

NATEP

Materials Projects



Materials Projects

Project	Supply chain partnership	Contact
Low Cost FST Compliant Composite Components	<ul style="list-style-type: none"> • CECENCE • SHD Composites • Wavelength NDT • Pitch Aircraft Seating (customer) 	Humphrey Bunyan Director & Head of Innovation humphrey@cecence.com
The development of low cost, fast process methods & 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		

Project	Supply chain partnership	Contact
C-MET Composite Metal Engine Technology	<ul style="list-style-type: none"> • Aerospace Metal Composites Ltd • Cosworth Ltd • Rolls-Royce plc (customer) • BRP-Rotax (customer) 	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
CTES - Lower Cost, Higher Performance Composite Tooling	<ul style="list-style-type: none"> • Composite Tooling & Engineering Solutions Ltd • SHD Composite Materials Ltd • Applied Graphene Materials Ltd • GKN Aerospace (customer) 	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. NATEP Grant £147,225		

Project	Supply chain partnership	Contact
CAUTION - CoAtings for Ultra high Temperature detectIOn	<ul style="list-style-type: none"> • Sensor Coating Systems • Monitor Coatings Ltd • MAN Diesel & Turbo SE • NASA (customer) • United Technologies Research Centre (customer) • Pratt & Whitney (customer) 	Dr Jörg P. Feist Managing Director j.feist@sensorcoatings.com
The project 'CAUTION - CoAtings for Ultra high Temperature detectIOn' will develop a Thermal History Coating for accurate temperature profiling of critical components in the range 900°C to 1500°C and beyond. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Standardised Image Correlation for Industry	<ul style="list-style-type: none"> • Enabling Process Technologies Ltd • Strain Solutions Ltd • Airbus (customer) 	Dr John Philip Tyler Director philip.tyler@eptworld.com
The project will develop a new physical method for validating digital image correlation displacement/strain data by achieving traceability to the length standard at the time of test data capture. NATEP Grant £58,142		

Project	Supply chain partnership	Contact
Fit and Forget Cable Harnesses	<ul style="list-style-type: none"> • Scientific Management International Ltd • Concept Cables Ltd • Safran Landing Systems (customer) 	Glen Richardson Chief Technical Officer glen.richardson@smi.group
Fit and forget design solution to avoid any water or moisture ingress into aircraft landing gear connector harnesses. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Graphene Composites Evaluated in Lightning Strike (GraCELS-2)	<ul style="list-style-type: none"> • Haydale Composite Solutions • Cobham Technical Services • Airbus • BAE Systems (customer) 	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 NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Graphene Enhanced Adhesive Technology through Functionalization (GrEAT Fun-2)	<ul style="list-style-type: none"> • Haydale Composite Solutions • Element Materials Technology • Airbus (customer) • GE Aviation Systems (customer) 	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
Advanced Magnesium Investment Casting (AMIC)	<ul style="list-style-type: none"> • Aeromet International Ltd • Luxfer MEL Technologies • Spirit Aero Systems (customer) 	Paul Monington Head of New Technology paul.monington@aeromet.co.uk
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
Nano-Enhanced Aerospace Interiors (NEAT)	<ul style="list-style-type: none"> • Coventive Composites • Applied Graphene Materials Ltd • Composites Evolution Ltd 	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
A20X Surface Treatments Development	<ul style="list-style-type: none"> • Aeromet • Poeton Industries • Boeing (customer) 	Mike Bond - Director of Advanced Material Technology mike.bond@aeromet.co.uk
The project will develop and verify the performance on a range of metal finishing treatments (anodic and chemical conversion coatings) for Aeromet's A20X family of casting alloys without using hexavalent chrome compounds (which have a limited life under REACH legislation). NATEP grant £35,000		

Project	Supply chain partnership	Contact
Thermoplastic Composite Fusion Welding (CoFusion)	<ul style="list-style-type: none"> • AGC AeroComposites • The National Composites Centre • Ten Cate Advanced Composites Ltd • Rolls-Royce plc (customer) 	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. NATEP Grant £137,000		

Project	Supply chain partnership	Contact
Large Deployable Antenna for Space	<ul style="list-style-type: none"> • Oxford Space Systems • Reliance Precision Ltd • MDA Corporation UK Ltd (customer) • VTOL-Technologies (customer) 	Mat Rowe – Project Manager mat.rowe@oxfordspacesystems.com
<p>Oxford Space Systems will design & develop a reflector surface for attachment to their existing scalable large deployable antenna.</p> <p>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Flexible Air distribution ducting	<ul style="list-style-type: none"> • AVS- SYS Ltd • Arville Textiles • Raytheon (customer) 	Andrew Whitehead – Engineering Director awhitehead@avsupport.org.uk
<p>The project is to design weight-saving and cost saving flexible aerospace ducts which will support the development of a new manufacturing facility in the North West of England providing employment opportunities and increased exports.</p> <p>NATEP Grant £127,850</p>		

