes in the way that equipment on research grants is funded with expectations of improved efficiencies in the use of equipment. A key driver was the fact that Universities must check if there is an opportunity to share equipment with internal departments and other institutions prior to submission of grant applications.

Since January 2014 a two-page business case has been required in applications for all items of equipment above the Official Journal of European Union (OJEU) threshold (£134,011 inc VAT), and information and guidance on how to reference shared usage at a University, Departmental, and individual Principal Investigator level can be supplied. Similarly information on how to dispose and recycle used equipment is also available.



Why is the database and equipment sharing important to the University?

- Ensures transparency in terms of publicly funded resources
- Provides evidence of Cambridge's commitment to equipment and facility sharing
- Ensures the University is best placed to secure funding in a climate of ever-tightening research budgets
- Allows students and researchers to determine equipment available within the University whilst planning research projects
- Provides a resource to locate alternative equipment within the University or further afield should key equipment fail or become unavailable

How does the database and equipment sharing benefit Researchers?

- Helps researchers find equipment and facilities available for sharing
- Encourages internal, national, and international collaboration
- Supports efficient use of equipment and facilities through sharing
- Increases the exposure of facilities used to recover equipment costs within Small Research Facilities (SRF's)
- Highlights a commitment to share equipment that may be beneficial when grant applications are considered by research grant funders
- Helps toward waste reduction, reduced consumption, recycling, carbon profiling and legal compliance

What's on the Database?

The searchable Database is divided into two sections: individual items of Equipment and Small Research Facilities. Users can search across all five institutions to look at the 237 facilities that are listed, or search within Cambridge to look at the 2350 individual items of equipment. Each record contains a detailed description of the item or facility, a photograph for reference, a contact name, email address, and telephone number, with details about the items availability and location.

Data quality has also increased since September 2014 with nearly 700 records being revised and the descriptions being enhanced and an image or photograph uploaded, whilst since January 2015 the number of Small Research Facilities represented on the Database doubled from 32 to 64.

Who can access the Cambridge Database?

Current members of staff, PhD, MRes, and MPhil research students can access the Equipment Sharing Database via their Raven log-in details. This can be useful if searching for particular or specific equipment to work with, or to locate replacement equipment in a hurry: <http://www.equipment.admin.cam.ac.uk/> Students should contact their supervisor in the first instance to liaise directly with equipment owners to discuss and arrange access. Agreements are not coordinated through the Equipment Sharing Project itself, but between equipment owners and interested parties individually.

"I heard about the project through a recent email and it came after weeks of me hopelessly emailing various departments to find out in there was any facility for sharing a particular piece of equipment. It was great to find that the database existed and will make a big difference to my PhD."

- Rowena Bermingham, PhD Student in Linguistics, Department of Theoretical and Applied Linguistics, Modern and Medieval Languages Faculty, University of Cambridge.

Accent RMP 2000 Photoluminescence Mapper

The equipment enables the light emitted from semiconductor quantum well structures to be mapped. The light from the structure is excited using a laser within the Mapper. Wafer up to 8" in diameter can be studied.

Photoluminescence Mapping at 400nm The Photoluminescence (PL) mapping system (Accent RMP 2000 series) purchased in 2006 using BRF funds has proven to be a tremendous asset for the characterisation of nitride-semiconductor materials. The state-of-the-art equipment addresses past under-investment and helps to accelerate improvements in material quality and device performance. Material characterisation plays a crucial role in the departmental research and photoluminescence mapping studies can reveal much about optical structures and their operation uniformly before expensive device processing steps are carried out. The RMP 2000 equipped with a 260nm Q-switch excitation source permits the compositional mapping of materials such as GaN and its alloys with AlN and InN over a broad composition range. The equipment also makes it possible to determine the thickness of the thin semiconductor films deposited on a foreign substrate. Examples of such detailed compositional and thickness maps of hetero-epitaxial layers are shown in the figure below. Each map of a 2-inch wafer is obtained in less than 10 minutes, allowing rapid feedback to the crystal growers. The water holder allows mapping of wafers up to 8-inch in diameter. The high power density of the Q-switched laser of the PL mapper is extremely useful to give an accurate prediction of the optical properties of a fully developed UV/blue-green light-emitting diode (LED) device, potentially saving many expensive hours in clean-room facilities. The RMP 2000 PL mapper can also be used for the research of the Cambridge Centre for Gallium Nitride (CCG) materials. Recent clients include the Device Materials Group (Dr Barber, Judith Denston) and the Electronic Devices and Materials Group (Bill Milne) with research efforts in 2nd and 3rd generation semiconductors. In these particular cases the crystal growers use the PL mapper to assess the material quality and hence to determine their optimum growth conditions. The CCG group is a partner of the EPSRC National Centre for III-V technologies. A link to the website of the III-V centre is posted below. Please leave with primary contact to discuss and arrange access.

