

# UltraMAT Open Day 2020

Innovate UK Project

**UltraMAT - Power ultrasound as a generic tool for  
micro/nanoscale processing of metals**

[www.UltraMAT.co.uk](http://www.UltraMAT.co.uk)

## Preliminary Agenda

### Speakers and Participating Organisations

V1.8

**Date:** 30<sup>th</sup> January 2020

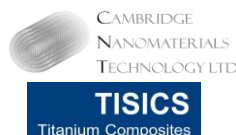
**Venue:** Kaetzu Teaching Room

**Exhibition:** Kaetzu Conference Room

Murray Edwards College

Cambridge

CB3 0DF

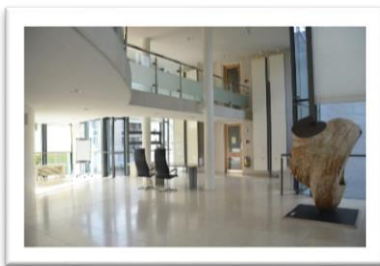


## UltraMAT Project Open Day 2020

The **UltraMAT** project will be hosting its **2<sup>nd</sup> Open Day** in Cambridge on the **Thursday 30<sup>th</sup> January 2020**. The **1<sup>st</sup> UltraMAT** Open Day Workshop took place in Hughes Hall College in Cambridge on the 7 March 2019, with the participation of around 40 delegates from 22 UK organisations. They came from organisations such as: Rolls Royce, BAE Systems, Bitrex Ltd, TWI, Thomas Swan, GoodFellow, Cranfield University, Cambridge University, MBDA, among others. External speakers were also invited to present at the Open Day. Representatives from Haydale, TWI, and DZP Technologies gave talks. This event had exhibits from all **UltraMAT** Partners and from the UK funded GRAPHOSITE project.



The 2<sup>nd</sup> Open Day Workshop will be on the **Thursday 30<sup>th</sup> January 2020** at:



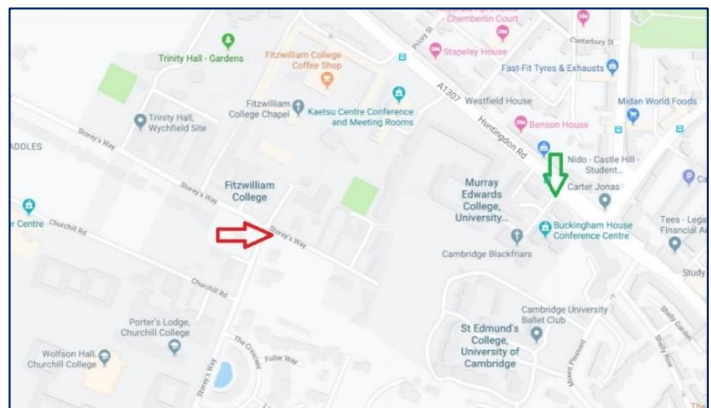
Kaetsu Conference Centre  
**Murray Edwards College**  
Huntingdon Road  
University of Cambridge  
Cambridge  
CB3 0DF  
Tel: 01223 762100



The College was founded as **'New Hall'** in 1954; six years after the University began awarding women degrees. They opened our doors to just 16 students in that first year, who resided in temporary accommodation while funds continued to be raised for a permanent home. This came in 1965, with the opening of their current buildings which were designed by Chamberlain, Powell and Bonn. The current name **'Murray Edwards College'** was adopted in 2008, following a donation of £30 million from former student Ros Smith (Mrs Edwards) and her husband Steve Edwards. The name was chosen to recognize the generosity of the Edwards family and to honour their remarkable first College president Dame Rosemary Murray, who studied Chemistry at Oxford University and became one of the first women at Lady Margaret Hall to achieve a DPhil.

### How to reach the college

The **Kaetsu Centre** is located between Murray Edwards College and Fitzwilliam College on Huntingdon Road, to the North West of Cambridge City centre. If travelling by car (*mark in red on the map*), visitors should park in the car park at the rear of the College, off **Storey's Way**. Parking spaces are on a first come, first served basis. If coming from A1303 (Maddingley Road) towards the City Centre. Turn to left into Storey's Way for Murray Edwards College Storey's Way car



park. If using **sat-nav**, please use the post code **CB3 0DR**.

If accessing by foot (*mark in green on the map*), the Porters' Lodge is accessed via **Buckingham Road** which is off **Huntingdon Road**.