Project	Supply chain partnership	Contact
Rapid Development Compressor Component Manufacture	<ul style="list-style-type: none"> • Centrax Turbine Components • Mettis Aerospace • West Country Tools (WCT) • Rolls-Royce plc (customer) 	Josh Sansom Josh.sansom@centraxtcl.com
<p>Providing a full commodity manufacturing solution to the production of HPC components to meet cost, quality and delivery targets in a flexible design sphere</p> <p>NATEP Grant £149,340</p>		

Project Title	Supply chain partnership	Contact
Polymeric Additive Manufacturing for Aircraft Interiors	<ul style="list-style-type: none"> • Bristol Aero Ltd • HiETA Technologies Ltd • Ipeco Holdings (customer) • Jet Aviation AG (customer) 	Brett Peterson – Head of Engineering brett.peterson@bristol.aero
<p>The use of recently developed, cost effective, polymeric additive manufacturing materials with sufficient levels of fire retardancy for use in high value aircraft interiors and systems is investigated through a full design-manufacture-test cycle.</p> <p>NATEP Grant £145,500</p>		

Project	Supply chain partnership	Contact
Metal Matrix Composites for Helicopter Applications	<ul style="list-style-type: none"> • Aerospace Metal Composites Ltd • Mettis Aerospace • Leonardo MW Ltd (customer) 	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
SmartHUD	<ul style="list-style-type: none"> • Artemis Optical • Plessey Semiconductors Ltd • BAE Systems (customer) 	Stuart Allan – Technology Director stuart.allan@artemis-optical.co.uk
<p>SmartHUD aims to use the recent proliferation in LED light sources and design unique and novel thin film coatings to enable their use in Head Up Display systems. The advantages sought are reduced weight, longer useful life of the light source and enhanced optical performance of the overall module.</p> <p>NATEP Grant £102,890</p>		

Project	Supply chain partnership	Contact
Lead-Free Detonating Cords	<ul style="list-style-type: none"> • Chemring • Brunel University • Martin Baker Aircraft (customer) 	Andrew Bentley - BD Technology & Innovation Executive – Devices andrew.bentley@chemringenergetics.co.uk
<p>The identification of suitable alloys and manufacturing processes to replace lead in the explosive detonating cords used in aircraft and space launch vehicles.</p> <p>NATEP Grant £128,890</p>		

Project	Supply chain partnership	Contact
Composite Electrostatic Transport Elements (CompETE)	<ul style="list-style-type: none"> • AGC Aero Composites • Element Materials Technology • ENL Ltd • Technical Fibre Products Ltd • Airbus Operations (customer) 	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>NATEP Grant £131,090</p>		

Project	Supply chain partnership	Contact
High Strength Aluminium Alloy Failure Modelling	<ul style="list-style-type: none"> • Cabot Design Ltd • Gingerneering Ltd • Airbus Operations (customer) 	Mervin Davidson – Director merv.davidson@cabotdesign.com
<p>An advanced material model which facilitates the accurate analysis of high strength aluminium alloys under complex loading conditions, with specific application to the prediction of the initiation of failure under load. NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Graphene Composites Evaluated in Lightning Strike (GraCELS)	<ul style="list-style-type: none"> • Haydale Composite Solutions Ltd • SHD Composites Ltd • Cobham Antenna Services • Airbus UK(customer) • BAE Systems plc (customer) 	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. NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Biocomposites for Aerospace Interiors (BAIT)	<ul style="list-style-type: none"> • Coventive Composites • AIM Composites • Composites Evolution • AIM Cabin Interiors (customer) 	Elliot Fleet – Project Manager elliott.fleet@coventivecomposites.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 NATEP Grant £146,570</p>		

Project	Supply chain partnership	Contact
Enterprise Bio-Interiors Project	<ul style="list-style-type: none"> • SHD Composite Materials Ltd • AIM Aviation Ltd • Ipeco Composites (customer) 	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 (pre-preg) giving good Fire Smoke and Toxicity (FST) properties for the aircraft interiors market. NATEP Grant £74,500</p>		

Project	Supply chain partnership	Contact
Inkjet Printed Graphene Composite Materials	<ul style="list-style-type: none"> • Applied Graphene Materials Limited • SHD Composite Materials Limited • The Boeing Company (customer) 	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>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Next Generation Single Crystal Helix	<ul style="list-style-type: none"> • Investment Casting Systems Ltd • C&M Mould Tools Ltd • Resinex UK Ltd • Rolls-Royce (Precision Casting Foundry) (customer) 	David Granados Alcala Programmes Manager David@investmentcastingsystems.co.uk
<p>Design and production of an innovative feature which will increase the production yield of the casting process for single crystal turbine blades & structures.</p> <p>NATEP Grant £142,600</p>		

