

# Environmental Science: Atmospheres

GOLD  
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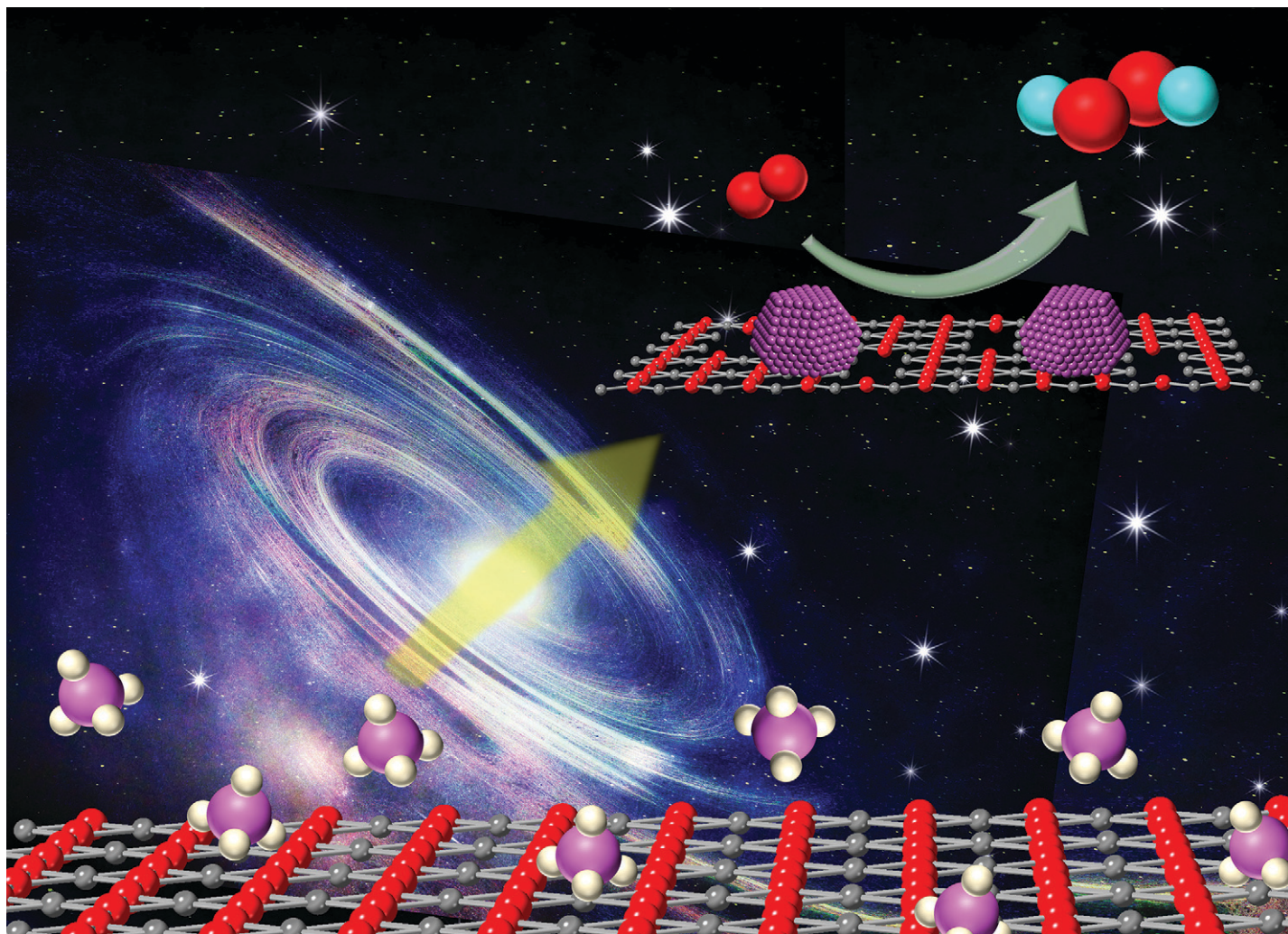
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Fundamental questions  
Elemental answers







Showcasing the joint research by Professor Hiroaki Tada (Institutes of Innovation for Future Society, Nagaya University, Aichi, Japan), and Dr. Shin-ichi Naya and Dr. Miwako Teranishi (Environmental Research Laboratory, Kindai University, Osaka, Japan).

Facile preparation of highly active zirconia-supported gold nanoparticle catalyst

Au nanoparticle-loaded zirconia prepared by a modified DP method with a pre-step of long-time stirring of  $\text{ZrO}_2$  nanoparticles in  $\text{HAuCl}_4$  solution ( $\text{Au/ZrO}_2\text{-MDP}$ ) exhibits an extraordinarily high catalytic activity for  $\text{H}_2\text{O}_2$  production by  $2\text{e}^-$ -ORR using  $\text{HCOOH}$ . Regardless of the insulating character of  $\text{ZrO}_2$ , the turnover frequency (TOF) of  $\text{Au/ZrO}_2\text{-MDP}$  is much exceeding those of various Au/n-type semiconducting metal oxides.

As featured in:



See Shin-ichi Naya, Hiroaki Tada *et al.*, *Catal. Sci. Technol.*, 2023, **13**, 6662.