## Power ultrasound as a generic tool for micro/nanoscale processing of metals

### UltraMAT

**UltraMAT** is a project funded by Innovate UK (Ref. No. 102802) with an objective to develop a novel generic technology for materials processing of fluid and semi fluid phases that are widespread in manufacturing including welding and adhesive joining components and manufacturing of bulk composite components with nanomaterials additives such as carbon nanotubes and graphene.

**UltraMAT** project partners: Innovative Technology & Science Ltd (InnoTecUK), Brunel Innovation Centre (BIC), TISICS Ltd, KW Special Projects Ltd, NquiringMinds Ltd, Carrs Welding Technologies Ltd, Cambridge Nanomaterials Technology Ltd and Cedar Metals Ltd.

**UltraMAT** Open Day would be the opportunity to meet the project partners and learn about the results of the project.

[www.UltraMAT.co.uk](http://www.UltraMAT.co.uk)

### Agenda

**Meeting & exhibition venue:** *Kaetsu Teaching Room,*  
**Exhibition room:** *Kaetsu Conference Room*  
*Murray Edwards College*  
*Cambridge*

**09:30** Arrival and registration (*exhibition*)

**09:45** Welcome and UltraMAT Open Day Introduction

**Bojan Boskovic**, Managing Director, Cambridge Nanomaterials Technology Ltd (CNT)  
UltraMAT Open Day 2020 Organiser  
UltraMAT Project Exploitation Manager

**10:15** Overview of the UltraMAT Project ([www.ultrammat.co.uk](http://www.ultrammat.co.uk)): **Power ultrasound as a generic tool for micro/nanoscale processing of metals**

**Tadej Bregar**, Project Manager, Innovative Technology & Science Ltd (InnoTecUK)  
UltraMAT Project Coordinator

**Panagiotis Karfakis**, Innovative Technology & Science Ltd (InnoTecUK)

**Introduction to InnoTec and the iFROG (Amphibious robot for inspection and predictive maintenance of offshore wind assets) Project.**

**11:00** coffee break - exhibition

**11:30 Ahmed Teyeb, Brunel Innovation Centre - BIC**

**Title: Brunel Innovation Centre: Power Ultrasonic, NDT, AI and more.**

The Brunel Innovation Centre (BIC) is a world class research and technology centre that sits between the knowledge base and industry offering high quality research in an innovative environment focused on non-destructive testing, condition and structural health monitoring, power ultrasonics and allied technologies covering a range of materials, sensors, electronics and software systems supporting partners in industry to transfer academic research into industrial application. BIC pursues initiatives that span national and international platforms including Innovate UK, EPSRC and EC. The Centre has been building a strong portfolio of projects in line with its multinational interdisciplinary vision.

Core Areas:

- State-of-the-art power ultrasonic systems for inspection and cleaning
- Smart non-destructive testing
- Condition and structural health monitoring
- Advanced signal and image processing algorithms including machine learning
- Numerical modelling and fluid structure interaction
- Novel and robust sensing for harsh environment (e.g high temp transducers up to 600 °C)
- Digital twin technology
- IoT and data analytics

In UltraMAT project, BIC tasks can be summarised in numerical modelling, development and integration of power Ultrasonic into selected manufacturing processes, and supporting trials and tests.

**12:00 John Silva, Technical Quality Manager, Carrs Welding Technologies Ltd.  
Phil Carr, Director, Carrs Welding Technologies Ltd.**

**Title: Novel welding processes for advanced materials**

**12:30 Exhibition (Kaetsu Conference Room)**

**13:00 Lunchbreak and networking (lobby)**

**14:00 Stephen Kyle-Henney, Managing Director, TISICS Ltd.**

**Title: Novel processes and developments of metal matrix composites**

**14:30 Stuart Banyard, Head Advanced Manufacturing, KW Special Projects Ltd.**

**Title: KWSP presents UltraMAT – A novel process for polymer composites.**

UltraMAT is a project that develops a novel generic technology for material processing of fluid and semi-fluid phases that are widespread in manufacturing. As part of this, the focus is on the manufacture of various bulk composite components and adhesive joining of components. Even distribution of nanoparticles is essential in maintaining consistency of mechanical, electrical or thermal properties throughout the test panel.

**15:00 coffee break and exhibition**

**15:15 Exploitation and Dissemination activities of the UltraMAT project**

**Sofia Billett, Senior Innovation Consultant, Cambridge Nanomaterials Technology Ltd.**

**David Rowe, CEO, Cedar Metals Ltd.**

**15:45 Nick Allott**, CEO and Co-Founder, NquiringMinds Ltd & **Dr Alex Mereacre**, Systems Engineer, NquiringMinds Ltd.