Project	Supply chain partnership	Contact
Mouldable Liners	<ul style="list-style-type: none"> • SKF • WMG HVM Catapult • Leonardo MW Ltd (customer) 	Grant Dennis Project Manager grant.dennis@skf.com
<p>This project will develop greater flexibility and customisation to plain bearings technologies, permitting them meet the changing and demanding requirements of the aerospace market.</p> <p>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Textilub – a novel self-lubricating liner	<ul style="list-style-type: none"> • SKF • Tiab Limited • Leonardo MW Ltd (customer) 	Michael Colton Local Product Development Manager Michael.Colton@skf.com
<p>Textilub will deliver the next generation of novel plain bearings to the meet the changing and demanding requirements of the aerospace market</p> <p>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Multifab- A Multifunctional composite fabric concept	<ul style="list-style-type: none"> • Diversus Ltd • University of Bath • Leonardo MW Ltd (customer) 	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>NATEP Grant £148,000</p>		

Project	Supply chain partnership	Contact
Graphene-Enhanced adhesive Technology through Functionalisation	<ul style="list-style-type: none"> • Haydale Composite Solutions Ltd • SHD Composites Ltd • Element Materials Technology Hitchin Ltd • Airbus (customer) • GE Aviation Systems (customer) 	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>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Cooled Core Die Blocks	<ul style="list-style-type: none"> • Gardner BTC Ltd • Material Solutions • Invest Tech Ltd (customer) 	Keith Fulford Project Manager kfulford@gardner-aerosapce.com
<p>Gardner BTC Ltd., manufacturer of Injection dies is developing new technologies to produce core dies using alternative advanced manufacturing methods, specifically focused on providing better injected parts and reduced non-conformance.</p> <p>NATEP Grant £52,150</p>		

Project	Supply chain partnership	Contact
Fe-36Ni MMC for space and aerospace applications	<ul style="list-style-type: none"> • Aerospace Metal Composites Ltd • ExoTec Precision • NASA Goddard Space Flight Centre 	David Tricker Technical Manager david.tricker@materion.com
<p>This project will develop a Fe-36Ni metal matrix composite (MMC) material. Specifically this composite material will have reduced density and improved thermal expansion properties compared to more conventional Invar® type systems</p> <p>NATEP Grant £120,000</p>		

Project	Supply chain partnership	Contact
ADAPT – Affordable Detail Additive Parts Technology	<ul style="list-style-type: none"> • Hyde Aero Products Ltd • HK3D Solutions Ltd • MBDA UK Ltd • The Boeing Company (customer) 	Paul Mellor Technical Director pmellor@hydeaero.co.uk
<p>The ADAPT project will seek to determine the applicability of Atomic Diffusion Additive Manufacturing technology for use in cost effective manufacture and optimised design of detail metallic components in aerospace when compared to traditional subtractive manufacturing strategies.</p> <p>NATEP Grant £98,150</p>		

Project	Supply chain partnership	Contact
Composite Baseplates for aerospace antennas	<ul style="list-style-type: none"> • Technical Composite Systems Ltd • Cobham Antenna Systems • University of Exeter • (customer) tbc 	Michael Sloan Managing Director msloan@technicalcompositesystems.co.uk
<p>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.</p> <p>NATEP Grant £145,115</p>		

Project	Supply chain partnership	Contact
Automated Composite Component Manufacture	<ul style="list-style-type: none"> • Pentaxia • SHD Composites • TIA • Transcal Engineering (customer) • Rolls-Royce plc (customer) 	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.</p> <p>NATEP Grant £141,000</p>		

Project	Supply chain partnership	Contact
COP-E4 Combustion Optimisation Program	<ul style="list-style-type: none"> • Weslake Air Services Ltd • Aerospace Metal Composites Ltd • EFI Ltd • Swift Air (customer) • Axter Aerospace (customer) • Britten Norman Aircraft Ltd (customer) 	John Lamberton Managing Director John.lamberton@weslake.eu
<p>The COP-E4 project will develop a novel heavy fuel powertrain for lightweight, safe and more fuel efficient aero-engines with significant reductions in cost and emissions.</p> <p>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Hot Isostatic Pressing of Titanium Components (HIPNOTIC)	<ul style="list-style-type: none"> • Maher Ltd • Nikken Innovation Centre Europe Ltd • Replicast Ltd • Westmoreland Testing & Research Ltd • Airbus (customer) 	Gerry Clark Managing Director gerry.clark@maher.com
<p>The aim of the project is to deliver component demonstrators for the Wing of Tomorrow programme led by Airbus. Novel technology delivered by a newly established local supply chain will be used to manufacture the components.</p> <p>NATEP Grant £148,545</p>		

