

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>  | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|---|-------------------------------|-------------------------------|
| Powdertech (Bicester) Ltd<br>TWI Ltd<br>Emerald Automotive Design Ltd   | OPTIMA - Optimisation of a chrome-free pre-treatment process for lightweight alloy components | £149,983                      | £114,975                      |
| <b>Project description - provided by applicants</b>   |   |                               |                               |
| <p>The increasing use of Al by vehicle OEMs is driven by its high strength to weight ratio, enabling substantially improved fuel economy &amp; reduced CO2 emissions when substituted for heavier materials. However, the change of material presents new challenges with respect to design &amp; methods of joining. The pre-treatment of the Al surface prior to bonding is the key to long service life. Pre-treatments successfully employed by the aerospace industry cannot be used in automotive production, where cheaper &amp; more environmentally friendly pre-treatments are required. Specifically, the use of chromates is unacceptable. Hence, there is a need to develop chromate-free pre-treatments that will consistently provide the required level of performance, whilst being acceptable both in terms of general engineering practice and economy. OPTIMA will therefore prove technical feasibility of implementing in-line NDT within our chrome-free pre-treatment process for lightweight alloys to provide process control and assurance that we can achieve the level of performance required by our customers.</p> |   |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>   | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|--|-------------------------------|-------------------------------|
| Thin Metal Films Ltd<br>Cranfield University<br>Exergy Ltd  | Multilayer Electrochromic Coatings<br>For Affordable Smart Windows | £145,570                      | £114,947                      |
| <b>Project description - provided by applicants</b>   |  |                               |                               |
| The EC smart coating window project will demonstrate technical feasibility of producing multilayer electrochromic (EC) coatings and its integration with photovoltaic (PV) module for development of affordable smart windows having potential applications in energy efficient buildings and aircraft. The PV powered ECWIN technology will address the challenges of large-area novel energy efficient coating manufacturing by reducing cooling and heating loads to meet the the target of 25% reduction of greenhouse gas emission from the building market. The synergy of inorganic EC materials, solid electrolyte and cost effective and high yield process developments will have an impact on building efficiency rating by (a) Equivalent of U-value reduction of about 0.35W/ (m2.K), (b) Improved durability with faster switching time <15s/m2, (c) Low power consumption: 80mWh/cycle/m2, (d) Longer life time >10 years, (e) Energy savings up to 40% and (f) Lower manufacturing cost < £100/m2. ECWIN will bring smart coating technology for windows closer to the user by developing a cost-effective and energy-efficient solution that make EC coatings attractive and competitive for UK buildings. industries. |  |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>   | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|--|-------------------------------|-------------------------------|
| <b>Plasma App Ltd</b>   | Virtual Cathode Deposition<br>Feasibility Study for Solid State<br>Battery Manufacturing | £149,829                      | £104,880                      |
| <b>Project description - provided by applicants</b>   |  |                               |                               |
| Increasing demand for small, low cost, powerful batteries with increased battery calendar life is driving developments in the thin film Solid State Battery (SSB) market. Rechargeable liquid lithium-ion batteries are currently the most popular battery for portable electronic devices, however, their use is limited due to concerns over overheating and demand for increased battery life. In thin film SSB, liquid electrolyte is replaced by solid electrolyte material which offers the potential for increased energy density, and hence improved battery performance, and increased safety. However, the SSB market is still in its infancy and manufacturing technologies currently do not meet the market requirements, with prices significantly higher than liquid lithium-ion alternatives and overall poor battery performance. Plasma App Limited, experts in film deposition, has identified an opportunity to develop a novel Virtual Cathode Deposition technology for the manufacture of highly efficient SSBs at a commercially attractive price, addressing market requirements. This feasibility project aims to optimise an innovative deposition technique to enable the cost effective production of SSBs. |  |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>  | <b>Project title</b>                           | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|--|--|-------------------------------|-------------------------------|
| TWI Ltd<br>Ionbond UK Ltd<br>Sheffield Hallam University   | PVD Coatings on Friction Stir<br>Welding Tools | £146,724                      | £94,712                       |
| <b>Project description - provided by applicants</b>  |  |                               |                               |
