

# NATEP

## Composites Projects



## NATEP - Composites Projects

Project	Supply chain partnership	Contact
<b>Automated Composite Component Manufacture</b>	<ul style="list-style-type: none"> <li>• Pentaxia</li> <li>• SHD Composites</li> <li>• TIA</li> <li>• Transcal Engineering (customer)</li> <li>• Rolls-Royce plc (customer)</li> </ul>	Russ Meddes Business Development Director russ.meddes@pentaxia.co.uk
<p>Pentaxia looks to develop novel automation through robot preforming to help significantly reduce the labour content in aerospace components making the UK more competitive. NATEP Grant £141,000</p>		

Project	Supply chain partnership	Contact
<b>Low Cost FST Compliant Composite Components</b>	<ul style="list-style-type: none"> <li>• CECENCE</li> <li>• SHD Composites</li> <li>• Wavelength NDT</li> <li>• Pitch Aircraft Seating (customer)</li> </ul>	Humphrey Bunyan Director & Head of Innovation humphrey@cecence.com
<p>The development of low cost, fast process methods &amp; FST compliant thermoplastic/thermoset materials to replace structural aluminium components. Bio resins and low toxicity recyclable solutions will be a focus. NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
<b>Resistive Composite Fuel System Assemblies (ReComp)</b>	<ul style="list-style-type: none"> <li>• Tods Aerospace</li> <li>• Element Materials Technology</li> <li>• Technical Fibre Products Ltd</li> <li>• ENL Ltd</li> <li>• Parker Chomerics</li> <li>• Airbus Operations Ltd</li> </ul>	info@natep.org.uk
<p>Development of multi-part manifold-style resistive composite fuel system assemblies incorporating conductive elastomer fuel seals to replace costly and installation-intensive bonding leads. The project focus is to provide an innovative functional product, reduce weight, reduce cost and achieve technology/manufacturing readiness in support of future high-volume production. NATEP Grant £149,800</p>		

Project	Supply chain partnership	Contact
<b>Graphene Enhanced Adhesive Technology through Functionalization (GrEAT Fun-2)</b>	<ul style="list-style-type: none"> <li>• Haydale Composite Solutions</li> <li>• Element Materials Technology</li> <li>• Airbus</li> <li>• GE Aviation Systems</li> </ul>	Peter Hansen Engineering Manager peter.hansen@haydalecs.com

Adhesive bonds using conventional adhesives are generally electrical insulators which can cause issues when the parts being joined are electrically conductive. This project aims to use graphene and other 2D nano platelets in order to improve the electrical conductivity of adhesive bonds as well as enhance the strength of the bonded layer and to build on the success of the GrEAT Fun project

**NATEP Grant £150,000**

Project	Supply chain partnership	Contact
<b>Nano-Enhanced Aerospace Interiors (NEAT)</b>	<ul style="list-style-type: none"> <li>• Coventive Composites</li> <li>• Applied Graphene Materials Ltd</li> <li>• Composites Evolution Ltd</li> <li>• Rockwell Collins operating in the UK as B/E Aerospace (UK) Limited</li> </ul>	Gary Foster Senior Project Manager  gary.foster@netcomposites.com

The development of investment casting technology to enable the casting of near net shape magnesium castings. The project utilises additive manufacturing techniques in pattern production to reduce lead time and production costs, while addressing reported casting difficulties with innovative ceramic shell solutions.

**NATEP Grant £150,000**

Project	Supply chain partnership	Contact
<b>C-MET Composite Metal Engine Technology</b>	<ul style="list-style-type: none"> <li>• Aerospace Metal Composites Ltd</li> <li>• Cosworth Ltd</li> <li>• Rolls-Royce plc</li> <li>• BRP-Rotax</li> </ul>	Dr Stuart Godfrey Business Development Manager  stuart.godfrey@materion.com

The C-MET project will develop the use of metal matrix composites for aero-engine applications, lighter weight designs will enable lower costs and significant reductions in aero-engine emissions.

**NATEP Grant £150,000**

Project	Supply chain partnership	Contact
<b>Novel disruptive composite structures</b>	<ul style="list-style-type: none"> <li>• Adhesion Technologies Ltd</li> <li>• Loop Technology Ltd</li> <li>• Leonardo MW Ltd</li> </ul>	Douglas Wood Commercial Director  douglas.wood@adhesiontec.com

Adhesion Technologies is developing the next generation composite fixing technology 'Attenuator' to be demonstrated in Leonardo MW's revolutionary Rotary Wing Unmanned Aerial System..

