

PRESIDENT'S SCIENCE AWARD 2026

Assistant Professor Hou Yi

Presidential Young Professor, Department of Chemical and Biomolecular Engineering, College of Design and Engineering, National University of Singapore (NUS)

“For his contributions to the development of high-performance perovskite solar technologies, from record-setting devices to scalable manufacturing, enabling lightweight and energy-efficient power systems for AI infrastructure, wearable electronics, space platforms and sustainable energy applications.”

Dr Hou Yi is recognised for his pioneering contributions to the development of next-generation tandem solar cell technologies, spanning fundamental materials innovation, device engineering and scalable manufacturing. A tandem solar cell stacks two light-absorbing layers so that together, they capture more of the sun's energy than either could alone. Dr Hou's research has delivered multiple world-record performances in perovskite solar cells and modules, while tackling key challenges in efficiency, stability and large-scale deployment.

Through breakthroughs in perovskite-based tandem solar cells, Dr Hou has helped push photovoltaic technologies beyond the limits of conventional silicon, opening new pathways for lightweight and energy-efficient power generation across a range of demanding applications. His work has deepened understanding of two critical factors: the material interfaces where the different layers of a cell meet, and the degradation mechanisms that shorten a cell's working life. This has made next-generation solar technologies more durable, more efficient and more commercially viable.

Beyond his laboratory achievements, Dr Hou has played a leading role in translating scientific discoveries into real-world applications through scalable manufacturing and technology commercialisation. As Founder of Singfilm Solar, a National University of Singapore spin-off company, he has helped bridge the gap between academic research and industrial deployment. His innovations have enabled emerging energy solutions for AI infrastructure, wearable electronics and next-generation space power systems, among other applications where lightweight, high-efficiency power generation is critical.

Through his research contributions and entrepreneurial efforts, Dr Hou has advanced the global development of perovskite photovoltaics, strengthening Singapore's position as a leader in next-generation solar technologies for AI infrastructure, wearable electronics, space and sustainable energy applications.