



UNSW
SYDNEY

Advanced Functional Composites

Advanced expertise in the design, modelling, optimisation, manufacturing and testing of lightweight fibre-reinforced composites enabling new materials and structures.

Competitive advantage

- Advanced expertise in lightweight fibre-reinforced composites and polymer materials
- Expertise in design analysis, including computational modelling and optimisation
- Advanced manufacturing techniques, including autoclave, thermal oven, resin infusion, compression moulding, solution casting, and 3D printing
- Advanced testing facilities for static and fatigue loading, wear, impact, environmental (temperature) degradation, non-destructive evaluation, mechanical properties, durability

Impact

- Lighter, stronger materials for improved performance

Successful applications

- Flame-retarding composites
- 3D non-crimp fibre preforms for polymer composites
- Carbon fibre wheel to drive clean technology
- Structural health monitoring
- Aligning and chaining carbon nanofillers in fibre composites to improve damage tolerance and diagnosis

Structural batteries

- Electrically conductive polymer coating
- Nanocomposites for cryogenic hydrogen storage, Lockheed Martin, USA
- Stretchable sensors

Capabilities and facilities

- Comprehensive facilities for prototyping and testing including:
- Automated composite manufacturing robots
- Vacuum infusion devices
- Industrial-scale autoclave
- Extensive range of 3d printers
- Ultrasonic system, laser vibrometer, shaker, piezoactuators, wet-chemical, and three roll mill

Our partners

More Information

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- GE Aerospace, CSIRO, Lockheed Martin, Australian Advanced Aerospace Technologies