Details

University: University of Cambridge
School: School of the Physical Sciences
Department: Materials Science & Metallurgy
Location: M026_ANNEXE 118
Category: Semiconductor Device Analyser
Utilisation level: Medium (40% to 60%)
URL: <http://www.admin.cam.ac.uk/>

Contacts

Name	Email	Tel.
KAPPERS, Dr M	mj20@cam.ac.uk	01223 742958

Is the Equipment Sharing Database linked to the National Equipment Portal?

equipment.data

Accent RMP 2000 Photoluminescence Mapper

The equipment enables the light emitted from semiconductor quantum well structures to be mapped. The light from the structure is excited using a laser within the Mapper. Wafer up to 8" in diameter can be studied. Photoluminescence Mapping at 400nm The Photoluminescence (PL) mapping system (Accent RMP 2000 series) purchased in 2006 using BRF funds has proven to be a tremendous asset for the characterisation of nitride-semiconductor materials. The state-of-the-art equipment addresses past under-investment and helps to accelerate improvements in material quality and device performance. Material characterisation plays a crucial role in the departmental research and photoluminescence mapping studies can reveal much about optical structures and their operation uniformly before expensive device processing steps are carried out. The RMP 2000 equipped with a 260nm Q-switch excitation source permits the compositional mapping of materials such as GaN and its alloys with AlN and InN over a broad composition range. The equipment also makes it possible to determine the thickness of the thin semiconductor films deposited on a foreign substrate. Examples of such detailed compositional and thickness maps of hetero-epitaxial layers are shown in the figure below. Each map of a 2-inch wafer is obtained in less than 10 minutes, allowing rapid feedback to the crystal growers. The water holder allows mapping of wafers up to 8-inch in diameter. The high power density of the Q-switched laser of the PL mapper is extremely useful to give an accurate prediction of the optical properties of a fully developed UV/blue-green light-emitting diode (LED) device, potentially saving many expensive hours in clean-room facilities. The RMP 2000 PL mapper has proven to be crucial for the research of the Cambridge Centre for Gallium Nitride (CCG) materials. Recent clients include the Device Materials Group (Dr Barber, Judith Denston) and the Electronic Devices and Materials Group (Bill Milne) with research efforts in 2nd and 3rd generation semiconductors. In these particular cases the crystal growers use the PL mapper to assess the material quality and hence to determine their optimum growth conditions. The CCG group is a partner of the EPSRC National Centre for III-V technologies. A link to the website of the III-V centre is posted below. Please leave with primary contact to discuss and arrange access.

Contact: KAPPERS, Dr M mj20@cam.ac.uk 01223 742958

Please search our database results in an equipment facilities collaboration set site to hear about it, all feedback on both successes and challenges will help us in expanding our partnership. Click on the feedback link.

Yes! Specific records from the Cambridge database are also uploaded to the National Equipment Sharing Portal: <http://equipment.data.ac.uk/>

The National Equipment Portal holds records of over 10,500 items of equipment across the UK and is supported by over 40 institutions.

Inquiries are coming in directly to the University from external organisations, due to the increased awareness afforded by partnership with the National Equipment Portal:

"I was able to contact Colln Denston (Department of Plant Sciences) who informed me that they have suitable facilities and discussions are on-going as to when we can do the work."

- Chloe Whiteside, Horticulture Consultant (Protected Crops), ADAS UK Ltd.

What further events and initiatives are being developed?

The is an on-going collaboration between the Equipment Sharing Project and the University's Energy and Environment Section who are keen to implement a 'Freezer Exchange Program'. The database is being used to identify owners of freezer equipment who will be invited to exchange their freezer equipment for more energy efficient and environmentally equipment free of charge. It is also being used to identify the location of heavy energy consumption to contribute toward reducing the University's Carbon Footprint.

After successful local events hosted by the Cavendish Laboratory, Fitzwilliam College, and S-Lab's 'Supporting World Class Science in Cambridge' event set at the University Centre, the Cambridge Equipment Sharing Project will be presented at S-Lab's National Conference in Leeds on the 17th September.

To access the Cambridge site please visit; <http://www.equipment.admin.cam.ac.uk/>
To access the National Equipment Portal site please visit; <http://equipment.data.ac.uk/>

If you would like to hear more or would like a personal or departmental demonstration, please contact the Equipment Sharing Project Manager, Dr Christopher Wilkinson: (Christopher.R.Wilkinson@admin.cam.ac.uk)