

## Rolls-Royce Research Partnership to Develop Next Generation Materials for Cleaner, More Efficient Gas Turbines

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Rolls-Royce and the Engineering and Physical Sciences Research Council, (EPSRC), are to work jointly with three UK universities, including the University of Birmingham, in a new £50 million strategic partnership that will develop materials skills and knowledge to support the development of future gas turbines.

The Strategic Partnership in Structural Metallic Systems for Advanced Gas Turbine Applications is the first collaboration of its kind between Rolls-Royce, EPSRC, Birmingham, Cambridge and Swansea universities. The partnership will include research, fellowships and postgraduate training to help create the next generation of world-class materials scientists and metallurgical engineers.

Gas turbines provide the power for many applications including aircraft, ships and electricity generation. Over the next ten years the universities will undertake fundamental materials research that will develop materials required to improve the efficiency and environmental sustainability of these gas turbines.

Ric Parker, Director - Research and Technology, Rolls-Royce, said: "Materials research is a vital part of ensuring we have the technology and skills needed to deliver gas turbines that will meet our customers' future requirements. The strategic partnership with the EPSRC is an important step in developing these technologies and skills. We look forward to working with our university partners and building on the excellent relationship we already share with them."

Dave Delpy, Chief Executive of the Engineering and Physical Sciences Research Council, said: "This exciting programme of research and training will help create the next generation of metallurgy specialists. These specialists are essential to the global competitiveness of UK manufacturing companies and the development of new materials from their research will play an important role in the future needs of industry and the wider society."

The strategic partnership builds on the long history of research collaboration between Rolls-Royce and universities. Since 1990 Rolls-Royce has established a global network of 27 University Technology Centres. Each addresses a key technology which collectively tackle a wide range of engineering disciplines from combustion and aerodynamics to noise and manufacturing technology.

### Notes to Editors

1. Rolls-Royce is a global business providing and supplying integrated power systems for use on land, at sea and in the air. The Group has established a strong position in civil aerospace, defence aerospace, marine and energy markets.

2. The Rolls-Royce Group has a broad customer base including more than 600 airlines, 4,000 corporate and utility aircraft and helicopter operators, 160 armed forces, more than 2,000 main customers, including 70 navies, and energy customers in nearly 120 countries. With facilities in 50 countries, Rolls-Royce employs 39,000 people worldwide and has businesses headquartered in the UK, US, Canada, Germany, Scandinavia, Singapore and China. This global presence allows the Group to access long-term international growth opportunities.

3. Research and development is carried out in facilities in the UK, Canada, Germany, Singapore, the US and Scandinavia and the Group has particularly strong relationships with the 27 Rolls-Royce University Technology Centres worldwide.

4. In 2008, Rolls-Royce and its partners invested £885 million on research and development, two thirds of which had the objective of further improving the environmental aspects of its products, in particular the reduction of emissions.

5. Research themes carried out through the Strategic Partnership will include but not be limited to:

- o Current high temperature metallic systems e.g. Nickel-base superalloys.
- o Light weight, intermediate temperature intermetallic systems e.g. Titanium aluminides.
- o High strength and corrosion resistant steels for transmission applications.
- o Conventional and novel light alloy systems, e.g. Titanium, Aluminium, Magnesium.
- o Composite materials with a metal or intermetallic matrix e.g. Titanium Metal Matrix Composite.
- o Materials for SMART structures e.g. shape memory alloys, electric/magnetic materials.
- o Coating technology to enable the delivery of functionally optimised materials systems e.g. thermal protection, corrosion protection, and wear/erosion protection, sealing systems.
- o Disruptive metallic/intermetallic systems for ultra-high temperature applications.

6. The Engineering and Physical Sciences Research Council (EPSRC) is the UK's main agency for funding research in engineering and the physical sciences. The EPSRC invests more than £850 million a year in research and postgraduate training to help the nation tackle the challenges of the 21st Century. [www.epsrc.ac.uk](http://www.epsrc.ac.uk)

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