| <p>This project will investigate the feasibility of creating coated FSW tools using a novel high energy physical vapour deposition (PVD) process ' HiPIMS (High Power Impulse Magnetron Sputtering). Friction Stir Welding (FSW) is an innovative joining process, which uses a rotating, non-consumable tool, which is traversed along the interface of two work-pieces. The process typically provides enhanced weld quality, strength and durability together with reduced energy consumption and environmental impact when compared to conventional fusion welding processes. However, FSW tooling is an extremely demanding environment ' high temperature (&gt;700°C), high abrasion and exposure to the reactive effects of freshly exposed metal surfaces ' this has limited its commercial application to low melting point alloys, principally aluminium. Through the application of HiPIMS coating, we hope to enable the welding of 'high-temperature' materials, such as steel and titanium for high-value industries (e.g. Aerospace &amp; Transport).</p> |  |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>  | <b>Project title</b>  | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|--|---|-------------------------------|-------------------------------|
| LIG Nanowise Ltd   | Scanning Particle Lens Array Laser Micro/Nano-patterning System | £147,301                      | £103,111                      |
| <b>Project description - provided by applicants</b>  |   |                               |                               |
| Nature has successfully demonstrated the use of surface textures to enhance functionality. The production and replication of these complex textures on man-made materials have been difficult when using conventional mechanical tooling, focused ion beams, electron beams, chemical etching and lithographic methods. Laser surface texturing has the flexibility (suitable for flat and curved structures) and speed to replicate such patterns. However challenges arise with the production is at nanometre scale due to the optical diffraction limit. LIG Nanowise has devised an efficient technique for laser nano-patterning across a large surface area, which overcomes these challenges. It is based upon the near-field focussing effect of a self-assembled particle-lens array (PLA) on a surface interacting with an angular incident laser beam. |   |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>                     | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|--|-------------------------------|-------------------------------|
| JRI Orthopaedics Ltd<br>Glass Technology Services Ltd   | Porous Implant Bioactive Coating (PIBaC) | £149,894                      | £96,544                       |
| <b>Project description - provided by applicants</b>   |  |                               |                               |
| After years of work funded by Innovate UK, a UK partnership of two SMEs, JRI Orthopaedics and GTS are looking to scale up a new functional coating for orthopaedic implants. This will combine two successful technologies: 1) bioactive glasses and 2) 3D printed implants with complex shapes. This project will enable JRI to expand the range of its joint replacements to include highly-complex implants that are tailored to an individual. This is often required if an existing implant has begun to fail and needs to be removed, or if the anatomy is unusual, such as after an accident or any growth abnormalities from birth. This project will allow the partners to check that what works in the lab can be made in large enough quantities for it to be sold around the world. Then JRI, who already sell its own implants around the world, will ensure it gets the necessary approval to be able to launch across the globe. This partnership will be able to make and sell these implants completely - starting with raw materials all the way through to the final sales: hopefully another Made in Britain success story. |  |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>  | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|---|-------------------------------|-------------------------------|
| Micro Materials Ltd<br>Thin Metal Films Ltd<br>Cranfield University   | Nano- to Micro- Impact Testing:<br>an in-situ test for UK SEAC sector | £139,571                      | £98,174                       |
| <b>Project description - provided by applicants</b>   |   |                               |                               |
| The project will develop an innovative coating characterisation tool ' the high temperature micro-scale impact test - that will be used by the Surface engineering and advanced coatings Industry in the R&D of advanced coatings operating under extreme conditions in jet and automotive engines, so they can be optimised for high durability and avoid coating failure or unacceptably high levels of wear. |   |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>  | <b>Project title</b>  | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|--|---|-------------------------------|-------------------------------|
| <b>Archipelago Technology Group Ltd</b>  | Archipelago HotDrop - A digital manufacturing platform for clean, high volume surface engineering and coating | £112,990                      | £79,093                       |
| <b>Project description - provided by applicants</b>  |   |                               |                               |
| HotDrop is a broadly applicable digital manufacturing platform for clean, high volume surface engineering and coating. It enables non-contact, drop-on-demand deposition of hot melt materials including adhesives. It will be used in digital manufacturing applications where there is a need to produce patterned layers of hot melt materials. A key strength is the ability to jet viscous materials, without the need for the addition of harmful and costly solvents. It is clean, food-safe and eliminates the energy associated with the addition, transportation, removal and disposal of solvents. Example applications include the digital deposition of adhesives, where regions of different levels of stiction can be produced by controlling the number density of adhesive dots deposited on a substrate. Other HotDrop applications include adding braille dots and grip for tactile packaging, and highly flexible methods of manufacturing advanced carbon fibre composites. |   |                               |                               |

