

Example applications by Theme

Inspection at manufacture

- In-process weld inspection – for gas welding, automated weld & narrow gap welding techniques,
- On-line characterisation of defects for evaluation based on severity
- Reliable detection and quantification of the bond strength of adhesively bonded joints on complex composite structures.
- 3D characterisation of composites
- Algorithms and methods for auto evaluation of images
- Detection of sub mm defects and small pores
- Adaptive NDT tools to extend the 'in-scope' shapes that can be inspected during manufacture
- Distinguish cracks from inclusions,
- Inspection of ceramic components,
- Detection of small volumetric defects (<500micron) including at high temperature
- On-line characterisation of defects for evaluation based on severity

In-service inspection

- Ultrafast Non-intrusive inspection of vessels
- Inspection through & under insulation & coatings
- Capability to detect and characterise cracks and corrosion through multi-layered structures without requiring disassembly
- Improved visualisation of flaws (surface and near surface) through coatings
- A rapid, one-sided inspection technique to inspect and characterise defects through highly attenuating materials
- Long range detection of corrosion/defects (including in welds) in pipes, including on flanged systems and through concrete
- Large-area inspection of plant surfaces of pipework & vessels for remnant life prediction and preparation for decommissioning
- NDE for fusion - need to understand new degradation mechanisms and develop in-service inspection capabilities
- Widescale remote sensing of renewable energy systems for defect detection & identification,
- High-sensitivity, close-distance sensing of buried non-piggable pipelines
- UAV/drones for aerial inspection of plant & facilities

Permanent monitoring

- Monitoring to detect pre-cursors to fatigue damage in complex metallic and composite structural components
- Large-area corrosion monitoring of subsea pipelines with permanent sensors,
- Methods for in service monitoring in aerospace applications – eg fatigue damage, impact damage, inaccessible areas
- Monitoring of high temperature parts in high-dose radiation environment e.g. fatigue cracking
- Real time monitoring of nuclear waste packages to confirm that the performance of the packages is as expected
- Condition monitoring of polymers e.g. hoses (embrittlement in radiation environment)