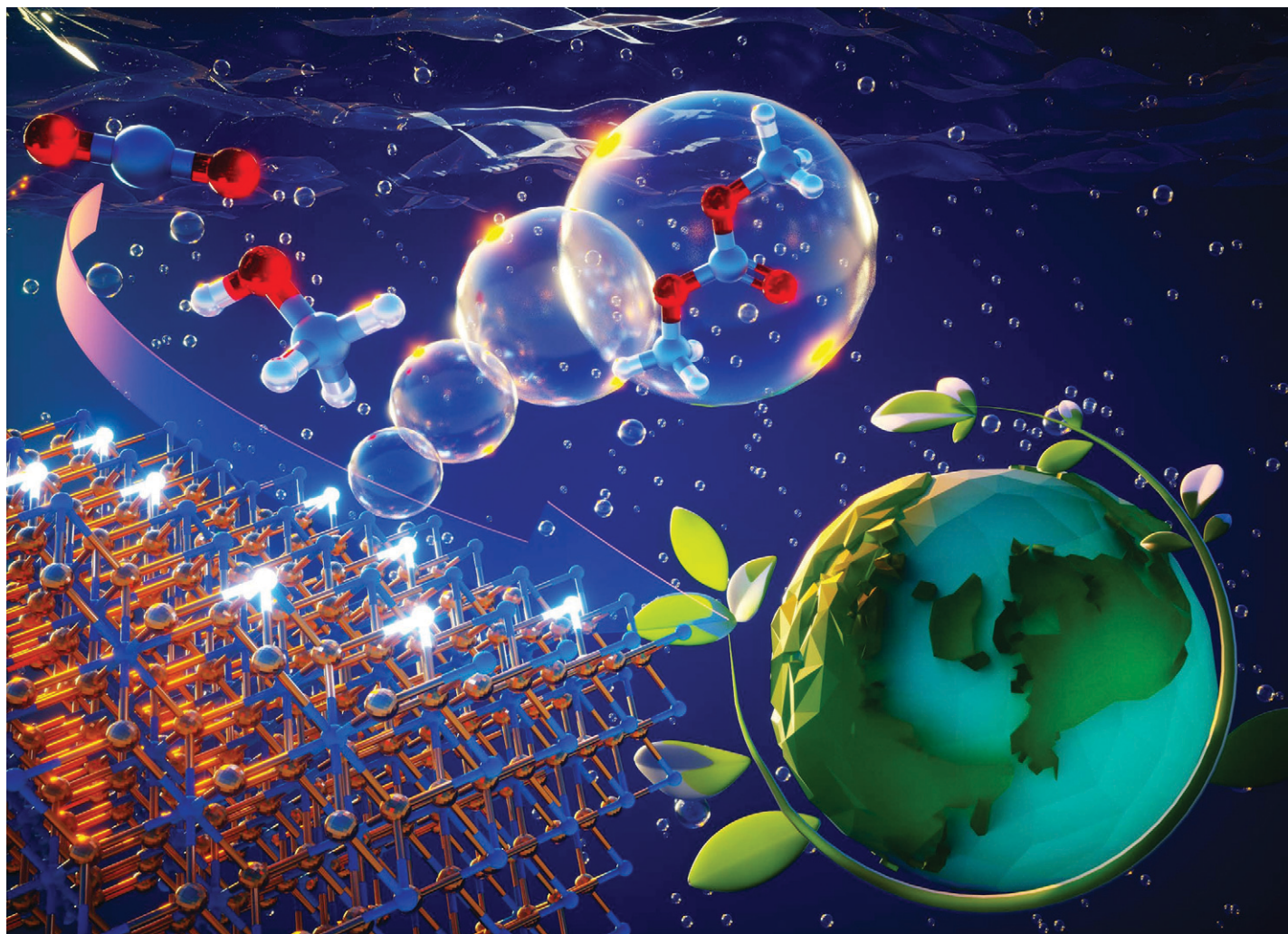


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Showcasing research of Dr. Niladri Maity and co-workers at Interdisciplinary Research Center for Refining and Advanced Chemicals, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia.

Heteroatom-assisted oxygen vacancies in cerium oxide catalysts for efficient synthesis of dimethyl carbonate from CO_2 and methanol

The direct synthesis of dimethyl carbonate (DMC) from CO_2 and methanol is an eco-friendly process, but effective catalysts are needed for high yields. Heteroatom (N and S) assisted CeO_2 nanorods (N- CeO_2 -NR, S- CeO_2 -NR) were synthesized to enhance surface properties like oxygen vacancies, Ce^{3+} concentration, surface acidity, and basicity. Among these, N- CeO_2 -NR showed the highest DMC yield under moderate conditions, significantly outperforming other materials due to superior surface characteristics, as confirmed by spectroscopic and surface analysis techniques.

As featured in:



See Niladri Maity *et al.*,
Catal. Sci. Technol., 2024, **14**, 6513.