

# EES Catalysis

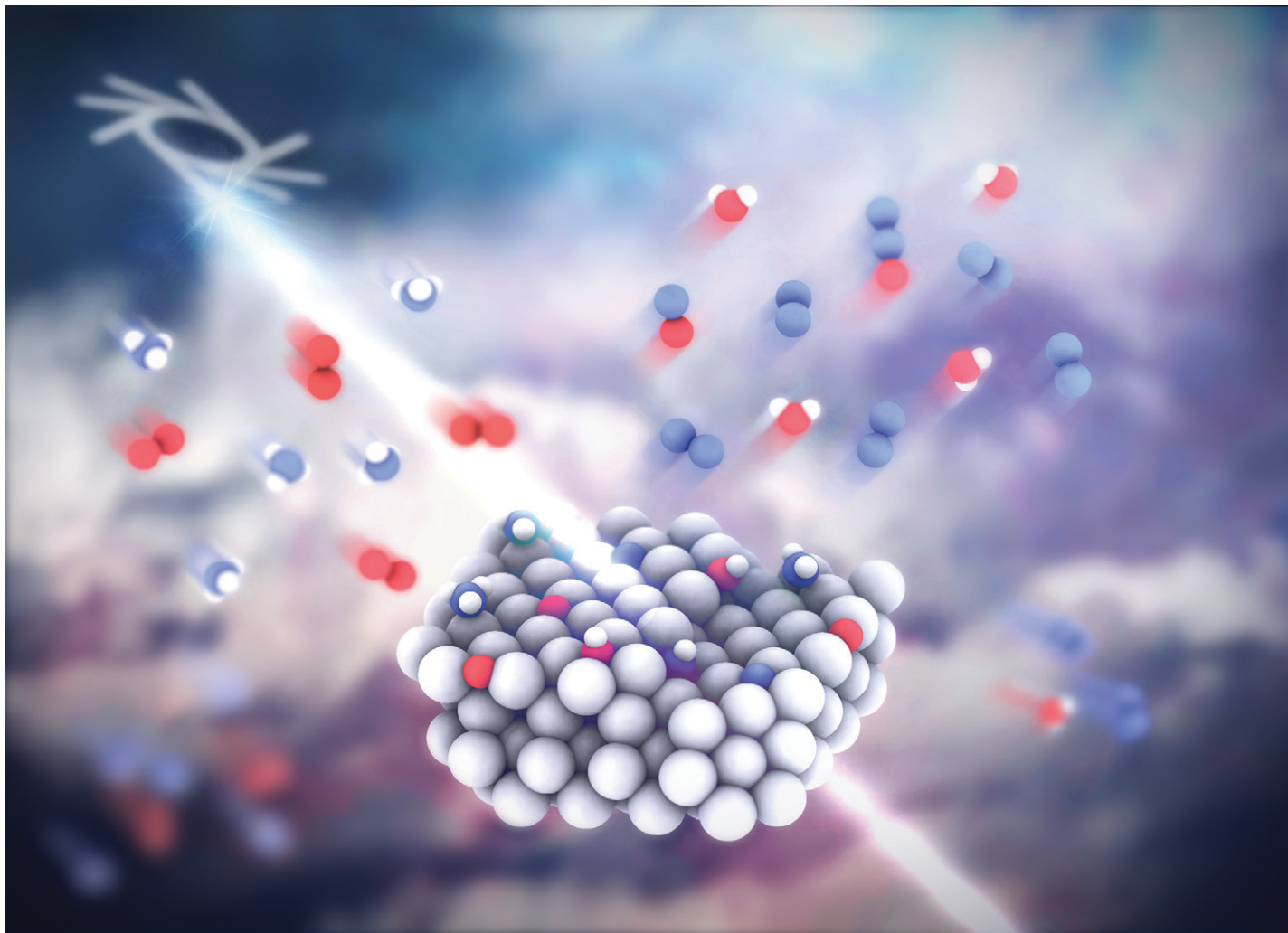
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Showcasing research from Professor Grunwaldt's laboratory, Institute for Chemical Technology and Polymer Chemistry (ITCP) and Institute of Catalysis Research and Technology (IKFT), Karlsruhe Institute of Technology, Germany.

Structure sensitivity of alumina- and zeolite-supported platinum ammonia slip catalysts

The use of ammonia as a potential hydrogen carrier and sustainable fuel would require efficient ammonia slip catalysts. To understand structure-activity relationships in these systems, ammonia slip catalysts with varying particle sizes were synthesised, tested, and studied with *operando* XAS. Different mechanisms were found to govern ammonia oxidation depending on Pt dispersion. Ammonia is effectively oxidised on Pt via Ostwald process mechanism when a minimum particle size to contain a favourable surface atom configuration is reached. For smaller particles, slower  $\text{NH}_3$  to NO oxidation with subsequent SCR reaction occurs.

We acknowledge Peter Nossier for help with the cover image.

### As featured in:



See Dmitry E. Doronkin *et al.*,  
*Catal. Sci. Technol.*, 2023, 13, 2946.