**Title: Secure Cognitive Architectures with Practical Industrial and Manufacturing Application**

**16:15 James Essien**, Project Leader, TWI Ltd, UK – **Guest Speaker**

**Title: Introduction to the GRAPHOSITE - A Graphene Sensor for Defect Detection and Predictive Maintenance in Composite Materials – Project**

**16:45 Sofia Sampethai**, Senior Project Leader, TWI Ltd, UK – **Guest Speaker**



**Title: CleanSky Projects at TWI: Towards quieter and more environmentally friendly aircrafts**

The Clean Sky Joint Undertaking (CSJU) is a public-private partnership between the European Commission and the European aeronautics industry that coordinates and funds research activities to deliver significantly quieter and more environmentally friendly aircraft. The CSJU manages the Clean Sky Programme (CS) and the Clean Sky 2 Programme (CS2), making it Europe’s foremost aeronautical research body. TWI is one of the world’s leading independent research and technology organisations, with expertise in materials joining and engineering processes as applied in industry. CleanSky collaborative projects are among TWI’s core activities. This presentation will give a brief overview behind the initiative of three CleanSky projects that have recently started: 1) TCTool which develops an innovative tooling and end-effector for industrialisation of welding of thermoplastic components, 2) TOD which develops full scale innovative composite doors, surrounds and sub-structure for Regional Aircraft Fuselage barrel on-ground demonstrators and 3) PADICTON which develops accurate and functional distortion prediction models for additive manufacturing of polymeric and composite parts.

**17:15 Closing remarks**

***Note** It is planned that all presentations would be followed by Q&A discussion. The organisers reserve the right to change the programme, speakers or venue should circumstances require. For any further enquires please do not hesitate to contact directly the **UltraMAT Exploitation and Dissemination Manager** Dr Bojan Boskovic on [info@ultramat.co.uk](mailto:info@ultramat.co.uk) or [Bojan.Boskovic@CNT-Ltd.co.uk](mailto:Bojan.Boskovic@CNT-Ltd.co.uk) or on his mobile phone +447780874335.*

## UltraMAT Open Day 2020 – Speakers

	<p><b>Dr. Bojan Boskovic</b> Cambridge Nanomaterials Technology Ltd Email: <a href="mailto:Bojan.Boskovic@cnt-ltd.co.uk">Bojan.Boskovic@cnt-ltd.co.uk</a> <a href="mailto:info@ultramat.co.uk">info@ultramat.co.uk</a></p>	 <p>CAMBRIDGE NANOMATERIALS TECHNOLOGY LTD</p>
<p><b>Dr Bojan Boskovic</b> is the Founder, Managing Director and Principal Consultant of the company. He has more than 20 years of hands-on experience with carbon nanomaterials and composites from industry and academia in the UK and Europe. Previously, he worked as a R&amp;D Manager at Nanocyl, one of leading carbon nanotube manufacturing companies in Europe. He also worked on carbon nanotube synthesis and applications as a Principal Engineer-Carbon Scientist at Meggitt Aircraft Braking Systems, as a Research Associate at the University of Cambridge, and as a Senior Specialist at Morgan Advanced Materials. During his PhD studies at the University of Surrey he invented low temperature synthesis method for production of carbon nanomaterials that has been used as a foundation patent for the start-up company Surrey Nanosystems. He was a member of the Steering and Review Group for the Mini-IGT in Nanotechnology that advised the UK Government on the first nanotechnology strategy policy document. Dr Boskovic was working as an advisor for the European Commission (EC) on Engineering and Upscaling Clustering and on setting up of the European Pilot Production Network (EPPN) and European Materials Characterisation Cluster (EMCC). He has experience in exploitation and dissemination management on a number of FP7 and H2020 European projects,</p>		



including UltraWire, NanoLeap, OYSTER, M3DLoC, Genesis, Repair3D and nTRACK. Also in UK Government InnovateUK funded projects, such as UltraMAT and GRAPHOSITE He is also a leader of two private membership based consortiums: Nano-Carbon Enhanced Materials (NCEM) and Advanced Materials for Additive Manufacturing (AMAM).



