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Title: Metal-oxide interaction enhanced CO₂ activation in methanation over ceria supported nickel nanocrystallites

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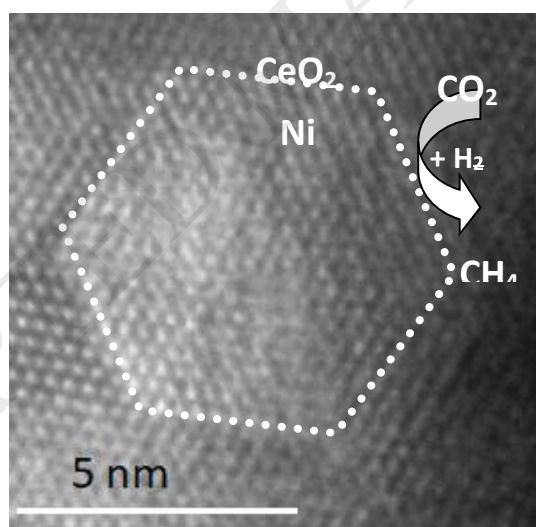
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Graphical abstract



Highlights

- Reduction of Ni precursor on CeO₂ generated metal-oxide interface and hexagonal Ni particles.
- Ni/CeO₂ exhibited enhanced activity/selectivity in CO₂ methanation.
- Ni-CeO₂ interface facilitated CO₂ activation.
- Methanation activity can be tuned via decoration of Ni nanocrystallites by ceria.
- Structure reconstruction of Ni nanocrystallites can be linked to an initial loss of activity.

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