Project	Supply chain partnership	Contact
Forging Near Net Shape Titanium Components (FRANTIC)	<ul style="list-style-type: none"> • Maher Ltd • Bifrangi UK • Westmoreland Testing & Research Ltd • The Boeing Company (customer) 	Gerry Clark Managing Director gerry.clark@maher.com
<p>The FRANTIC project aims to establish a new supply chain in the UK for titanium aero structures. Using novel forging techniques to manufacture near net shape components will result in cost competitive solutions for the end user</p> <p>NATEP Grant £97,040</p>		

Project	Supply chain partnership	Contact
HP1 Impact Classification System (HP1ICS)	<ul style="list-style-type: none"> • HP1 Technologies Limited • University of Central Lancashire • Centre for Process Innovation (CPI) • BAE Systems • GKN Aerospace 	Andrew Howes – Director Andrew@hp1t.com
<p>This project will develop a printable intelligent flexible, thin and durable sensor array that will collect and analyse data relating to impact events on aircraft.</p> <p>NATEP Grant £149,926</p>		

Project	Supply chain partnership	Contact
Thermoplastic Encapsulated Embedded Power Modules (TEE-P)	<ul style="list-style-type: none"> • Tribus-D Ltd • Ultrawise Innovation Ltd • Leonardo MW Ltd 	info@tribus-d.uk
<p>Assembly processes for the power electronics modules are critical for efficiency, size, weight and costs. This project will maximise thermal dissipation and minimise circuit parasitics through advanced interconnection and device encapsulation techniques</p> <p>NATEP Grant £37,200</p>		

Project	Supply chain partnership	Contact
Low cost packages for semi-conductor devices	<ul style="list-style-type: none"> • Semelab Ltd • PandA Europe • AK Industries Ltd • GE Aviation Systems 	Liam Mills – R&D Manager liam.mills@semelab-tt.com
<p>The project proposes to develop a recyclable high temperature polymer that can be moulded around a metal lead frame to produce a lower cost package alternative to traditional co-fired ceramic surface mount packages for current aerospace applications and future high temperature requirements</p> <p>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Plastic Overmolded Dual Cooled Modules	<ul style="list-style-type: none"> • Semelab Ltd • Goodfellow Cambridge Ltd • Rolls-Royce plc 	Liam Mills – R&D Manager liam.mills@semelab-tt.com
<p>Development of a novel, low profile, lightweight highly thermally efficient packaging scheme for power electronics.</p> <p>NATEP Grant £148,563</p>		

Project	Supply chain partnership	Contact
Chrome Replacement Super Finish Technology	<ul style="list-style-type: none"> • Hardide Coatings Ltd • Perfect Bore Manufacturing • Engis UK Ltd • Impcross Ltd (customer) 	Dr Yuri Zhuk –Technical Director yzhuk@hardide.com
<p>Development of machining techniques to a chrome replacement coating applications on parts such as seal counter-bodies, erosion and high load bearings with complex geometries including internal bores.</p> <p>NATEP Grant £150,000</p>		

Project	Supply chain partnership	Contact
Foyr Toshee	<ul style="list-style-type: none"> • RLC (UK) Ltd • Aquajet Holdings Ltd • GF Machining Solutions • Warwick Machine Tools • EMAG(UK)Ltd • Rolls-Royce plc (customer) 	Mayank Patel – Project Manager mayank.patel@rlc-group.com
<p>The approach of this project is to advance existing technologies to create a closer to form material input which will both reduce the raw material input cost and reduce RLC manufacturing costs, resulting in a competitive manufacturing method for the Titanium Fan Blade Leading Edge</p> <p>NATEP Grant £125,000</p>		

Project	Supply chain partnership	Contact
Developing a new ultra-low temperature Hardide coating	<ul style="list-style-type: none"> • Hardide Coatings Ltd • Westmoreland Testing & Research Ltd • Perfect Bore Manufacturing • Airbus (customer) • Leonardo (customer) 	Dr Yuri Zhuk –Technical Director yzhuk@hardide.com
<p>Development of, and characterisation of properties, of an ultra-low temperature CVD nano-structured tungsten/tungsten carbide based coating to increase wear, galling and corrosion resistance for low-tempering temperature steels. Providing an alternative to Hard Chrome, HVOF and other similar coatings on a wider range of materials.</p> <p>NATEP Grant £150,000</p>		