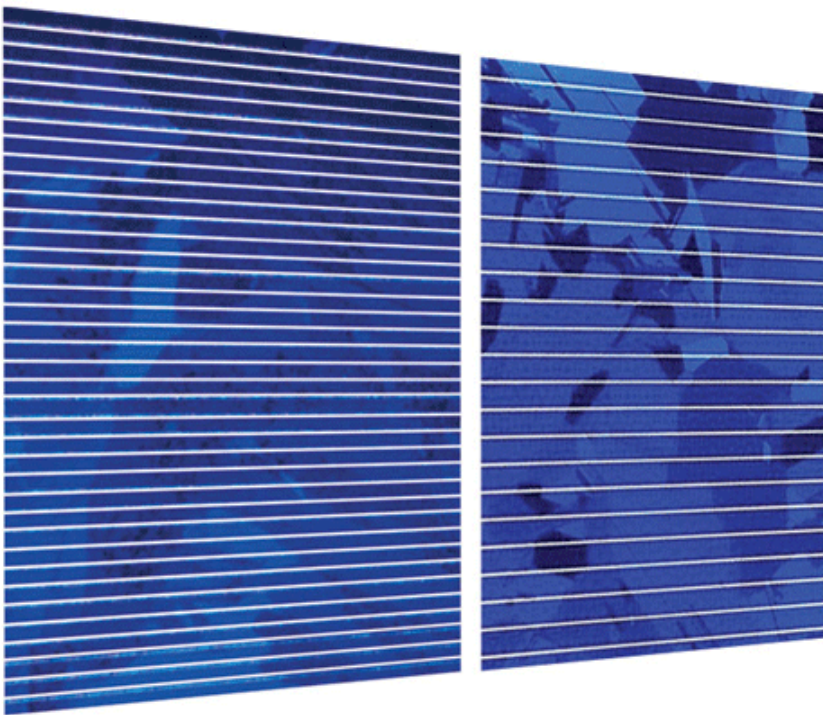


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Australian-Chinese solar cell breakthrough

An award for collaboration has been granted to the Australian-Chinese team behind a breakthrough in energy-conversion efficiency for mass produced silicon solar cells.



Credit: Suntech-Power

Patented 'Pluto' solar cell technology developed by Australian researchers and Suntech-Power, the world's largest solar cell manufacturer, has won a 2012 Collaborative Innovation Award, announced at the Cooperative Research Centres Association conference in Adelaide this month.

The technology is based on 'PERL cell' technology, developed at the University of New South Wales, which in 2008 set the world-record for performance with 25 per cent efficiency (% of solar radiation energy converted into electricity).

The Pluto cell derivative is more economically viable to produce on a large scale, and recently surpassed the 20 per cent efficiency barrier, setting a new global benchmark for low-cost, mass produced silicon solar cells. It features a unique texturing process that improves sunlight absorption, even in conditions of low and indirect light, resulting in higher efficiency.

The Pluto cell technology, was developed by Professors Martin Green and Stuart Wenham at the [ARC Photovoltaics Centre for Excellence](#), in close collaboration with Suntech-Power.

'We brought our photovoltaic knowhow together with their manufacturing expertise, which used new tools and processes to create solar cells ten times the size of our lab-scale devices,' says Prof. Green.

Suntech-Power's expertise was particularly important for lowering the costs of the cells by using cheaper processing methods, such as

laser patterning, and by replacing expensive silver and titanium parts with parts made of more cost effective materials.

Suntech-Power's production of solar cells using first-generation Pluto technology last year reached a production capacity of 0.5 gigawatts. This is enough to power 300,000 average homes (with eight solar panels on them) for at least 25 years.

'Without this collaboration and its funding through the Australian Solar Institute, Pluto would have remained a lab prototype rather than a commercial reality,' says Prof. Wenham.

'Pluto is rapidly increasing its market share with many companies around the world looking to replace their existing 30 year-old production technologies.'

Source: University of New South Wales

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