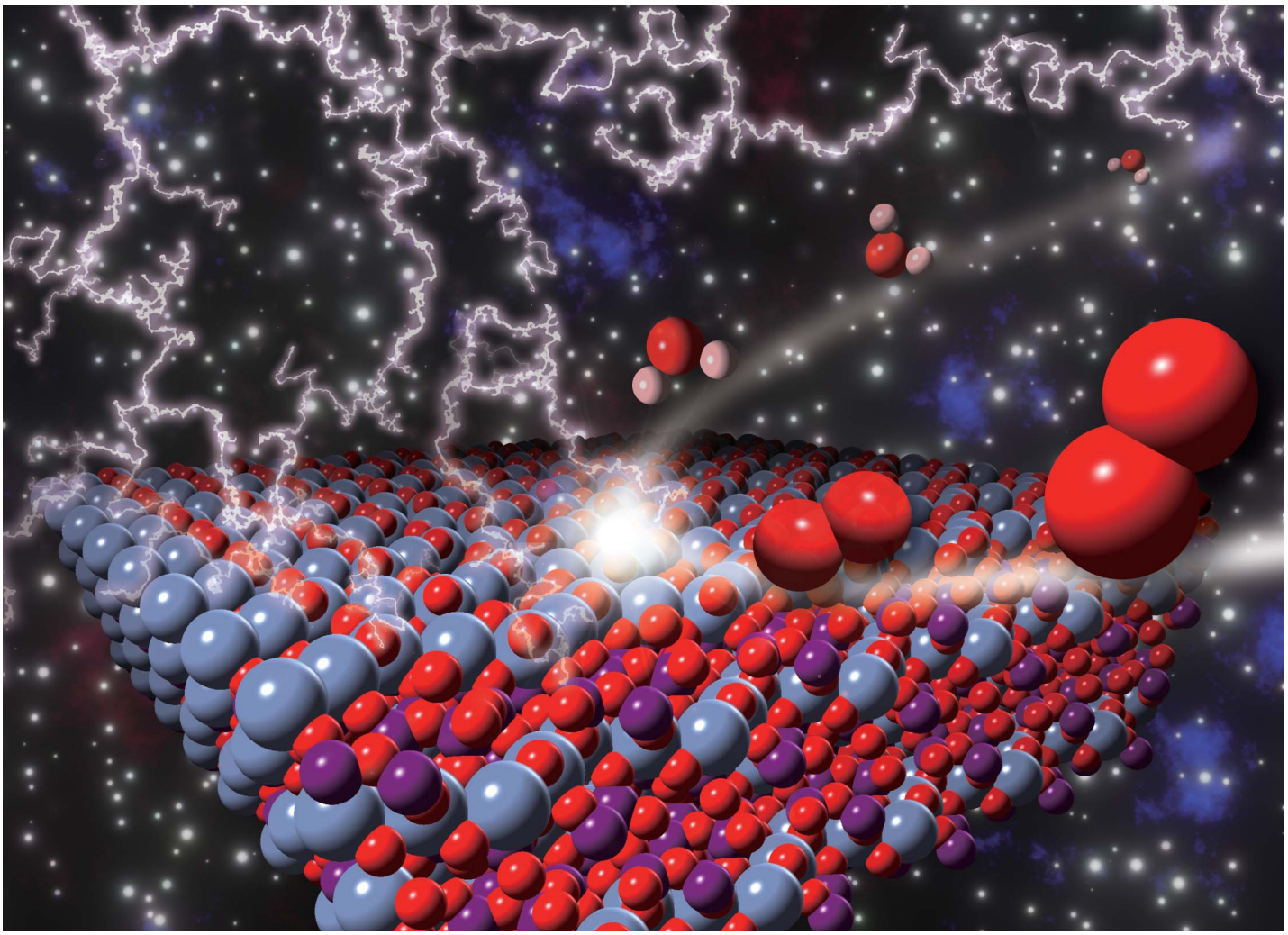

Showcasing research from a collaborative team led by Professor Takeo Yamaguchi, Professor Keigo Kamata and Assistant Professor Yuuki Sugawara at Institute of Science Tokyo, Yokohama, Japan.

Oxygen evolution activity of nickel-based phosphates and effects of their electronic orbitals

The advancement of hydrogen production by water electrolysis technology depends on the development of active and stable electrocatalysts for anodic oxygen evolution reaction (OER). The OER activities of Ni-based phosphates are superior to conventional nickel (Ni)-based oxide and phosphide, rare metal-based benchmark and previously reported state-of-the-art crystalline electrocatalysts comprising nonprecious metals. The outstanding OER activities of Ni-based phosphates are facilitated by their favorable electronic orbitals, which improve the adsorption of OER intermediates. Ni-based phosphates are promising OER electrocatalysts, and this study provides important guidelines to further improve Ni-based electrocatalysts.

As featured in:

See Yuuki Sugawara, Keigo Kamata, Takeo Yamaguchi *et al.*, *Nanoscale Adv.*, 2025, **7**, 456.

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