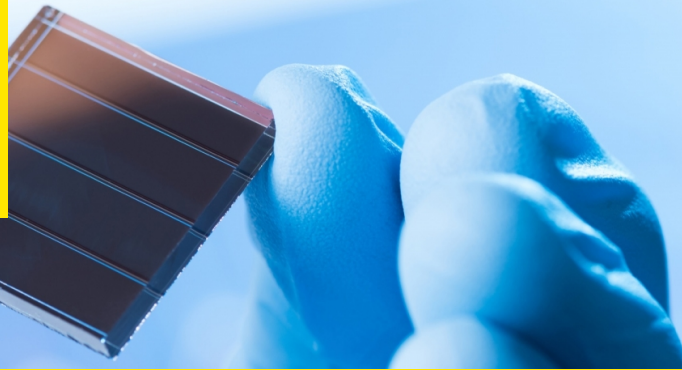




UNSW
SYDNEY



Organic and Perovskite Solar Cells

Development and fabrication of high-efficiency semitransparent organic and tandem solar cells for window applications. Optimising the device structure design of tandem devices to improve the device efficiency toward a theoretical efficiency of 40 percent.

Competitive advantage

- The skills to develop semi-transparent organic solar cells of 7 percent efficiency, with average visible transmittance (AVT) of 25 percent for window applications
- Patented technology

Impact

- Organic and perovskite photovoltaics are extremely attractive candidates for use in next-generation solar cell technologies as they offer affordable solution-based manufacturing processes, light-weight, mechanical flexibility, clean, and renewable energy. The development of solution processed tandem fabrication techniques will significantly reduce the cost of electricity generation for commercial applications. It will also establish an Australian tandem cell processing capability that would eventually make the country a global leader in the commercialisation of tandem solar cells

Successful applications

- Developed solution processed single junction organic and perovskite solar cells with maximum efficiency ~ 14.5 percent and ~19 percent, respectively, under 1-sun illumination.

Capabilities and facilities

- New laboratory for research on organic and perovskite materials and devices, equipped and geared towards the development of world-class research facilities
- Access to world-class laboratories for material and device characterization, such as microscopy (TEM, SEM, AFM), XRD and XPS, and micro-Raman. The advanced optical/spectroscopy laboratory can provide the spectral measurements required, including absorption, PL, and FTIR

Our partners

- Huawei - Transparent organic photovoltaic devices
- Dyesol
- Future Solar Pty. Ltd.
- Other world-leading researchers

More Information

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