Sensor Coating Systems wins British Engineering Excellence Award 2013

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Sensor Coating Systems (SCS) won the *Materials Application of the Year* category at this year's British Engineering Excellence Awards (BEEA). The purpose of these awards is to celebrate engineering excellence and to highlight the hotbeds of innovation which drive the UK forward. In the last five years the BEEA panel has seen UK companies competing at a world level in technologies ranging from sea based cable laying equipment, diesel emission reduction systems to new material developments. The companies are underpinned by a deep knowledge of engineering and the ability to apply it in imaginative ways.

The award ceremony was preceded by a two-month long selection process involving around 250 entries from the UK. First, the jury, consisting of an interdisciplinary mix of well experienced engineers and executives from UK organizations including the UK Institute of Mechanical Engineers, decided on a shortlist of up to five companies for each category from which the final judging panel decided the winners.

In the category *Materials Application of the Year* Sensor Coating Systems was able to beat stiff competition from companies with innovative material applications in the motorsport, defence and measurement sectors. The judges specifically looked for evidence of how the product designers exploited a particular material and its properties to solve an engineering challenge. They also looked for the novelty in the way materials were used.

The judges concluded about Sensor Coating Systems: '*A genuinely innovative materials technology with a wide range of potentially significant applications. This will help the development of more efficient, high-temperature systems, including turbines*.'

Sensor Coatings Systems was also nominated in the *Start-up* and *Small Company* categories and was shortlisted as a finalist for both. Here the focus was on compact teams with less than 20 employees which address particular market needs alongside evidence of a successful reception for its products by the end user.

Sensor Coating Systems is a leader in temperature detection in harsh industrial environments. For the development of its core sensing technology, a Thermal History Coating (THC) the company successfully launched a development club with four US and European OEMs in the aero engine and industrial gas turbine sectors. The User Club's objective is to generically develop the technology in a way that it can be applied in modern engine development programmes to significantly lower development costs and accelerate the introduction of new low-emission engines.

In parallel, SCS has also developed a water-based temperature memory paint for low temperature applications and a self-healing thermal barrier coating for high temperature exposures.

'*Being nominated in three categories recognises the several outstanding aspects of our business and ranks us among the best innovators in the UK.*' says Managing Director Jörg Feist, '*Winning the Materials Application category clearly is a magnificent achievement and is of great motivational value for our design team*.'

Advantages of the THC

The THC will replace current industry standard thermal paints and offers very significant advantages to companies engaged in the development of aero engines and industrial gas turbines. The technology is robust and non-destructive, thereby enabling multiple tests of components used in the development process without the time and cost penalties of repeatedly dismantling the engine for analysis. A hand held reader is also being developed as part of the system and the assessment of test results will no longer rely on subjective judgement by development engineers. With greater accuracy in the judgement of test results added to very significant savings in costs and development timescales SCS is confident that its new technology will bring great benefits to all who use it.

SCS' THC, originally developed by a team at Imperial College, London, is based on the light emitting properties of a class of ceramic materials, which, when exposed to particular levels of temperature, undergo irreversible changes in the material structure or chemistry. When excited with a probing light the material starts to phosphoresce and this can be observed with specialised optical components to establish a correlation between the observed light and the past temperature. The ceramic material can be applied as

a robust coating onto a component using standard manufacturing techniques such as atmospheric air plasma spraying (APS), or, for low temperature regimes, as a paint giving the end-user great flexibility over the coating application. The readout device can be bench based or hand held, the latter enabling in-situ temperature profiling on a component. Unlike existing solutions in the market, the reading of temperature does not require human subjectivity.

About Sensor Coating Systems

Sensor Coating Systems Ltd. (SCS) spun out of Southside Thermal Sciences (www.stscience.com) in 2012. SCS pioneers sensor technology based on luminescence materials for engineering applications in demanding environments. Its award winning technology enables accurate temperature detection, corrosion and erosion monitoring and life-time predictions and, in doing so, assists in optimising the operation of machinery, lowering fuel costs and maintaining material integrity. The main industrial sectors for application are the power generation industry, aero engines, automotive and machinery operating in extreme environments such as oil & gas and petrochemical plants.

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