



Showcasing research from Professor Miyasaka's laboratory, Graduate School of Engineering, Toin University of Yokohama, Yokohama, Japan.

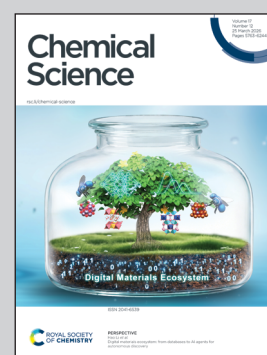
All-SAM interfacial architecture for perovskite solar cells without charge transport materials

Thin-film electronic devices, including perovskite solar cells, conventionally rely on multiple interfacial layers on either side of the active layer to ensure efficient charge transport. However, are these complex multilayer structures truly essential?

In this work, we show that they can be replaced by a single layer of organic self-assembled molecules at both electrodes. Despite its extreme simplicity, this architecture achieves sufficient asymmetric charge selectivity to deliver substantial photovoltaic performance. These results highlight the potential of rationally designed monolayers to replace bulk transport materials, thereby enabling simpler fabrication and reduced material consumption.

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See Naoyuki Shibayama, Tsutomu Miyasaka *et al.*, *Chem. Sci.*, 2026, **17**, 5869.