



AEROSPACE

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 Aerospace research are outlined overleaf.



Applications

Material design

- Tools to aid in the design of new materials;
- Examine a wide range of advanced materials including metallic systems, ceramic, composite and performance polymers;
- Characterise materials with respect to the evolution of microstructural, crystallographic transformations and residual stress.

Coatings

- Investigate surface and layer structure and ordering in paints and performance coatings;
- Study the surface structure of multilayered components.

Structural materials

- Uncover cracks and voids, in static conditions or during *in situ* loading;
- Element selective investigations of a wide range of materials; crystalline, and amorphous and at very low concentration.

Materials processing

- Investigate material manufacturing and processing problems;
- Understand the effect of controlled environmental conditions on a material, component or engineering system.

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For further information

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