ENVIRONMENTAL

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 environmental research are outlined overleaf.

diamond.ac.uk/industry

Applications

Efficient use of resources

- Study of catalytic processes in petroleum refining to maximise the efficiency of fossil fuels;
- Study ion-exchange materials for nuclear waste remediation;
- Explore the use of biomineralising bacteria for low energy and low cost production of metal nanocatalysts.

Environmental remediation

- Study metal speciation of toxic materials to handle the remediation of environmental contamination;
- Study of rocks, soils, sediments, plant materials, pollutants and radioactive waste issues relating to climate change;
- Study processes used for the disposal of toxic materials.

Alternative energy

- Investigate the structure of advanced materials including solar batteries, fuel cells, electrocatalysts and semiconductors;
- Investigate the structure of new porous materials used for hydrogen storage;
- Investigate surface structure and ordering in polymer photovoltaic devices.

Materials science

- Study the structure and defects of various materials under operating condtions, e.g. pitting corrosion, poisoning of catalysts;
- Monitor the interaction of materials with mineral surfaces;
- Time resolved measurement of nanoparticle nucleation and growth.

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For further information

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