**Dr Sofia Billett**  
Cambridge Nanomaterials Technology Ltd  
Email: [sofia.billett@cnt-ltd.co.uk](mailto:sofia.billett@cnt-ltd.co.uk)



**Dr Sofia Billett** is a Senior Innovation Consultant at CNT Ltd., working on patent landscaping, market research reports and other innovation management related activities for EC H2020 and Innovate UK projects. She has extensive R&D, project management and regulatory experience. She has a scientific research background in biochemistry, environmental microbiology and toxicology.



**Tadej Bregar**  
InnoTecUK  
Email: [projects@innotecuk.com](mailto:projects@innotecuk.com)



**Tadej Bregar** holds two master's degrees, a MEng degree in Mechanical Engineering from University of Ljubljana and an MSc degree in Manufacturing Technology and Management from Cranfield University. During his academic years he has acquired broad experience in new product development, laboratory research and project management. Currently he is working as a Project Manager at InnoTecUK with the responsibility of managing Innovate UK and EU Horizon 2020 projects.



**Panagiotis Karfaki**  
InnoTecUK  
Email: [panagiotis.karfakis@innotecuk.com](mailto:panagiotis.karfakis@innotecuk.com)



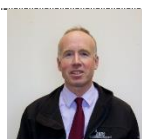
**Panagiotis Karfaki** has been currently working at InnotecUK as a Software Engineer and also as a project coordinator of the IFROG and ROBFMS2 projects. He got his Bachelors degree in Computer Engineering from Piraeus University of Applied Sciences (PUAS), Athens, Greece. Currently completing His MSc Robotics at Cranfield University. He has been working the past years on industrial projects related to Mobile Robotics and UAV's and have experience developing robotic prototypes and mechatronic systems.



**Ahmed Teyeb**  
Brunel University London  
Email: [ahmed.teyeb@brunel.ac.uk](mailto:ahmed.teyeb@brunel.ac.uk)



**Ahmed Teyeb** holds a master degree of engineering and an MPhil in Instrumentation and measurements. He spent 11 year as a lecturer within several academic institutions, and five year industrial experience where he was working on the study and implementation of projects in the areas of instrumentation and control, electricity, and preventive maintenance. His research background focuses on instrumentation, data acquisition and sensors' development. He worked on several projects such as design and characterization of bio-chemical sensors based on Photonic Crystal Optical Fiber, ECG and oximetry sensing and acquisition, automatic irrigation systems and field parameters acquisition, sensing and power drives application. He is now working on projects involving applications of high power ultrasonic waves for cleaning, defouling and manufacturing processes improvement.



**Phil Carr**  
Carrs Welding  
Email: [pc@carrswelding.co.uk](mailto:pc@carrswelding.co.uk)



**Phil Carr** set up Carrs Welding Technologies Ltd in 2000, and is the owner manager of this small , but highly specialised SME. Carrs punches above its weights by the employees we employ, notable a highly intelligent technical and practical welding team with the latest laser welding equipment.

Phil Carr is still an active member of the management team at Carrs, but relies heavily on input from the management team headed up by Alistair Houghton.



**John Silva**  
Carrs Welding  
Email: [john@carrswelding.co.uk](mailto:john@carrswelding.co.uk)



**John Silva** is an innovative qualified Master Mechanical Engineer from the University of Lisbon. John is highly experienced in Quality Management and Quality Assurance and was the Technical/Quality Manager at Carrs Welding for 7 years. Recently, John was promoted to Technical Director due to his vast business and welding knowledge.



**Stephen Kyle-Henney**  
Managing Director  
TISICS  
Email: [skylehenney1@tisics.co.uk](mailto:skylehenney1@tisics.co.uk)



**Stephen Kyle-Henney** is managing Director of TISICS limited. He has been working on metal matrix composites since my materials degree 30 years ago. His technical experience covers all aspects of the fibre and composite design and fabrication processes. Since forming TISICS in 2005 to buy the technology from QinetiQ, he has focused on component design and technical strategy to develop the commercial opportunities for MMCs and address the issues needed to industrialise the technology in the UK. This work has provided a great opportunity to gain a better understanding of the needs for high performance materials in space, aerospace, sub-sea oil and gas and power generation where light weighting and corrosion resistance offer major cost savings to users. He has also had the opportunity to visit a number of automotive and defence customers with some very challenging demands for our materials.



**Stuart Banyard**  
KWSP  
Email: [stuart.banyard@kwspecialprojects.com](mailto:stuart.banyard@kwspecialprojects.com)



**Stuart Banyard** has over 20 years' experience as a manufacturing engineer across a variety of sectors. His expertise spans all areas of additive ('3D printing') and composite manufacturing process for clients in motorsport, automotive, defence, marine and aerospace. Stuart is responsible for delivery of KWSP's Composite and Additive Manufacturing services as well as advising programmes on any advanced manufacturing requirements.



