



ELECTRONICS

Industrial research using Diamond

The eternal dream to explore matter at its deepest level has continually driven scientists to build more and more powerful instruments from simple microscopes to elaborate X-ray sources.

Diamond Light Source is a sophisticated synchrotron light facility which can generate highly intense beams of light ranging from IR and UV to

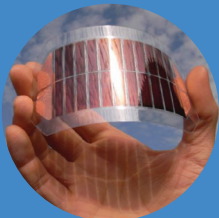
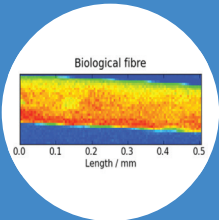
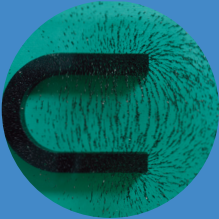
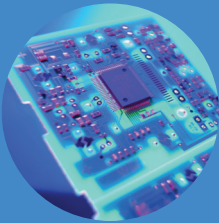
X-rays, all of which are making research at the cutting edge of modern science possible. Diamond provides specialist analytical techniques for the atomic to microscale characterisation of materials as diverse as novel pharmaceuticals, catalytic materials, coatings, motor oils, and large engineering components.

Our dedicated Industrial Liaison Team of highly skilled

scientists is available to support you in every step of your research. The team can help to translate your R&D challenges into meaningful analytical solutions by making use of its diverse expertise in synchrotron methods.

Some examples of how Diamond can be used for electronics research are outlined overleaf.

Applications



Electronic Structures

- Investigate the electronic properties of surfaces and interfaces of thin film materials;
- Study of spin, charge and orbital ordering on single crystal samples;
- Explore segregation and the influence of the substrate on alloying behaviour and electronic structure.

Composition

- Detect trace metal contamination in materials and components;
- Examine structure of multilayered systems and buried interfaces, e.g. quantum dots;
- Probe the electronic properties and chemical composition of composite or complex materials.

Magnetism

- Probe the structure-function relationship of nanostructures applied as sensors, high density visual displays, memory storage devices under environmental control (e.g. temperature, magnetic field);
- Investigate magnetic anisotropy in materials over a wide range of different elements.

Organic Electronics

- Characterise the behaviour of novel liquid crystals for brighter and faster display materials;
- Study the microstructure of organic semiconductors;
- Investigate surface structure and ordering in thin films and coatings e.g. polymer photovoltaic devices.

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For further information

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