**NATEP Grant £150,000**

Project	Supply chain partnership	Contact
<b>CTES - Lower Cost, Higher Performance Composite Tooling</b>	<ul style="list-style-type: none"> <li>• Composite Tooling &amp; Engineering Solutions Ltd</li> <li>• SHD Composite Materials Ltd</li> <li>• Applied Graphene Materials Ltd</li> <li>• GKN Aerospace</li> </ul>	Liam Moloney Director  liam@ctesltd.co.uk
To develop a lower cost, higher performance, composite tooling solution suitable for use in the production of all types of composite aerospace structures. <b>NATEP Grant £147,225</b>		

Project	Supply chain partnership	Contact
<b>Graphene Composites Evaluated in Lightning Strike (GraCELS-2)</b>	<ul style="list-style-type: none"> <li>• Haydale Composite Solutions</li> <li>• Cobham Technical Services</li> <li>• Airbus</li> <li>• BAE Systems</li> </ul>	Peter Hansen Engineering Manager  peter.hansen@haydalecs.com
The project aims to deliver a generation of carbon fibre-reinforced composites with greatly improved performance in lightning-strike combined with improvements in mechanical properties by utilising the ability of functionalized graphene and other 2D Nano-fillers in the matrix of the composite material to significantly improve the electrical conductivity of the composite material <b>NATEP Grant £150,000</b>		

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
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. <b>NATEP grant £145,000</b>		

Project	Supply chain partnership	Contact
<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
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. <b>NATEP Grant £137,000</b>		

Project	Supply chain partnership	Contact
<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><b>NATEP Grant £145,500</b></p>		

Project	Supply chain partnership	Contact
<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><b>NATEP Grant £150,000</b></p>		

Project	Supply chain partnership	Contact
<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>		

Project	Supply chain partnership	Contact
<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 Toggлон 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>		

Project	Supply chain partnership	Contact
<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>NATEP Grant £149,770</p>		

Project	Supply chain partnership	Contact
<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>NATEP Grant £ 150,000</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>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
<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 – Managing Director paul.barrett@kaman.com

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 & D project is to Design, manufacture and test 2 off Proof of concept Low Mass Composite Mould tools.

**NATEP Grant £146,560**

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

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

**NATEP Grant £131,090**

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

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.

**NATEP Grant £150,000**

Project	Supply chain partnership	Contact
<b>Biocomposites for Aerospace Interiors (BAIT)</b>	<ul style="list-style-type: none"> <li>• Coventive Composites</li> <li>• AIM Composites</li> <li>• Composites Evolution</li> <li>• AIM Cabin Interiors (customer)</li> </ul>	Elliot Fleet – Project Manager elliot.fleet@coventivecomposites.com

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

**NATEP Grant £146,570**

Project	Supply chain partnership	Contact
<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. NATEP Grant £74,500</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>	Peter Quigley Petr.quigley@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. Grant for R&amp;D £91,850</p>		

Project	Supply chain partnership	Contact
<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. NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
<b>Multifab- A Multifunctional composite fabric concept</b>	<ul style="list-style-type: none"> <li>• Diversus Ltd</li> <li>• University of Bath</li> <li>• Leonardo MW Ltd (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>		



NATEP Grant £148,000

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
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		
NATEP Grant £150,000		

Project	Supply chain partnership	Contact
<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
The Composite Pipe Bending project will develop a repeatable, cost effective method to bend composite pipes using CNC pipe bending equipment		
NATEP Grant £46,554		

Project	Supply chain partnership	Contact
<b>Composite Baseplates for aerospace antennas</b>	<ul style="list-style-type: none"><li>• Technical Composite Systems Ltd</li><li>• Cobham Antenna Systems</li><li>• University of Exeter</li><li>• (customer) tbc</li></ul>	Michael Sloan Managing Director msloan@technicalcompositesystems.co.uk
The project consortium aims to develop, test and exploit new technologies to improve aircraft communication hardware. Structural composite materials and advanced surfacing technologies will reduce the mass of current systems.		
NATEP Grant £145,115		