**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



# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>  | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|---|-------------------------------|-------------------------------|
| Intelligent Energy Ltd<br>Haydale Ltd<br>Centre for Process Innovation Ltd  | Novel Low Cost Conductive Coatings for PEM Fuel Cell Bipolar Plates | £141,467                      | £97,100                       |
| <b>Project description - provided by applicants</b>   |   |                               |                               |
| State-of-the-art PEM fuel cells utilise metallic separator plates which require a coating to reduce their contact resistance to acceptable levels. Such coatings are usually applied by PVD which has high capital costs in order to achieve high volume. This feasibility project aims to reduce PEM bipolar plate coating costs by developing high conductivity carbon-based coatings suitable for application by traditional high volume wet coating processes. Methods for depositing thin film coatings onto preformed, roll material for subsequent forming into fuel cell plates will be developed, these will then undergo ex-situ characterisation for adhesion of the coating through the forming operation and contact resistance before in-situ fuel cell testing. In parallel, coating options for formed parts will be devised such that a comparative costing of pre- vs post-forming coating options can be carried out. The project will aim to develop a process which represents a 30% reduction over the volume cost of existing PVD processed materials whilst achieving equivalent to, or better than, incumbent contact resistance, and demonstrating a route to volume realisation. |   |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>  | <b>Project title</b>  | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|--|---|-------------------------------|-------------------------------|
| <b>Keronite International Ltd</b><br>BWI UK Ltd  | PROwESS - Innovative PROcEss control to achieve Selective Surface coating | £140,697                      | £94,171                       |
| <b>Project description - provided by applicants</b>  |   |                               |                               |
| <p>The UK engineering coatings industry is worth &gt;£11bn affecting products worth £140bn. The Surface Engineering and Coatings market for the automotive sector being £2bn/year. Internal bore coating of automotive components such as damper tubes are a very important aspect of this market. Keronite have developed a Plasma Electrolytic Oxidation (PEO) coating technology that has the potential to achieve widespread application for functional components with particular application to internal surfaces. However, to achieve required performance at acceptable costs, we need to develop a fundamentally new approach to the selective coating of metal part using an automated process to achieve critical functional coatings. PROWESS will develop a high value manufacturing approach with improved deposition control to achieve selective PEO surface coverage down to 25sq.mm. This will have particular application for internal functional surface coatings specifically for tubes and hollow sections. By achieving this, we will be able to increase output rates by up to 400% and reduce costs by &gt;60%.</p> |   |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADV**