**Dr Nick Allott**  
Nquirigminds Ltd  
Email: [nick@nquirigminds.com](mailto:nick@nquirigminds.com)



**Dr Nick Allott** is the founder of Nquirigminds, one of the UKs most promising AI startups. He is former CTO of an international security standards body, a US VoIP startup and former Director at Motorola. Nick has a Degree in Cognitive Science from Nottingham University, and a PhD in Artificial Intelligence. He is an Advisory Board Member for VisionMobile and a Member of TechUKs CTO Council



**Dr Alex Mereacre**  
Nquirigminds Ltd  
Email: [mereacre@nquirigminds.com](mailto:mereacre@nquirigminds.com)



**Dr Alex Mereacre** has degrees in Electrical Engineering and Computer Science. He also has a PhD in Computer Science from RWTH Aachen University, Germany. He worked a number of years for Oxford University as a researcher in formal methods and model-based design of medical devices. He has a wide experience in developing software and hardware for automotive, security and medical device applications. Alexandru has designed for a number of years high precision measuring devices for automotive and gas industries. He has also worked in the material testing industry where he designed algorithms that analyse the failure of pressure vessels, building structures and pipes.



**David Rowe**  
 CEO  
 Cedar Metals Ltd.  
 Email: [david.rowe@cedarmetals.co.uk](mailto:david.rowe@cedarmetals.co.uk)



After a career of over 40 years in the metallurgical processing industry, **David Rowe** (Eur.Ing. C.E.D Rowe B.Sc. C.Eng. C.Sci. FIMMM, FWeldI) formed Cedar Metals Ltd. in 2004, a metallurgical consultancy company specialising in non-ferrous metals and rare earths from ore to fabricated products in particular refractory metals and corrosion resistant materials for the Aerospace, Defence, Chemical, Electronic, Furnace, Oil and Gas, Nuclear and Glass industries, general powder metallurgical processes including MIM, friction stir welding of steel and the use of advanced ultrasonics in the non-invasive cleaning of pipes and valves in the Oil & Gas and Chemical Process Industries.

## Guests Speakers



**James Essien**  
 TWI Ltd.  
 Email: [james.essien@twi.co.uk](mailto:james.essien@twi.co.uk)



**James Essien** works at TWI Technology Centre - CSM. He is currently the involved in activities regarding coordination and management of the GRAPHOSITE Project.



**Dr Sofia Sampethai**  
 TWI Ltd.  
 Email: [sofia.sampethai@twi.co.uk](mailto:sofia.sampethai@twi.co.uk)



**Dr Sofia Sampethai** is a Senior Project Leader at TWI with an extensive experience of project management of EC H2020 and Innovate UK projects. She has 3 years of experience in Nanotechnology, synthesis of nanomaterials and materials processing. At TWI, she is working on product development, management and preparation of collaborative opportunities and proposals on new ideas related to nanomaterials, structural integrity, structural health monitoring and condition monitoring.

## UltraMAT Open Day 2020 – Participating Organisations

### UltraMAT Partners

#### InnoTecUK

Web: [www.innotecuk.com](http://www.innotecuk.com)



**InnoTecUK** is a dynamic, fast growing and progressive robotics and automation solution provider, specialising in development of innovative and novel robotic systems to overcome complex sensing, measurement, control, automation and inspection challenges. InnotecUK has a diverse client base and has strong partnerships in Ireland, UK and Asia in sectors including conventional power generation, oil & gas, nuclear, renewable energy, chemical, food processing, and maritime. InnotecUK focuses on delivering client-led solutions to maximise life-cycle production asset values. It develops and markets novel mechatronic systems to overcome complex equipment and asset inspection challenges in hazardous and difficult to access environments. The ability to deliver value and technical excellence under harsh operating conditions has been central to success.



**The Brunel Innovation Centre (BIC)**



Web [www.brunel.ac.uk](http://www.brunel.ac.uk)

**The Brunel Innovation Centre (BIC)** is a world class research and technology centre that sits between the knowledge base and industry offering high quality research in an innovative environment focused on non-destructive testing, condition and structural health monitoring, power ultrasonics and allied technologies covering a range of materials, sensors, electronics and software systems supporting partners in industry to transfer academic research into industrial application. BIC has 35 staff members. BIC pursues initiatives that span national and international platforms including Innovate UK, EPSRC and EC. The Centre has been building a strong portfolio of projects in line with its multinational interdisciplinary vision. Core Areas: State-of-the-art power ultrasonic systems for inspection and cleaning; Smart non-destructive testing; Condition and structural health monitoring; Advanced signal and image processing algorithms including machine learning; Numerical modelling and fluid structure interaction; Novel and robust sensing for harsh environment (e.g high temp transducers up to 600 °C); Digital twin technology; IoT and data analytics.

