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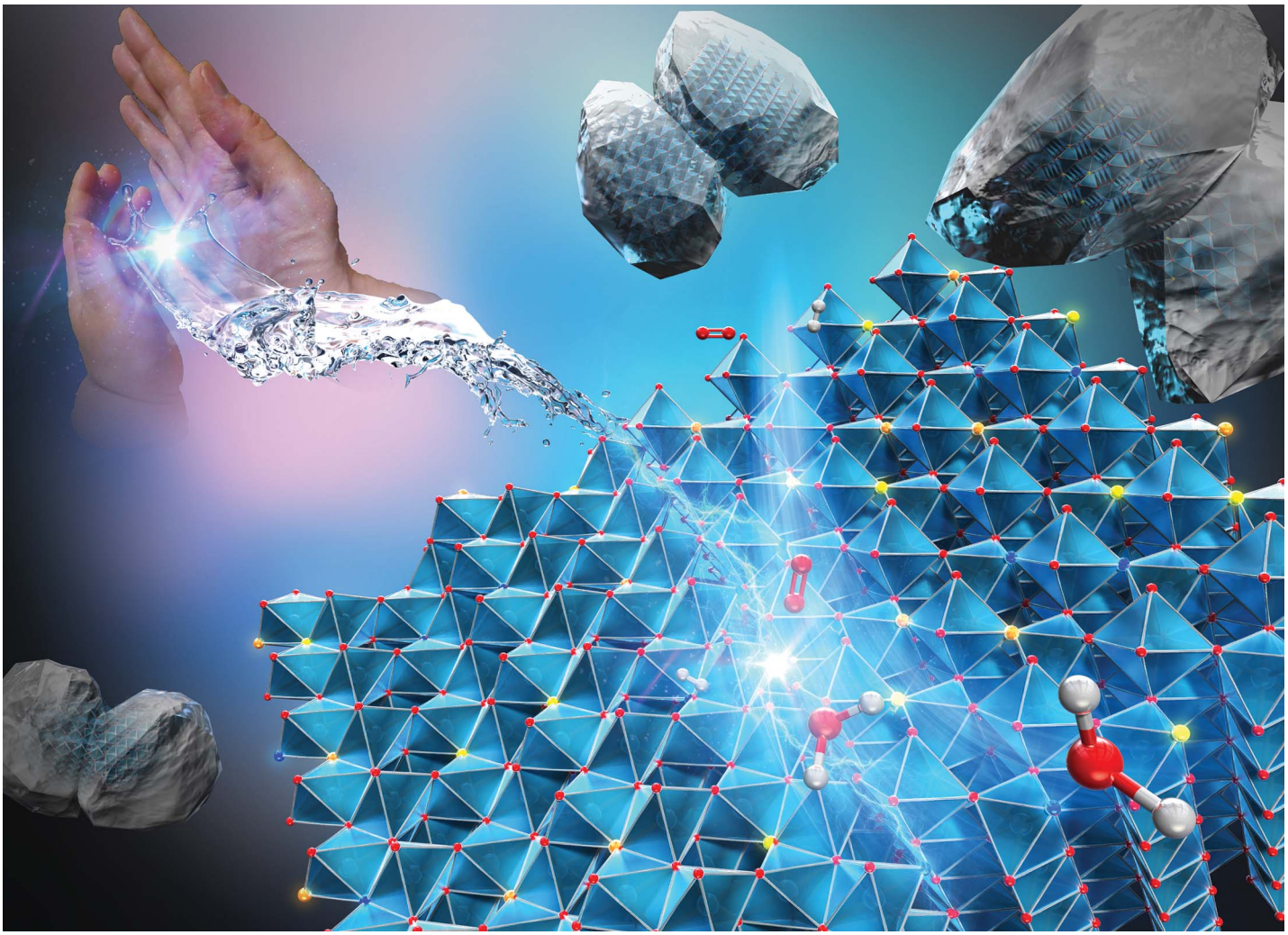
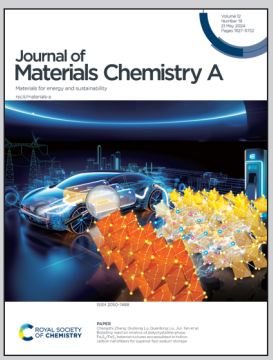


Showcasing the collaborative research on non-platinum fuel cell catalysts by Professor Chisaka from Hirosaki University in Japan and Professor Daiguji group from the University of Tokyo in Japan.

S-doped TiN supported N, P, S-tridoped TiO_2 with hetero-phase junctions for fuel cell startup/shutdown durability

A new strategy for the dramatic enhancement of both oxygen reduction reaction (ORR) activity and durability above 1.0 V, of TiO_2 catalyst is revealed. By introducing hetero-phase junctions from two different TiO_2 phases and a new anionic sulfur dopant, S-doped TiN supported N, P, S-tridoped TiO_2 catalyst exhibits higher ORR activity and durability than reported for other oxide/oxynitride catalysts. In particular, the durability during startup/shutdown cycles ranks the highest among the platinum-group-metal free catalysts, which opens the door to significantly reducing the production and operating costs of fuel cell vehicles.

As featured in:



See Mitsuharu Chisaka *et al.*, *J. Mater. Chem. A,* 2024, **12**, 11277.

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