Results of Competition: NATEP Corrective Closed Competition

Competition Code: 2004_MMM_NATEP_ATI

Total available funding is £900,000

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
GEN3D LTD	Innovative Software for Designing Additively Manufactured Fluid Flow Components (Influunt)	£168,884	£84,442
University of Bath		£36,216	£36,216

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
Use the Competition Code given above to search for this competition's results

Project description - provided by applicants
The emergence of 3D printing, industrially termed additive manufacturing (AM) is disrupting how components are manufactured. AM has the capability to manufacture increasingly complex designs for a multitude of cross-sectoral technologies. For example, aerospace where new components can be realised with significantly reduced material consumption and scrap. Current subtractive methods can often result in up to 95% of the raw material being turned into scrap metal in the form of chips and swarf. Traditional manufacturing methods can also lead to over-engineered components due to limitations in design freedoms. Gen3D's vision of design for additive manufacture (DfAM) is predicated on maintaining in equal balance the connection between the often-disparate aspects of 'design' and 'manufacture'. This vision is realised through the unique Gen3D software platform. This software can generate or modify geometry using optimisation algorithms that are constrained by a series of proprietary manufacturing filters. Only manufacturable geometry can be created. A user only needs to describe the function of the part or provide an already existing geometry for the software to return a manufacturable design output. Furthermore, the software is not limited to a single AM process and can be applied to a multitude of AM technologies including powder bed fusion, stereolithography, and fused deposition modelling. This ambitious and disruptive project will develop new design rules, algorithms and software features that will be embedded within Gen3Ds unique software. This will enable and accelerate the right-first-time DfAM of fluid flow components, such as hydraulic actuators and heat exchangers.It will transform how complex fluid flow components are realised using a new design environment (akin to a digital 'whiteboard') in which the designer can flexibly and quickly alter and adapt designs whilst simultaneously adhering to core manufacturability rules. This will, for the first time, ensure that designs are functionally optimally, significantly light-weighted and manufacturable in a single design iteration fundamentally changing the way engineers design.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SST TECHNOLOGY LIMITED	DIssimilAr Material integration through Additive maNufacturing Development - DIAMAND.	£210,000	£105,000
Manufacturing Technology Centre		£45,000	£45,000

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Project description - provided by applicants
The DIAMAND project will seek to develop advanced hybrid joining methodologies through additive manufacturing techniques to create metallic structural joints and validated powder bed Nickel alloy components joined to Titanium substrates.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
WAYLAND ADDITIVE LIMITED	Ti64 Advanced Processes for Aerospace Structures (TAPAS)	£209,850	£104,925
University of Huddersfield		£44,968	£44,968

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Project description - provided by applicants
Additive Manufacturing (AM) offers unrivalled flexibility in terms of part geometry, material composition and production volumes. It will revolutionise the high value manufacturing sector and in particular the aerospace and medical implant industry, enabling complex, lightweight, high performance parts to be produced with less material waste and more economically. Unfortunately, despite the clear potential, until recently AM has been largely restricted to the production of prototypes, and components for test rigs. In TAPAS a comprehensive programme of experimental, theoretical and development work will be conducted to address some of the critical challenges which must be overcome for widespread adoption of AM for the manufacture of production parts within the civil aerospace and medical implant sectors.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
SHD COMPOSITE MATERIALS LTD	Ecojet – using sustainable composite materials to reduce the weight of composite aero engine components without compromise to performance or cost.	£208,188	£104,094
University of Sheffield		£44,998	£44,998

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
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Project description - provided by applicants
Using sustainable, high performance resins to produce aero engine components from unidirectional carbon fibre prepreg at the rates required for high volume manufacture.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
TECHNICAL COMPOSITE SYSTEMS LIMITED	High functionality, low cost, small composite antennas	£103,698	£51,849
University of Exeter		£22,220	£22,220

Note: you can see all Innovate UK-funded projects here: https://www.gov.uk/government/publications/innovate-uk-funded-projects
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Project description - provided by applicants
Wireless communication performance is a function dictated by the design, structure and materials used in their manufacture. We seek to challenge convention by creating new composite materials that permit smaller, more efficient and low cost communication hardware.

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