

# NATEP

National Aerospace Technology Exploitation Programme

## Composites Projects



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Project	Supply chain partnership	Contact
<b>Wet Fit Slave Fasteners</b>	<ul style="list-style-type: none"> <li>• Kwikbolt Ltd</li> <li>• i2M</li> <li>• Wesco Aircrafts (customer)</li> <li>• GKN Aerospace (customer)</li> <li>• Lockheed Martin Aeronautics (customer)</li> </ul>	Mr Jan Niklewicz – Technical Director jan@kwikbolt.com
<p>The project will design and develop, in collaboration, new innovative wet fit slave fasteners to be used during composite aircraft assembly. Providing a more efficient and effective working environment as well as a more cost effective, environmentally friendly and reliable method of production.</p> <p>NATEP grant £145,000</p>		

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<b>Thermoplastic Composite Fusion Welding (CoFusion)</b>	<ul style="list-style-type: none"> <li>• AGC AeroComposites</li> <li>• The National Composites Centre</li> <li>• Ten Cate Advanced Composites Ltd</li> <li>• Rolls-Royce plc (customer)</li> </ul>	David Conway - Materials Technology Director dave.conway@agcaerocomposites.com
<p>The CoFusion project builds on previous development work to optimise the efficiency and applicability of an innovative, rapid, low cost and flexible thermoplastic composite welding process to aerospace standards.</p> <p>NATEP Grant £137,000</p>		

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<b>Xenon Pulse Technology in Fibre Placement</b>	<ul style="list-style-type: none"> <li>• Heraeus Noblelight Ltd</li> <li>• Hexcel Composites Ltd</li> <li>• Rolls-Royce plc (customer)</li> </ul>	Martin Brown - Applications Manager martin.brown@heraeus.com
<p>Heraeus Noblelight Xenon Flash technology offers potential cost and performance advantages in processing of composite materials for aerospace applications. This research will take the technology closer to commercialisation.</p> <p>NATEP Grant £145,500</p>		

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<b>Inhibiting Delamination in CFRP Composites</b>	<ul style="list-style-type: none"> <li>• M Wright &amp; Sons Ltd</li> <li>• Composite Innovations Ltd</li> <li>• GKN Aerospace (customer)</li> </ul>	Simon Marshall - 3d Development Manager simon@mwright.co.uk
<p>Delamination is a primary source of failure for composites, leading to over engineered parts. This project will investigate ways to inhibit delamination by three dimensional textile fibres in reinforced plastic composites</p> <p>NATEP Grant £150,000</p>		

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<b>Volume manufacture of a composite fixing and weight Reduction system</b>	<ul style="list-style-type: none"> <li>• Adhesion Technologies</li> <li>• MEP Ltd</li> <li>• Dopag</li> <li>• Formax</li> <li>• Pressavon</li> <li>• Loop Technologies</li> <li>• GKN (customer)</li> </ul>	Colin Wood – General Manager colin.wood@adhesiontec.com
<p>This project provides a machine to prove mass production of Fiba Spida fixings which will facilitate weight reduction and revolutionise how composite aerospace structures are designed, and constructed.</p> <p><b>NATEP Grant £150,000</b></p>		

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<b>TOGGLON a bonded Fixings Installation System</b>	<ul style="list-style-type: none"> <li>• Adhesion Technologies</li> <li>• MEP Ltd</li> <li>• Pressavon</li> <li>• Loop Technologies</li> <li>• GKN (customer)</li> </ul>	Colin Wood – General Manager colin.wood@adhesiontec.com
<p>The Togglon project enables us to deliver the world's first installation tool specifically designed to quickly, accurately and consistently install composite bonded fastenings on to most substrates at any angle.</p> <p><b>NATEP Grant £150,000</b></p>		

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<b>Cure Capable Mandrels</b>	<ul style="list-style-type: none"> <li>• CTES Ltd</li> <li>• Retrac Composites Ltd</li> <li>• GKN Aerospace (customer)</li> </ul>	Liam Moloney – Director liam@ctesltd.co.uk
<p>To develop solutions for structural composite fibre placement tooling that is cure-capable and CTE-matched to the component, for use in the automated production of composite wing spars and other large composite aerospace structures</p> <p><b>NATEP Grant £149,770</b></p>		