**TISICS**



Web: [www.tisics.co.uk](http://www.tisics.co.uk)

**TISICS** develops light weight ceramic fibre reinforced Titanium and Aluminium alloys for high performance systems where strength, mass, corrosion resistance and temperature properties can be exploited, with partners in the space, aerospace, defence, automotive and energy sectors.

**KW Special Projects Ltd.**



Web: [kwspecialprojects.com](http://kwspecialprojects.com)

**KWSP** is a high-performance engineering team that uses the capabilities and technologies of the motorsport industry to provide turnkey engineering programme delivery, from concept to manufacturing & assembly to multiple sectors. Key to KWSP's approach is the use of digital manufacturing techniques such as Additive Manufacturing ('3D Printing) that facilitate bespoke solutions to engineering challenges.

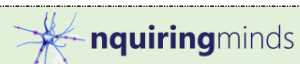
**CARRS Welding Technologies Ltd**



Web: [carrswelding.co.uk](http://carrswelding.co.uk)

**Carrs** started in business repairing and refurbishing mould tools in 1992; in the late 90's we started investing heavily in laser welding equipment and most people in the industry consider us to be at the very cutting edge of the technology. As a result our business has expanded and diversified considerably, but we still carry out a multitude of tool repairs every week for our valued mould customers on three of our laser stations dedicated to breakdowns and jobs requiring rapid turnaround on an immense variety of sometimes exotic metal components.

**nquiringminds**



Web: [nquiringminds.com](http://nquiringminds.com)

**nquiringminds** are experts in AI, IOT and CyberSecurity.

nquiringminds is seven years old, organically grown and owns all the core IP. We have real world customers in sectors as diverse as SmartCities, Industry 4.0, Defence, Agriculture, Telecoms and Health and Social Care.

**Cambridge Nanomaterials Technology (CNT Ltd.)**



Web: [www.cnt-ltd.co.uk](http://www.cnt-ltd.co.uk)

The **Cambridge Nanomaterials Technology (CNT Ltd)** is an innovation management and nanotechnology consulting company based in Cambridge. The CNT Ltd helps companies, academic and government institutions to develop world-class innovative solutions for nanomaterials related R&D and IPR strategy, partnership, products, technologies, funding and markets. CNT Ltd is specialised in carbon nanomaterials R&D consulting and collaborative R&D project management, including exploitation and dissemination management, consortium and supply chain building. CNT has done a number of patent landscaping and market research analysis studies regarding production and use of various nanomaterials helping to link inventors and technology developers with end-users and investors. The CNT Ltd is a leader of two private membership based consortiums: Nano-Carbon Enhanced Materials (NCEM) and the new Advanced Materials for Additive Manufacturing (AMAM) with members coming from leading multinational companies and research institutions.

**Cedar Metals Ltd.**



Cedar Metals is a limited company specialising in data and patent literature searches and provide confidential technical assistance to various industries using knowledge and experience gained in over 40 years working in industry before forming Cedar Metals Ltd in 2004.

**Other Participating Organisations**

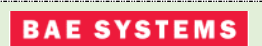
**TWI**



Web: [www.twi-global.com](http://www.twi-global.com)

**TWI** is one of the world's foremost independent research and technology organisations, with expertise in materials joining and engineering processes as applied in industry. TWI specialises in innovation, knowledge transfer and in solving problems across all aspects of manufacturing, fabrication and whole-life integrity management. Established in Cambridge, UK in 1946, the organisation has gained a first-class reputation for service through its teams of respected consultants, scientists, engineers and support staff. With around 800 employees, it works with over 1800 Industrial Member companies in over 70 countries. TWI currently operates from 54,000 square metres (581,000 square feet) of manufacturing, testing and training space; five UK and 13 overseas facilities serve both its Industrial Membership and its training and examination needs. A successful international Training and Examinations programme sees around 25,000 students trained each year in welding and inspection technologies.

**BAE Systems**



Web: [www.baesystems.com](http://www.baesystems.com)

**BAE Systems** is a global defence, aerospace and security company employing around 83,100 people worldwide. Our wide-ranging products and services cover air, land and naval forces, as well as advanced electronics, security, information technology, and support services.