**Total available funding for this competition was £1.65M from Innovate UK**

**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 |
|---|---|------------------------|------------------------|
| Keronite International Ltd<br>Federal-Mogul Bradford Ltd  | HI-POTENTIAL - High Performance Thermal coatings for automotive Aluminium pistons | £135,962               | £86,484                |
| <b>Project description - provided by applicants</b>   |   |                        |                        |
| <p>The annual market for automotive pistons for diesel cars is ~32.8m units, worth ~£164 (£125)m, mainly based on eutectic Al-Si. Recent advances globally have led to coated piston crowns with very low thermal conductivity and heat capacity that significantly reduce heat loss, leading to increased engine efficiencies of the order 44%. However, eutectic aluminium is problematic to anodise leading to silicon inclusions and high surface roughness - limiting the anodising area to the piston crown except the cavity. HI-POTENTIAL will develop a high value manufacturing approach with improved capabilities for Plasma Electrolytic Oxidation to create aluminium piston crowns with ultra-low thermal conductivity and heat capacity for coating the entire piston crown including the cavity. By achieving this, we will be able to increase maximum thermal efficiency comparable to or better than existing anodised solutions and increasing fuel efficiency / reducing CO2 emissions by &gt;1.8%. This is beyond anything achieved previously for aluminium and comparable to steel pistons. By achieving this we will create global USPs for PEO coated aluminium pistons.</p> |   |                        |                        |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>   | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|--|-------------------------------|-------------------------------|
| Plasma App Ltd<br>University of Southampton   | Feasibility of a novel low cost technique to deposit chalcogenides | £149,967                      | £111,001                      |
| <b>Project description - provided by applicants</b>   |  |                               |                               |
| Plasma App Ltd. and The University of Southampton are Partnering to deliver a project - Feasibility of a Novel Low Cost Technique to Deposit Chalcogenides; under Innovate UK's HVM call. Our project aims to unite a novel non-toxic form of chalcogenide material ' gallium-lanthanum-sulphide (GLS) ' pioneered in the UK by University of Southampton with an equally novel virtual cathode pulsed-electron beam deposition technology (VCD) developed by Plasma App. If successful, our project will be able to provide UK industry with a commercially scalable capability to deposit high quality, cost effective thin and thick films made from this exciting next-generation optical material. The films have a wide range of applications in sensing, process control, medical and communications and will bring benefit to many areas that directly impact the general public ' including in the areas of healthcare, pharmaceutical drugs and security. |  |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>   | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|--|-------------------------------|-------------------------------|
| Wallwork Heat Treatment Ltd<br>University of Manchester   | Surface Engineering of Additive<br>Manufactured Components<br>(SEAM) | £148,868                      | £95,669                       |
| <b>Project description - provided by applicants</b>   |  |                               |                               |
| A rough surface finish, characteristic of components produced through metal Additive Manufacturing (AM), is currently limiting the widespread adoption of this technology across a range of industries, particularly Aerospace, Automotive and Medical. The exciting potential of AM (complexity is free, no economies of scale, customisation, sustainability) remains unrealised due to the difficulty of appropriately finishing rough components of any geometry/complexity. The Surface Engineering of Additive Manufactured Components (SEAM) Feasibility Study will address the rough finish of parts manufactured through AM by undertaking a detailed investigation to assess the viability of an innovative, patent-pending, plasma-based finishing technology. |  |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>  | <b>Project title</b>                              | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|--|---|-------------------------------|-------------------------------|
| Tata Steel UK Ltd<br>University of Surrey  | Diamond-like carbon coatings for electrical steel | £149,905                      | £97,406                       |
| <b>Project description - provided by applicants</b>  |   |                               |                               |
| Electrical steel is a steel produced in thin strips which can be stacked together to form a magnetic core in electromagnets. Such electromagnets are used in electrical transformers or electric motors, but the electromagnets used in these applications can suffer from electrical losses called 'eddy current' and 'hysteresis' losses. One effect of these losses is the audible hum produced by transformers. Whereas hysteresis losses arise from turning on and off the electromagnet, eddy losses arise due to the materials used in the electromagnet. Carbon based materials, such as diamond like carbon, can be used to minimise the energy losses due to the eddy currents. For example, even a 1 % improvement in these losses will give a reduction of three to four tonnes of carbon dioxide per tonne of electrical steel over the 25 year transformer lifetime. This project aims to identify a suitable technology for producing conformal diamond-like carbon coatings over large areas on steel substrates. Integration of the diamond-like carbon into electromagnet technology will produce more efficient transformers and electrical motors for green technologies, such as electric vehicles. |   |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>  | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|---|-------------------------------|-------------------------------|
| Smith & Nephew UK Ltd<br>NPL Management Ltd<br>Ion Beam Services (UK) Ltd   | Enhanced Performance of Internal Limb Lengthening Prosthesis by Plasma Immersion Ion Implantation | £148,559                      | £79,714                       |
| <b>Project description - provided by applicants</b>   |   |                               |                               |
| <p>The objective of this 1 year feasibility study is to improve the performance of limb lengthening intramedullary prosthesis (LLN) for deformity correction &amp; acquired trauma through plasma immersion ion implantation (PIII) of the internal components. It is hypothesized that PIII treatment will improve lubricity between these mating surfaces reducing the torque required to lengthen the nail &amp; allowing for use in patients with larger limb diameter. PIII will require in-line control of critical process characteristics, e.g. implantation current, dose, choice of dopants, &amp; surface characterisation tools to assess coating composition &amp; coefficient of friction. The vertically integrated collaboration between a global medical device company (S&amp;N), a specialist in PIII treatment (IBS), &amp; an institute specializing in surface characterisation (NPL), are requesting £79k to address processing challenges relating to surface characterisation, process design &amp; scale-up. The platform technology is applicable in other healthcare &amp; industrial sectors given its high level of innovation, &amp; the partners will commercialize the results through the consortium.</p> |   |                               |                               |

