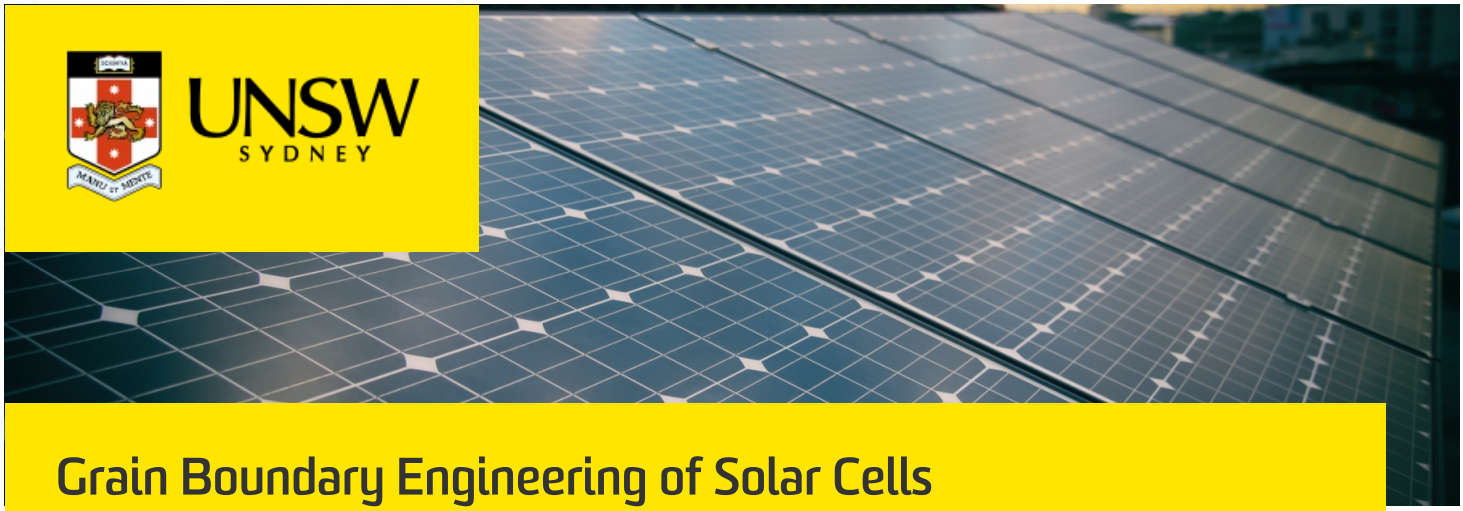

Grain Boundary Engineering of Solar Cells

Using various forms of advanced scanning probe microscopy to characterise the properties of grain boundaries, and other material interfaces, with nanometre lateral resolution under light illumination.

Competitive advantage

- Exclusive scanning probe microscopy platform, developed inhouse and not available commercially
- Material properties can be assessed with nanometre resolution
- Ability to test 6-inch wafers

Impact

- Creating a better understanding of the properties of materials at nanoscale.

Successful outcomes

- Technology has been applied to improve grain boundary properties in various halide perovskites, silicon, CZTS, and kesterites, among other solar cell materials

Capabilities and facilities

- Unique in-house developed characterisation platform for nanoscale PV properties
- Measurement of nanoscale electronic band bending at interfaces, surface photovoltage, photocurrents, surface potential, changes upon chemical treatment, quantum efficiency of grain boundaries and other interfaces in solar cells and photovoltaic devices

Our partners

- Lawrence Berkeley National Laboratory

More Information

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