**Marshall Aerospace and defence group**



Web: [marshalladg.com](http://marshalladg.com)

**Marshall Aerospace and defence group** – 1,800 employees, £321m turnover. Industry – Aerospace and defence incorporating Military aerospace, Land systems, Aerostructures, Advanced composites, Major projects, Aeropeople business units. Main activities – design, maintenance, manufacture, repair of complex systems for military applications e.g. auxiliary fuel management systems for aerospace, large composite marine structures, special missions aircraft platforms, deployable military shelters.

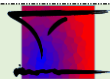
**Bitrez Limited**



Web: [www.bitrez.com](http://www.bitrez.com)

100 employees, R&D focused formulator and manufacturer of high performance Thermoset Polymers and Resins, including Epoxy, Phenolic, Vinyl Ester, Benzoxazine as well as complimentary curing agents and catalysts for the Coatings, Composite and Adhesives sectors.

**Nanoscience Centre, University of Cambridge**



Web: [www.nanoscience.cam.ac.uk](http://www.nanoscience.cam.ac.uk)

**The Nanoscience Centre** is an 1800m<sup>2</sup> research facility completed in January 2003 and located at the north east corner of the University's West Cambridge Site. The Centre provides open access to over 300 researchers from a variety of University Departments to the nanofabrication and characterisation facilities housed in a combination of Clean Rooms and low noise laboratories. Office space is primarily home to the Department of Engineering's Nanoscience Group, technical and administrative staff and members of other research groups who require long term access to facilities.

**University of Cambridge  
Department of Materials Science & Metallurgy**



Web: [www.msm.cam.ac.uk](http://www.msm.cam.ac.uk)

The **Department of Materials Science & Metallurgy** has a large and vigorous research school, with about 100 research fellows, postdoctoral scientists and visiting scientists, and more than 140 research students studying for the postgraduate degrees. The growth in our research activities over the past twenty years has been almost exponential, with a current research income of more than £10 million per year. Although our research has always been closely linked with industrial needs and supported in large part by industry as well as government, recent trends have seen the development of larger-scale working relationships with major research sponsors. Similarly, our wide range of international contacts which bring visiting researchers to Cambridge has been extended through formal collaboration agreements with institutions from around the world.

**Cranfield University**



Web: <https://www.cranfield.ac.uk>

**Cranfield**, is an exclusively postgraduate University that is a global leader for education and transformational research in technology and management. Cranfield teaches 4,500 postgraduate students each year and employs 1,500 academic and support staff.

Main activities: Research and Education

**Nuclear Advanced Manufacturing Research Centre  
University of Sheffield**



NUCLEAR AMRC

Web: [www.namrc.co.uk](http://www.namrc.co.uk)

The Nuclear Advanced Manufacturing Research Centre, a faculty within the University of Sheffield and one of the seven High-Value Manufacturing Catapult Centres helps UK manufacturers win work across the nuclear and adjacent safety-critical manufacturing sectors.

With our embedded 9-anchor technologies encompassing:

1. Additive Manufacturing, Near Net Shaped Forming and PM-HIPing
2. Analysis and Simulation
3. Automation and Digitisation
4. Codes and Standards
5. Controls and Instrumentation
6. Joining Technologies
7. Machining Technologies
8. Corrosion, Materials, Surface and Thermal Engineering
9. Product and Process Verification and Validation

Utilising our expertise in these specific areas we work with businesses in two ways to deliver direct impactful benefits:

- Manufacturing innovation – working with manufacturers to develop the technical capability to compete on cost, quality and delivery, and developing new techniques and technologies for the nuclear sector.
- Supply chain development – helping UK manufacturers compete globally in the civil nuclear sector by raising quality, capability and cost competitiveness.

Our staff of currently 149 personnel involve a highly competent skills profile supporting our administration, business and technical services, whom are educated and trained appropriately to deliver the compendium of R&D programmes for the nuclear and adjacent safety-critical sectors.

**Jackweld**



Web: [jackweld.co.uk](http://jackweld.co.uk)

Jackweld was formed in 2006 to develop Friction Hydropillar Welding test equipment in collaboration with The Welding Institute, we have since been designing, developing, building and commissioning specialist machinery for a range of clients.

