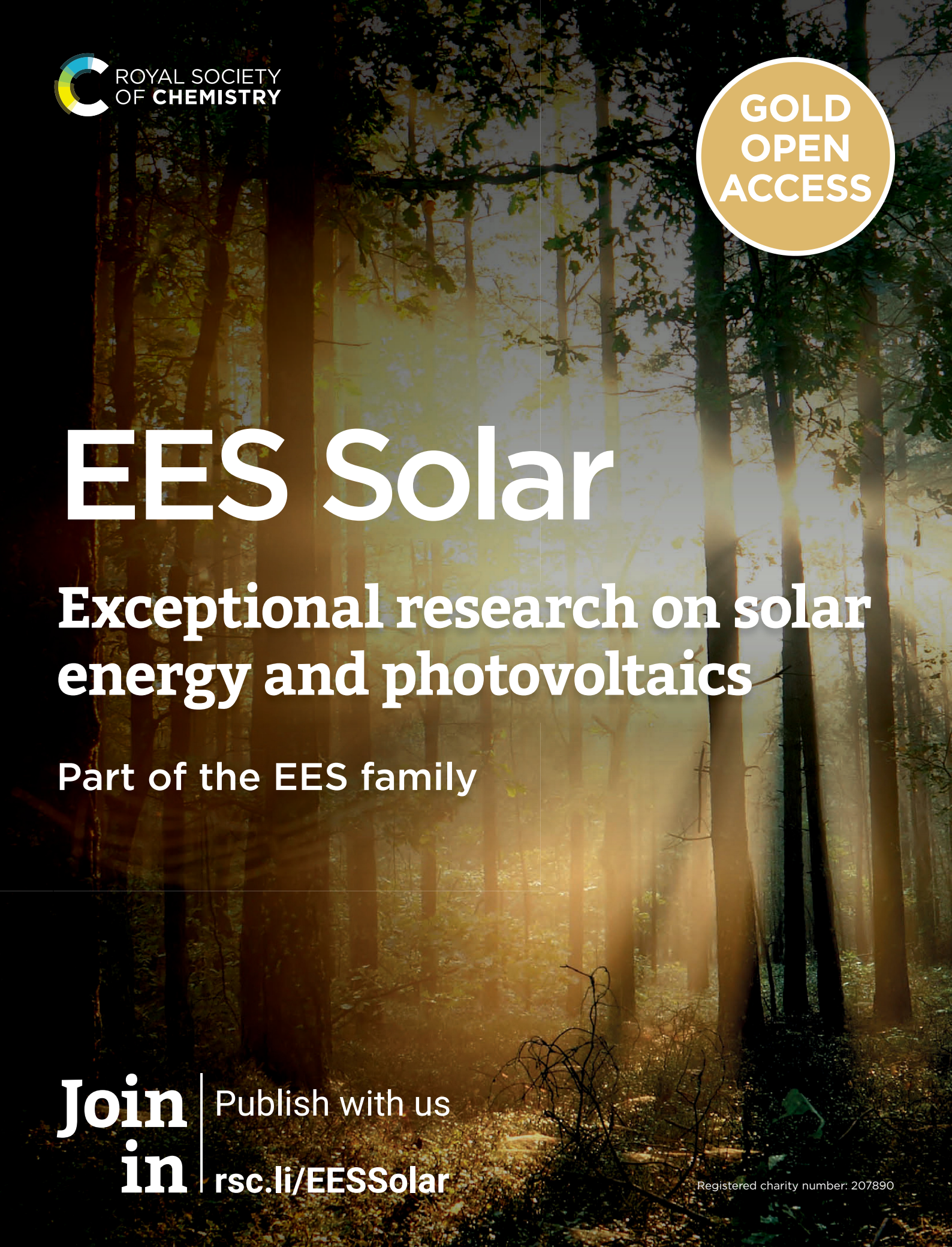
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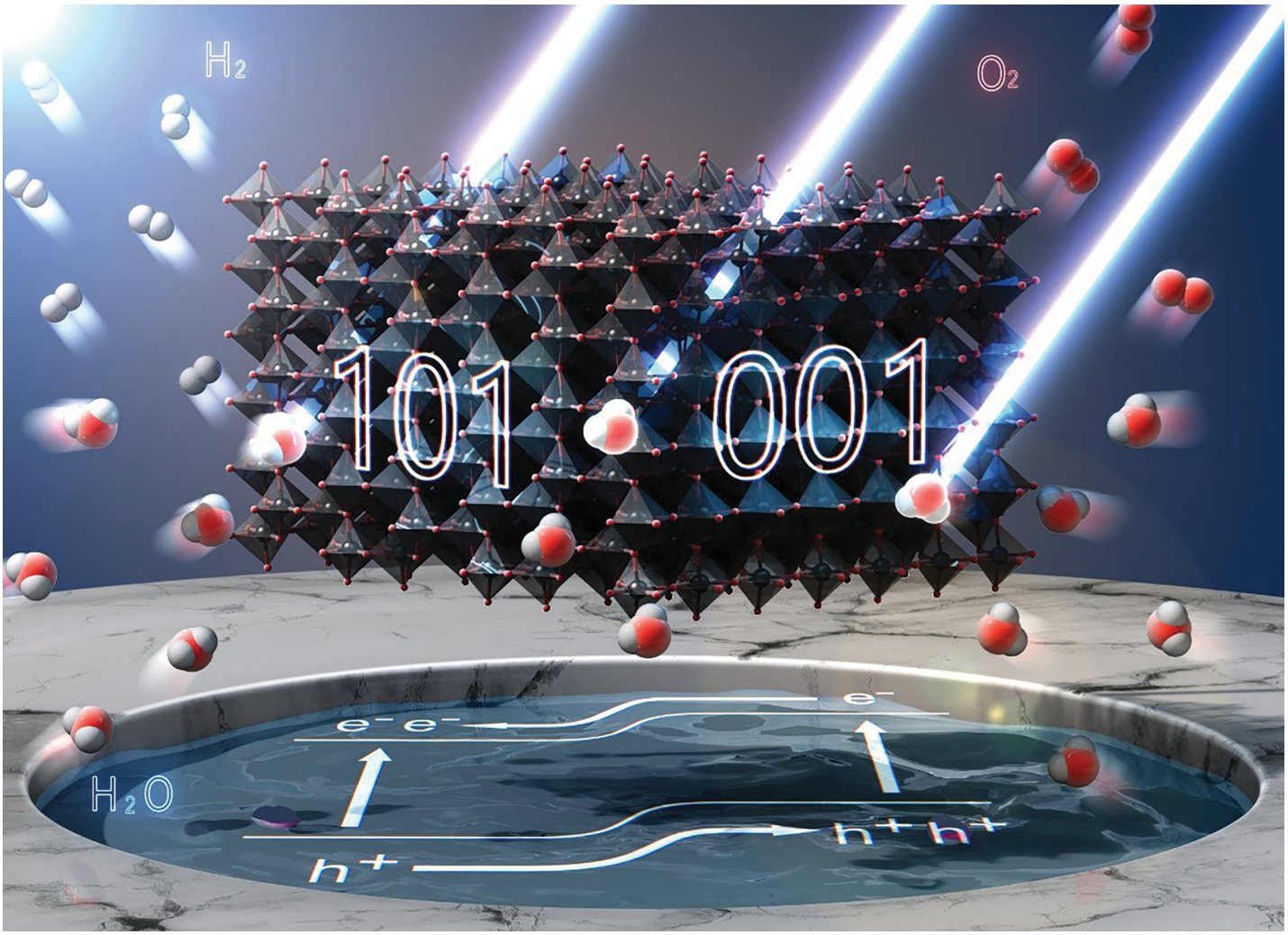
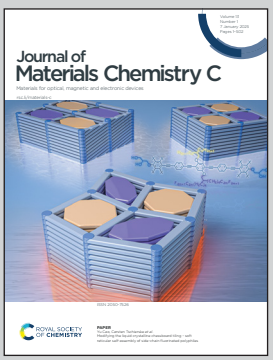


Showcasing research from the Institute for Solid State Physics, The University of Tokyo, Chiba, Japan.

Facet-dependent photocatalytic performance and electronic structure of single-crystalline anatase TiO_2 particles revealed by X-ray photoelectron spectromicroscopy

Facet-engineered single-crystalline anatase TiO_2 particles were investigated to unravel facet-dependent electronic structures and their role in photocatalysis. Using synchrotron-based X-ray photoelectron spectromicroscopy, we visualized a continuous band bending along the (101)/(001) interface, enabling efficient charge separation, directing electrons to the (101) facets and holes to the (001) facets. This charge separation mechanism significantly enhances photocatalytic activity, offering insights for designing high-performance catalysts for energy and environmental applications.

As featured in:



See Wenxiong Zhang, Yoshihisa Harada *et al.*, *J. Mater. Chem. C*, 2025, **13**, 61.

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