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<b>Metal Matrix Composites for Helicopter Applications</b>	<ul style="list-style-type: none"> <li>• Aerospace Metal Composites Ltd</li> <li>• Mettis Aerospace</li> <li>• Leonardo MW Ltd (customer)</li> </ul>	Dr Stuart Godfrey – Business Development Manager stuart.godfrey@materion.com
<p>This project will develop both an aluminium and Silicon Carbide (SiC) metal matrix composite (MMC) material and create a forging supply chain specifically for helicopter applications. The funding will thus create a UK source (for the first time) for this high performance material which is required in the aerospace market.</p> <p><b>NATEP Grant £ 150,000</b></p>		

Project	Supply chain partnership	Contact
<b>Prep'ing Composite Moulds with Lasers For Enhanced Productivity and Quality</b>	<ul style="list-style-type: none"> <li>• Advanced Laser Technologies Ltd</li> <li>• CNC Robotics</li> <li>• Cobham Antenna System (customer)</li> <li>• EPM Technology (customer)</li> </ul>	Roger Hardacre – Managing Director roger.hardacre@altlaser.co.uk
<p>The project will develop an advanced system that can clean, polish and repair moulds made of metal or composite used to produce composite parts. The intention is that a successful outcome will lower supply chain costs &amp; improve productivity of skilled labour by developing an automated technology for cleaning composite material moulds The system can be in a bureau format for low frequency users, or for high frequency users it can be a factory based solution.</p> <p><b>NATEP Grant £150,000</b></p>		

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<b>Low Mass Composite Mould Tool (LMCMT)</b>	<ul style="list-style-type: none"> <li>• KAMAN Tooling Ltd</li> <li>• KAMAN Composites Ltd</li> <li>• Hexcel Composites</li> <li>• Ten Cate Advanced Composites</li> <li>• BAE Systems (customer)</li> </ul>	Paul Barrett – Technical Director paul.barrett@kaman.com
<p>The LMCMT project will revolutionise Composite tooling strategies across the Aerospace and Automotive sectors, delivering lower cost, lower energy and lower carbon footprint tooling to all of the major aerospace manufacturers making composite components. The objective of this R &amp; D project is to Design, manufacture and test 2 off Proof of concept Low Mass Composite Mould tools.</p> <p><b>NATEP Grant £146,560</b></p>		

Project	Supply chain partnership	Contact
<b>Composite Electrostatic Transport Elements (CompETE)</b>	<ul style="list-style-type: none"> <li>• AGC Aero Composites</li> <li>• Element Materials Technology</li> <li>• ENL Ltd</li> <li>• Technical Fibre Products Ltd</li> <li>• Airbus Operations (customer)</li> </ul>	David Conway – Materials Technology Director dave.conway@agcaerocomposites.com
<p>The development of lightweight, shaped and damage resistant composite fuel pipe assemblies that by virtue of their tightly controlled electrical properties can be used safely in composite aircraft fuel tanks</p> <p><b>NATEP Grant £131,090</b></p>		

Project	Supply chain partnership	Contact
<b>Graphene Composites Evaluated in Lightning Strike (GraCELS)</b>	<ul style="list-style-type: none"> <li>• Haydale Composite Solutions Ltd</li> <li>• SHD Composites Ltd</li> <li>• Cobham Antenna Services</li> <li>• Airbus UK(customer)</li> <li>• BAE Systems plc (customer)</li> </ul>	Gerry Boyce – Managing Director gerry.boyce@haydalecs.com
<p>The addition of functionalized graphene nanoparticles into the epoxy resin matrix of composite materials will greatly enhance the electrical conductivity thereby making them much more resistant to lightning-strike damage.</p> <p><b>NATEP Grant £150,000</b></p>		