**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

# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>  | <b>Project title</b>   | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|--|--|-------------------------------|-------------------------------|
| Aurora Medical Ltd<br>BioInteractions Ltd  | BIOCOAT (Biocompatible Innovative Orthopaedic implant based on lubricious COating Advanced Technologies) | £119,529                      | £83,671                       |
| <b>Project description - provided by applicants</b>  |  |                               |                               |
| <p>The BIOCOAT project is a technical feasibility study to will allow the application of existinv coating processes to a new area, from the single use disposable medical device field to the long term implantation field. BioInteractions Ltd and Aurora Medical Ltd are coming togheter to build the coating technology block required to develop a novel, minimally invasive implant and procedure. This would provide a cost effective solution, in particular for the older frail patient group in which joint replacement operations have high complication rates, and as an alternative to NSAIDs for the treatment of arthritis pain. In the context of an ageing population and increasing obesity as well as the econmic pressure facing health services worldwide, the innovative implant would allow NHS savings of more than £130m per year 5 years after the start of the clinical trial, and offer a novel, cost effective solution to Health Services worldwide. In the longer term the type of technology developed inthis project will provide a strong competitive advantage to the UK and Europe.</p> |  |                               |                               |

**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**



# Innovate UK

**Results of Competition: Surface Engineering and Coating Technologies for High-Value**  
**Competition Code: 1601\_FS\_HVM\_ADVC**

**Total available funding for this competition was £1.65M from Innovate UK**

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

| <b>Participant organisation names</b>   | <b>Project title</b>  | <b>Proposed project costs</b> | <b>Proposed project grant</b> |
|---|---|-------------------------------|-------------------------------|
| <b>Genco Ltd</b>  | Monitoring and Control of Vacuum Deposition and Surface Treatment Processes | £142,648                      | £99,853                       |
| <b>Project description - provided by applicants</b>   |   |                               |                               |
| Genco Limited have developed a prototype sensor that functions by generating a small plasma within the vacuum and splitting the emitted light into its spectrum via a CCD spectrometer. By analysing this spectrum it is possible to identify species present within the vacuum. This approach, whilst not as sensitive as an RGA, operates over a wide pressure range without the need for differential pumping. This project will aim to demonstrate the feasibility of using this sensing method to identify relevant contaminant, effluent and process gas species for vacuum deposition and surface treatment processes. If the project proves successful, then it would significantly reduce the barrier to entry for monitoring the vacuum environment for a large number of process operators who do not have this capability due to the cost, complexity and operating range of what is currently available on the market. Through better monitoring of the vacuum, this project will aim to demonstrate there is the potential to reduce process scrapage and process time and increase process quality and yield |   |                               |                               |

**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