NATEP

Materials Projects

Materials Projects

Project	Supply chain partnership	Contact
C-MET Composite Metal Engine Technology	• Aerospace Metal Composites Ltd • Cosworth Ltd • Rolls-Royce plc • BRP-Rotax	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	• Composite Tooling & Engineering Solutions Ltd • SHD Composite Materials Ltd • Applied Graphene Materials Ltd • GKN Aerospace	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	• Sensor Coating Systems • Monitor Coatings Ltd • MAN Diesel & Turbo SE • NASA • United Technologies Research Centre • Pratt & Whitney	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	• Enabling Process Technologies Ltd • Strain Solutions Ltd • Airbus	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	• Scientific Management International Ltd • Concept Cables Ltd • Safran Landing Systems	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 Lightening Strike (GraCELS-2)	• Haydale Composite Solutions • Cobham Technical Services • Airbus • BAE Systems	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)	• Haydale Composite Solutions • Element Materials Technology • Airbus • GE Aviation Systems	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)	• Aeromet International Ltd • Luxfer MEL Technologies • Spirit Aero Systems	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)	• Coventive Composites • Applied Graphene Materials Ltd • Composites Evolution Ltd • Rockwell Collins operating in the UK as B/E Aerospace (UK) Limited	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	• 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 Aeromets 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)	• 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	• Oxford Space Systems • Reliance Precision Ltd • MDA Corporation UK Ltd (customer) • VTOL-Technologies (customer)	Mat Rowe – Project Manager mat.rowe@oxfordspacesystems.com
Oxford Space Systems will design & develop a reflector surface for attachment to their existing scalable large deployable antenna. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Flexible Air distribution ducting	• AVS- SYS Ltd • Arville Textiles • Raytheon (customer)	Andrew Whitehead – Engineering Director awhitehead@avsupport.org.uk
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. NATEP Grant £127,850		

Project	Supply chain partnership	Contact
Rapid Development Compressor Component Manufacture	• Centrax Turbine Components • Mettis Aerospace • West Country Tools (WCT) • Rolls-Royce plc (customer)	Josh Sansom Josh.sansom@centraxtcl.com
Providing a full commodity manufacturing solution to the production of HPC components to meet cost, quality and delivery targets in a flexible design sphere NATEP Grant £149,340		

Project Title	Supply chain partnership	Contact
Polymeric Additive Manufacturing for Aircraft Interiors	• Bristol Aero Ltd • HiETA Technologies Ltd • Ipeco Holdings (customer) • Jet Aviation AG (customer)	Brett Peterson – Head of Engineering brett.peterson@bristol.aero
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. NATEP Grant £145,500		

Project	Supply chain partnership	Contact
Metal Matrix Composites for Helicopter Applications	• Aerospace Metal Composites Ltd • Mettis Aerospace • Leonardo MW Ltd (customer)	Dr Stuart Godfrey – Business Development Manager stuart.godfrey@materion.com
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. NATEP Grant £ 150,000		

Project	Supply chain partnership	Contact
SmartHUD	• Artemis Optical • Plessey Semiconductors Ltd • BAE Systems (customer)	Stuart Allan – Technology Director stuart.allan@artemis-optical.co.uk
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. NATEP Grant £102,890		

Project	Supply chain partnership	Contact
Lead-Free Detonating Cords	• Chemring • Brunel University • Martin Baker Aircraft (customer)	Andrew Bentley - BD Technology & Innovation Executive – Devices andrew.bentley@chemringenergetics.co.uk
The identification of suitable alloys and manufacturing processes to replace lead in the explosive detonating cords used in aircraft and space launch vehicles. NATEP Grant £128,890		

Project	Supply chain partnership	Contact
Composite Electrostatic Transport Elements (CompETE)	• AGC Aero Composites • Element Materials Technology • ENL Ltd • Technical Fibre Products Ltd • Airbus Operations (customer)	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
High Strength Aluminium Alloy Failure Modelling	• Cabot Design Ltd • Gingerneering Ltd • Airbus Operations (customer)	Mervin Davidson – Director merv.davidson@cabotdesign.com
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		

Project	Supply chain partnership	Contact
Graphene Composites Evaluated in Lightening Strike (GraCELS)	• 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
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
Biocomposites for Aerospace Interiors (BAIT)	• Coventive Composites • AIM Composites • Composites Evolution • AIM Cabin Interiors (customer)	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
Enterprise Bio-Interiors Project	• SHD Composite Materials Ltd • AIM Aviation Ltd • Ipeco Composites (customer)	Nick Smith – Technical Director nsmith@shdcomposites.com
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		

Project	Supply chain partnership	Contact
Inkjet Printed Graphene Composite Materials	• Applied Graphene Materials Limited • SHD Composite Materials Limited • The Boeing Company (customer)	Dr Tim von Werne Technical Director Tim.vonwerne@appliedgraphenematerials.com
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		

Project	Supply chain partnership	Contact
Next Generation Single Crystal Helix	• 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
Design and production of an innovative feature which will increase the production yield of the casting process for single crystal turbine blades & structures. NATEP Grant £142,600		

Project	Supply chain partnership	Contact
Mouldable Liners	• SKF • WMG HVM Catapult • Leonardo MW Ltd (customer)	Grant Dennis Project Manager grant.dennis@skf.com
This project will develop greater flexibility and customisation to plain bearings technologies, permitting them meet the changing and demanding requirements of the aerospace market. NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Textilub – a novel self-lubricating liner	• SKF • Tiab Limited • Leonardo MW Ltd (customer)	Michael Colton Local Product Development Manager Michael.Colton@skf.com
Textilub will deliver the next generation of novel plain bearings to the meet the changing and demanding requirements of the aerospace market NATEP Grant £150,000		

Project	Supply chain partnership	Contact
Multifab- A Multifunctional composite fabric concept	• Diversus Ltd • University of Bath • Leonardo MW Ltd (customer)	Chris Brill Director info@Diversus.Technology
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. NATEP Grant £148,000		

Project	Supply chain partnership	Contact
Graphene-Enhanced adhesive Technology through Functionalisation	• 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
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
Cooled Core Die Blocks	• Gardner BTC Ltd • Material Solutions • Invest Tech Ltd (customer)	Keith Fulford Project Manager kfulford@gardner-aerosapce.com
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. NATEP Grant £52,150		

Project	Supply chain partnership	Contact
Fe-36Ni MMC for space and aerospace applications	• Aerospace Metal Composites Ltd • ExoTec Precision • NASA Goddard Space Flight Centre	David Tricker Technical Manager david.tricker@materion.com
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 NATEP Grant £120,000		