



News C2I Awards

## Collaborate to Innovate 2017 winners announced

By **Jon Excell** 6th September 2017 10:51 am

**Collaborative engineering projects ranging from the design of the world's first tidal lagoon to a fundamental breakthrough in the design of lithium batteries were among the winners announced at *The Engineer's* Collaborate to Innovate awards event in London on the 5<sup>th</sup> September.**

Judged by a panel of leading UK engineers – and sponsored by **Frazer-Nash Consultancy** and **Yamazaki Mazak** – winning entries had to demonstrate that they were innovative, collaborative and likely to have an impact in their field of application.

The event provided a fascinating snapshot of some of the trends and technologies that are defining modern engineering, and also highlighted the degree to which industry and academia are collaborating to solve fundamental problems across a variety of sectors.

It also demonstrated, through its Young Innovator award, the ways in which industry and academia are finding innovative ways to work with schools in order to inspire the next generation of engineers.



The winners, listed in full below, will present their projects at The Engineer's **Collaborate to Innovate Conference**, which will be held on 7th December at Coventry's Manufacturing Technology Centre.

## Category: Energy, Efficiency & Sustainability

### Swansea Bay Tidal Lagoon

*Atkins, Tidal Lagoon Power and LDA Design*

Initial work on the 25GW Swansea Bay tidal power lagoon which, if it gets the go-ahead, will be the first of its kind in the world.

## Category: Health & Wellbeing

### Spiral Inducing Bypass Graft

*University of Manchester, University of Michigan, Manchester Metropolitan University, National University of Singapore, Cardiovascular Research Institute – Sant Pau Hospital, Barcelona.*

The development of a device that could prolong the life of artery bypass grafts by inducing the spiral flow produced naturally by the heart.

## Category: Information, Data & Connectivity

Sponsored by **Desoutter Industrial Tools**

**Using massive MIMO to set a world record in 5G wireless spectral efficiency**

*National Instruments, University of Bristol, Lund University, BT Group*

## Category: Safety & Security

**A path towards safer lithium ion batteries**

*University College London (UCL), NASA, US Dept of Energy, The European Synchrotron, UK National Physical Laboratory*

Important Pioneering research that has advanced our understanding of lithium battery failure.

## Category: The Built Environment

**Application of travelling fire methodology to the structural design of Lime Street's 38-storey Scalpel building.**

*Arup, Imperial College London*

## Category: Transportation

Sponsored by **3D Systems**

Selective Catalytic Reduction technology for clean diesel engines

*Loughborough University (Optical Engineering Research Group) Caterpillar, The Energy Technologies Institute and Johnson Matthey*

Development of new selective catalytic reduction technology to make diesel engines cleaner.

## Category: Young Innovator

Sponsored by **Renishaw**

**Breaking the sound barrier with a model rocket car**

*The Joseph Whittaker School, Rolls Royce, Swansea University, Easy Composites, GS Products, IMeche, Santa Pod Raceway, GaaTech.*

## Category: Young Innovator – Engagement Initiative

Sponsored by **Renishaw**

### **SMASHfestUK Survival Village and Young Explainer Programme**

*Middlesex University, University of Greenwich, The Refinery, Telfscot Primary School, Invicta Primary School, Baring Primary School, Lucas Vale Primary School, Kender Primary School, St Mary's Lewisham CE Primary School, Rathfern Primary School, Woodcroft Primary School, Roe Green Junior School, St Thomas More Catholic Primary School, Conway Primary School, Discovery Primary School and Royal Greenwich Trust School.*

## Category: Academic Innovator

Sponsored by **BAE Systems**

### **The EPSRC Centre for Innovative Manufacturing in medical devices**

*University of Leeds, University of Bradford, Newcastle University, University of Nottingham, University of Sheffield, Ceramisys, Corinthian Surgical, DePuy Synthes, Eminate, Fripp Design, Glass Technology Services, JRI Orthopaedics, Materialise NV, NetComposites, NIHR LMBRU, Promethean Particles, Simpleware, Simulation Solutions and Surgical Innovations*

A multi-university collaboration aimed at advancing innovation in UK healthcare technology.

