



UNSW
SYDNEY



Tandem, Reduced Operating Temperature, High-Efficiency and Vehicle-Integrated Solar Photovoltaics

Cutting-edge research into a range of topics related to improved, lower cost solar photovoltaic energy conversion including; Tandem, Reduced Operating Temperature, High-Efficiency and Vehicle-Integrated Solar Photovoltaics.

Competitive advantage

- Hold the world record of 25% for highest efficiency PERC (passivated emitter and rear) silicon solar cell, a cell structure invented at UNSW and now accounting for most of the world's commercial production
- Hold the world record for the most efficient solar module at 40.6% energy conversion efficiency, a multi-cell stack involving 4 cells, each responding to a different range of solar wavelengths

Impact

- Over US\$20 billion of UNSW-invented and -developed PERC cell modules sold worldwide in 2018
- Former team members responsible for successful diversification of manufacturing industry into China which resulted in a tenfold solar module price reduction in the years from 2008 to 2018

Successful applications

- BP Solar "Saturn" cell (produced 1992-2006)
- Suntech Power "Pluto" cell (2009-2013)
- PERC cell (2012-present)
- Capabilities and facilities
- Laboratory for fabrication of high-efficiency solar cells
- Solar Industrial Research Facility for evaluating full-sized wafers at pilot production level

Our partners

- BP Solar
- Suntech Power
- Trina Solar
- Jinko Solar
- Longi Solar

More Information

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