



## Dyesol and NIMS, Japan to Collaborate on Higher Performing Dyes

Dyesol (ASX: DYE) and the National Institute for Materials Science (NIMS) Japan, today formalised a joint collaboration agreement for a three year program, the objective of which is to deliver the next generation of highly efficient dye solar cell (DSC) materials and technology that will feed directly into Dyesol's commercial partner projects, including Tata Steel Europe & Pilkington North America – our two key partners addressing the US\$400 Billion per annum building envelope market.

The work will be undertaken at the NIMS research facility in Tsukuba (Near Tokyo) and will be directed by Dr Liyuan Han of NIMS, a renowned and respected leader in DSC research worldwide and Dyesol's Dr Gavin Tulloch. Dr Han, former Principle Researcher (1993 – 2008) of the Advanced Energy Laboratories, Sharp Corporation, Japan, holds the certified world record for DSC efficiency of 11.1%.

Dr Tulloch, Director of Technology, Dyesol, stated "this presents a unique opportunity for Dyesol to extend the boundaries of DSC efficiencies through a concerted effort in materials development with a world-leading institution, led by a recognised expert in the field."

"This project seeks to extend the boundaries beyond the efficiency levels achievable with thin film PV devices based on CIGS (copper indium gallium diselenide) or CdTe (cadmium telluride). In contrast to these technologies, DSC does not rely on significant quantities of toxic materials (such as cadmium) or rare materials (such as indium, gallium, tellurium) and offers the shortest energy payback rates because DSC uses significantly less energy in manufacture, can operate in any light conditions and because DSC emulates photosynthesis, so it works all day every day", Dr Tulloch stated.

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### **Note to editors**

#### **The Technology – DYE SOLAR CELLS**

DSC technology can best be described as 'artificial photosynthesis' using an electrolyte, a layer of titania (a pigment used in white paints and tooth paste) and ruthenium dye deposited on glass, metal or polymer substrates. Light striking the dye excites electrons which are absorbed by the titania to become an electric current many times stronger than that found in natural photosynthesis in plants. Compared to conventional silicon based photovoltaic technology, Dyesol's technology has lower cost and embodied energy in manufacture, it produces electricity more efficiently even in low light conditions and can be directly incorporated into buildings by replacing conventional glass panels or metal sheets rather than taking up roof or extra land area.

#### **The Company – DYESOL Limited**

Dyesol is a global company and in August 2005 was listed on the Australian Stock Exchange (ASX Code 'DYE'). Dyesol manufactures and supplies a range of dye solar cell products comprising equipment, chemicals, materials, components and related services to researchers and manufacturers of DSC. The Company is playing a key role in taking this third generation solar technology out of the laboratory and into the community.

## **NIMS**

Our world is made up of various 'substances' and in these 'materials' the basis of our everyday lives can be found. Materials fall into two major categories such as organic/polymeric materials and inorganic materials, the latter in turn being divided into metals and ceramics. From the Stone Ages — by way of the Industrial Revolution — up to today, the advance in materials has contributed to the development of humankind and now it is being focused upon as offering a solution for global problems.

NIMS specialises in carrying out research concerning these materials. Our materials research is managed with the next generation in perspective, in line with our theme, 'Materials research for creating tomorrow'.

More detail about the company and the technology can be found at: <http://www.dyesol.com>  
More information about NIMS can be found at the NIMS website.