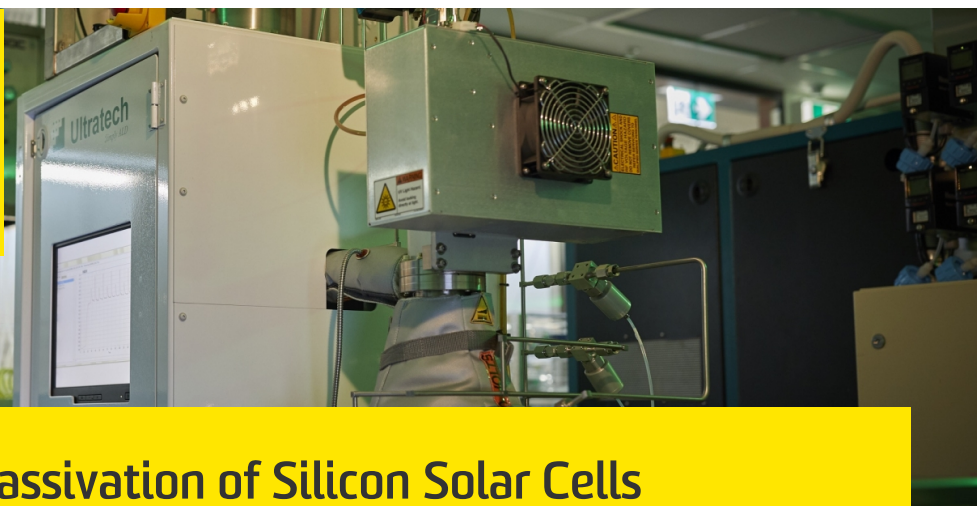




**UNSW**  
SYDNEY



## Advanced Surface Passivation of Silicon Solar Cells

**Combining in-depth material science know-how with advanced device simulation to optimise the performance of silicon solar cells by applying thin surface passivation layers.**

### Competitive advantage

- World-class understanding of device-relevant fundamentals
- Capability to synthesise a wide range of surface passivation materials/stacks in-house
- Field-leading characterisation capabilities
- The first to develop a method for extracting the quantity of charge in dielectrics on doped silicon surfaces

### Impact

- As the surfaces of a silicon solar cell typically contribute the highest efficiency loss, this optimisation improves their long-term performance.

### Successful outcomes

- One of the main pioneers in the development of aluminium oxide which is now the de facto standard used in PERC solar cells
- Worked with various non-disclosed equipment suppliers and solar cell manufacturers to optimise surface passivation using their unique technologies
- Developed an intrinsically safer process for the deposition of aluminium oxide surface passivation films
- Currently unravelling the surface passivation fundamentals of complex three-dimensional structures such as those used for black silicon

### Capabilities and facilities

- Access to and experience in state-of-the-art device simulation tools
- In-house laboratory and pilot-scale thin film fabrication capabilities for a wide range of surface passivation films

### Our partners

- Leadmicro, a leading equipment manufacturer from China
- A number of non-disclosed solar cell manufacturers

### More Information

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