## Here's what our judges had to say about this year's shortlist:

*"It's a great illustration of the breadth and reach of engineering in all walks of society."*  
**Prof Andy Wright – Director Strategic Technology, BAE Systems Programmes and Support**

*"I think it's great to see the way the UK wealth and future prosperity is underpinned by engineering innovation."*  
**Prof Tom Rodden – Deputy CEO, EPSRC**

*"It demonstrates the power of collaboration across a breadth of areas, both industrial*

*and academic, and high level innovation, which is becoming even more important as we become an ex-EU member and have to collaborate widely across not just our own boundaries but also international boundaries.”*

**Alan Mucklow – Director, UK and Ireland Sales, Yamazaki Mazak**

*“The outstanding feature of the entries was the collaborative side of things: incredibly innovative companies working with outstanding academics.”*

**Jenni Sidey – Lecturer in Internal Combustion Engines, Cambridge University & Astronaut**

*“The thing that excited me as I went through was the breadth of stuff – from the rocket car right through to the research led innovation.”*

**Dr Chris Guyott – Engineering Director, Frazer-Nash Consultancy**

*“I think it’s really important that we reach out to the younger people – so it’s great to see two categories for young innovators.”*

**Prof Danielle George, University of Manchester**

*“The most compelling thing for me was optimism about the future. If you look at the number and depth of entries from young innovators I think there’s great confidence that the future of engineering is in great hands.”*

**Alan Newby – Director Aerospace Technology, Rolls-Royce Plc**

*“For me, it’s about the transfer of knowledge from different industry sectors – we’ve seen it with medical devices, aerospace and automotive.”*

**John Halton – Director, Business & Industry, Engineering UK**

*“There are some outstanding entries – for me it’s about the links between innovation and the big societal challenges. Plus, the contribution from the engineers of tomorrow is absolutely awesome.”*

**Prof Iain Gray – Director of Aerospace, Cranfield University**

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[Click here](#) to find out more about the Collaborate To Innovate (C2I) conference, which takes place on December 7th in Coventry.

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- mike blamey 6th September 2017 at 3:18 pm

What an astounding selection of vibrant projects: a tribute to the younger members of our profession and those who are following up on leaving their initial studies (Not that they will ever stop learning, I hope!) We STEMs are surely exactly that: the link between the nutrient gathering roots of our great profession and the flowers of its future. [Is that an analogy, simile or metaphor? I am but a simple Engineer] Flowers of every colour, shape, scent, orientation: filling the garden of human advances. Constantly looking forwards with inspiration, rather than backwards for precedent! As has been opined: the future of our profession is in great hands.

Let us hope that those hands are increasingly un-fettered by those of lesser skills and abilities: and that those 'leeches on the jugular of innovation' are picked-off and removed, before they stifle us completely.

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- Scottish Scientist 9th September 2017 at 4:13 pm

## Double Tidal Lagoon Baseload Scheme

I propose a renewable energy scheme where a tidal lagoon is partitioned into a 'high' lagoon and a 'low' lagoon by a dividing wall, which houses turbines which continuously generate power as sea water flows from the high lagoon to the low lagoon.

### Operation

At high tide, the sea-gates of the high lagoon are opened and the high lagoon is filled up to high tide level.

When the ebb tide begins, the sea-gates of the high lagoon are closed and remain closed until the next high tide.

At low tide, the sea-gates of the low lagoon are opened and the low lagoon is emptied to low tide level.

When the flood tide begins, the sea-gates of the low lagoon are closed and remain closed until the next low tide.

The sea-gates are functionally identical to one-way flap valves and may be engineered as such.

### Baseload

The Double Tidal Lagoon Baseload Scheme delivers a genuine baseload generation capability which can't be delivered by inferior single tidal lagoon schemes as proposed by Tidal Lagoon PLC, as explained in the critical review in Energy Matters, "Swansea Bay Tidal Lagoon and Baseload Tidal Generation in the UK".

<https://scottishscientist.wordpress.com/2017/01/16/double-tidal-lagoon-baseload-scheme/>

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