

#ICMoITalks

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📍 Assembly hall



Abstract

Vacuum Evaporated High Efficiency Perovskite Solar Cells

Perovskite solar cells are garnering significant interest due to their high photovoltaic performance and economical production costs. However, challenges such as achieving high efficiency in large-area devices and ensuring adequate stability have limited their widespread commercialization. The conventional solution spin-coating technique, commonly used in research settings, faces constraints including small active areas, uniformity issues, and the necessity of toxic solvents. In contrast, vacuum vapor deposition offers a solvent-free approach capable of large-scale, uniform perovskite film deposition, making it a viable option for industrial-scale production of perovskite solar cells. Nevertheless, the efficiency of perovskite cells fabricated using vacuum deposition has been substantially lower compared to solution-based methods, impeding its progress towards industrial application. Our team has innovated the process to surmount the low-efficiency challenge associated with vacuum deposition in perovskite solar cell fabrication, paving the way for the mass production of perovskite photovoltaic modules. This presentation will detail our team's advancements in enhancing the efficiency of large-area perovskite cells through vacuum evaporation, bolstering the stability of perovskite cells, and advancing high-efficiency flexible perovskite solar cells.

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