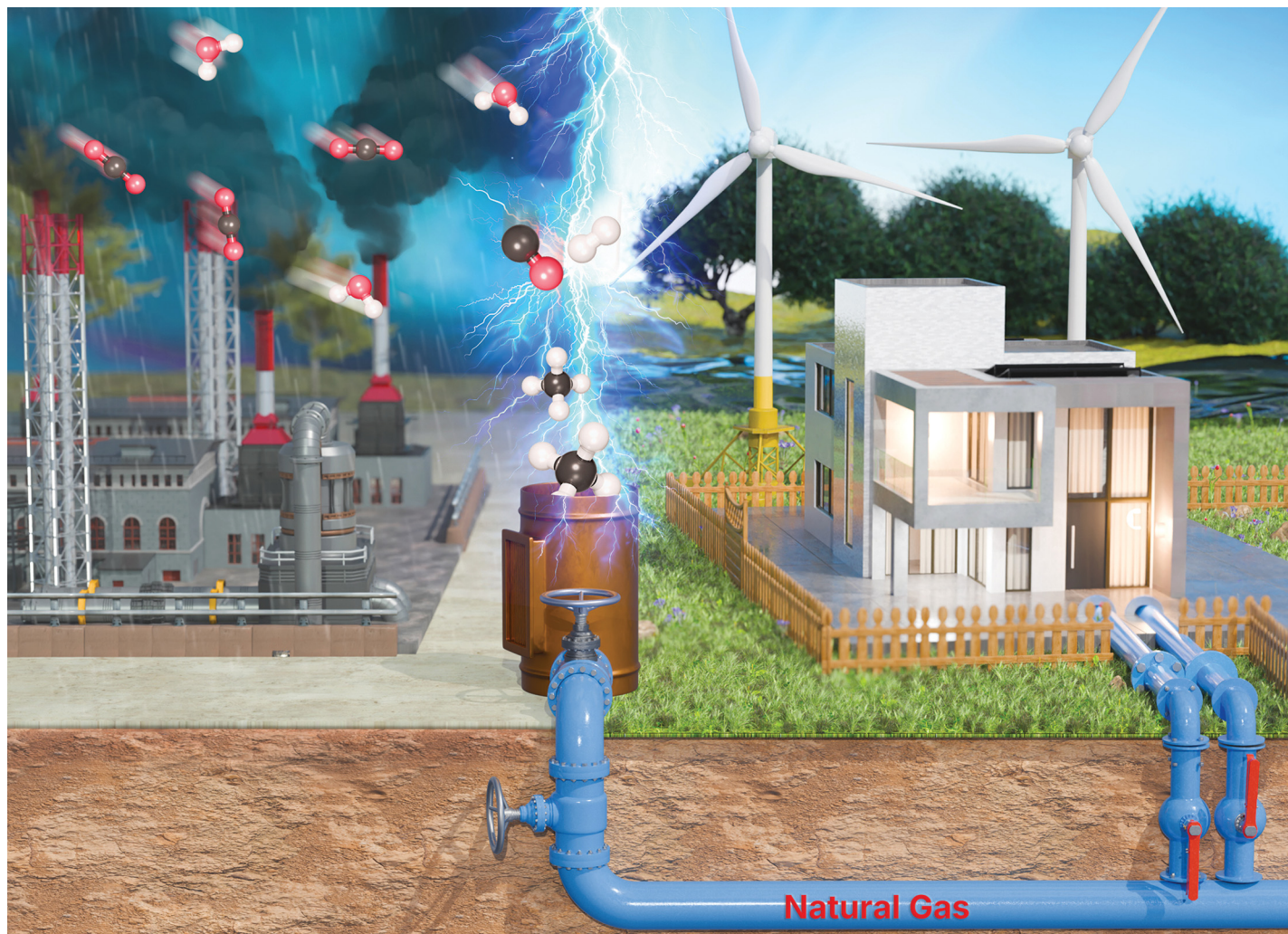




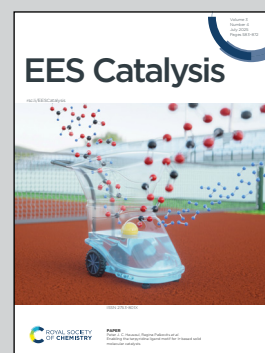
Showcasing research from Professor Dongil Lee's laboratory, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 03722, Republic of Korea.

High purity CH_4 production from CO_2 via cascade electro-thermocatalysis using metal nanoclusters with high CO_2 binding affinity

While methane is a desirable product due to its widespread use as a fuel, the direct electroreduction of CO_2 to CH_4 is hindered by challenges such as low product purity and high overpotentials. To overcome these limitations, we developed an efficient cascade system combining electrolysis and thermocatalysis for the high-purity production of CH_4 from CO_2 . Electrochemical syngas generation using metal nanoclusters with high CO_2 -binding affinity enabled near-theoretical single-pass conversion efficiency, followed by thermocatalytic conversion to high-purity methane.

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As featured in:



See Joonwoo Kim, Dongil Lee *et al.*, *EES Catal.*, 2025, **3**, 723.