Project	Supply chain partnership	Contact
<b>Biocomposites for Aerospace Interiors (BAIT)</b>	<ul style="list-style-type: none"> <li>• Net Composites Ltd</li> <li>• AIM Composites</li> <li>• Composites Evolution</li> <li>• AIM Cabin Interiors (customer)</li> </ul>	Elliot Fleet – Project Manager elliot.fleet@netcomposites.com
<p>The project will develop pre-impregnated (“Prepreg”) composite materials for aerospace interior applications that are based on a novel 100% bio-based fire-safe resin system that provides an alternative to conventional petrochemically-derived phenolics</p> <p><b>NATEP Grant £146,570</b></p>		

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<b>Enterprise Bio-Interiors Project</b>	<ul style="list-style-type: none"> <li>• SHD Composite Materials Ltd</li> <li>• AIM Aviation Ltd</li> <li>• Ipeco Composites (customer)</li> </ul>	Nick Smith – Technical Director nsmith@shdcomposites.com
<p>The innovative technology to be developed is a water based resin pre-impregnated glass fibre composite material (prepreg) giving good Fire Smoke and Toxicity (FST) properties for the aircraft interiors market.</p> <p><b>NATEP Grant £74,500</b></p>		

Project	Supply chain partnership	Contact
<b>Long/continuous Fibre Reinforced Thermoplastic (CFRTP) Composite Processing</b>	<ul style="list-style-type: none"> <li>• CCP Gransden Ltd</li> <li>• Comco</li> <li>• Bombardier (customer)</li> </ul>	Robert McConnell – Director robert@ccp-gransden.com
<p>This project will seek to develop a flexible and adaptive system for proof of concept processing continuously reinforced thermoplastic composites for aerospace applications.</p> <p><b>Grant for R&amp;D £91,850</b></p>		

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<b>Inkjet Printed Graphene Composite Materials</b>	<ul style="list-style-type: none"> <li>• Applied Graphene Materials Limited</li> <li>• SHD Composite Materials Limited</li> <li>• The Boeing Company (customer)</li> </ul>	Dr Tim von Werne Technical Director Tim.vonwerne@appliedgraphenematerials.com
<p>This project seeks to produce lighter and more damage tolerant composites by optimising the application of new graphene materials and processing techniques. Successful demonstration will enable composites to achieve a step further towards their full potential. In practical terms: tougher composites means lighter composites which leads to significantly lower operating costs for the aerospace industry.</p> <p><b>NATEP Grant £150,000</b></p>		

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<b>Multifab- A Multifunctional composite fabric concept</b>	<ul style="list-style-type: none"> <li>• Diversus Ltd</li> <li>• University of Bath</li> <li>• Agusta Westland (customer)</li> </ul>	Chris Brill Director info@Diversus.Technology
<p>The main objective of this project is the development of a multifunctional fabric to be embedded as an additional layer in conventional helicopter blades. Intrinsic functionalities include anti and de-icing properties, damage detection and lightning strike protection.</p> <p><b>NATEP Grant £148,000</b></p>		

Project	Supply chain partnership	Contact
<b>Graphene-Enhanced adhesive Technology through Functionalisation</b>	<ul style="list-style-type: none"> <li>• Haydale Composite Solutions Ltd</li> <li>• SHD Composites Ltd</li> <li>• Element Materials Technology Hitchin Ltd</li> <li>• Airbus (customer)</li> <li>• GE Aviation Systems (customer)</li> </ul>	Dr Quentin Fontana Collaborative R&D Manager quentin.fontana@haydalecs.com
<p>Addition of functionalized graphene to epoxy adhesives will allow them to act as electrical conductors rather than as insulators allowing for an electrically unified structure</p> <p><b>NATEP Grant £150,000</b></p>		

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<b>Composite Pipe Bending</b>	<ul style="list-style-type: none"> <li>• Sigma Precision Components Ltd</li> <li>• e-Mould (UK) Ltd</li> <li>• Rolls Royce plc (customer)</li> <li>• Bentley Motors (customer)</li> </ul>	Michael Andreae Director of Technology & Improvement michael.andreae@sigmacomponents.co.uk
<p>The Composite Pipe Bending project will develop a repeatable, cost effective method to bend composite pipes using CNC pipe bending equipment</p> <p><b>NATEP Grant £46,554</b></p>		