**Technology Partners**



Web: [www.technologypartners.pl](http://www.technologypartners.pl)

Technology Partners is a multidisciplinary Research and Technology Organisation with the status of an Advanced Technology Centre awarded by the Polish Minister of Science. TP is an experienced and trusted partner of leading European industrial and research organisations. Our key competence is development of Polish science and technology sector organisations' cooperation with the international industry and scientific community. Since 2009 TP is involved in development of nanomaterials, especially CNT-doped veils in several EU-funded projects on aeronautics and materials engineering performed under EU FP7 (ELECTRICAL, SARISTU), EU H2020 (PLATFORM, OASIS). Short Participant

**TMBK Partners Sp. z o.o.**



Web: [www.tmbk.pl](http://www.tmbk.pl)

**TMBK Partners** is an SME that specialises in the manufacturing of innovative products and provision of services in the area of materials engineering. TMBK Partners mainly specialises in the production of thermoplastic CNT-doped veils and strips. The services offered by TMBK Partners primarily involve issues relating to integration of nano-enabled products with customers' materials and technologies in order to give the final products the desired features and characteristics.

**Senergy Innovations**



Web: <https://www.senergyinnovations.co.uk/>

With a background spanning almost 20 years in the commercial roofing industry, **Senergy** are a Belfast based enterprise that design and manufacture SMART Solar Thermal Panels. By combining our roofing expertise with that of global leading engineers, we have developed the Senergy solar thermal panels. Unlike current solar thermal panels that are made from glass, copper and aluminium, Senergy panels are manufactured using advanced nanocomposite plastics. Being aware of the sun's potential to deliver limitless amounts of solar energy, Senergy was inspired to design an architecturally attractive solution that would reduce the upfront cost of a solar heating system making it affordable to harness the sun's renewable energy.

**GoodFellow**



Web: [www.goodfellow.com](http://www.goodfellow.com)

Supplier of Metals, Alloys, Ceramics, Polymers, Compounds, Intermetallics & Composites for research & industrial markets. Company size: 51-200 employees.

**MBDA UK Limited**



Web: [www.mbda-systems.com](http://www.mbda-systems.com)

MBDA UK Ltd is an established world leader in missiles and missile systems and part of a multi-national group with over 10,000 employees located in the UK, France, Italy, Germany and the United States. MBDA has three major aeronautical and defence shareholders – BAE Systems (37.5%), EADS (37.5%) and Leonardo (25%).

**Lucideon**



[www.lucideon.com](http://www.lucideon.com)

**Lucideon** is a world leader in the field of Industrial Materials Sciences & Technology. Its business covers consultancy, contract R&D and testing & analysis. It is a well-known consultancy company with over 60 years history and employs over 200 professional scientists and engineers to serve worldwide clients with speed and simplicity to improve profitability and competitive position. Six major services are: Aerospace, ceramics, construction, healthcare, nuclear, power generation.

**Rolls-Royce plc.**



Web: [www.rolls-royce.com](http://www.rolls-royce.com)

Rolls-Royce is a pre-eminent engineering company focused on world-class power and propulsion systems. We have customers in over 150 countries, and operate in more than 50 countries worldwide. Rolls Royce are a world leader in gas turbine technology in both the defence and civil aerospace sectors. Rolls-Royce has a strong nuclear power heritage, and also provide specialist diesel engines for marine & off-highway applications with a growing microgrids portfolio. In all sectors Rolls-Royce are championing electrification and hybrid propulsion for a cleaner, greener future.



## Brunel Composite Centre

Web: [www.twi-innovation-network.com/innovation-centres/brunel-composites-innovation-centre](http://www.twi-innovation-network.com/innovation-centres/brunel-composites-innovation-centre)



Brunel Composites Centre is part of the Institute of Materials and Manufacturing of Brunel University

- Principal mission is to establish a world class research centre offering high quality research
- Various ongoing research on the phenomena that take place at the interface of composites to other materials and physicochemical processes studies including processing of composites, embedding of smart structures in composites and joining of composites with other materials.

## Aixtron Ltd

Web: [www.aixtron.com](http://www.aixtron.com)



AIXTRON Ltd belongs to the AIXTRON group of companies which manufactures equipment for the global semiconductor market and related industries. With a team of highly motivated technologists and engineers, the company has grown in capability and reputation to become one of the world's leading supplier for semiconductor equipment. AIXTRON Ltd in Cambridge focusses on the development, design build and test of R&D scale MOCVD systems for semiconductor applications. Within AIXTRON Ltd resides the NanoInstruments department, which is responsible for the large scale implementation of graphene and carbon nanotube growth and transfer technology.