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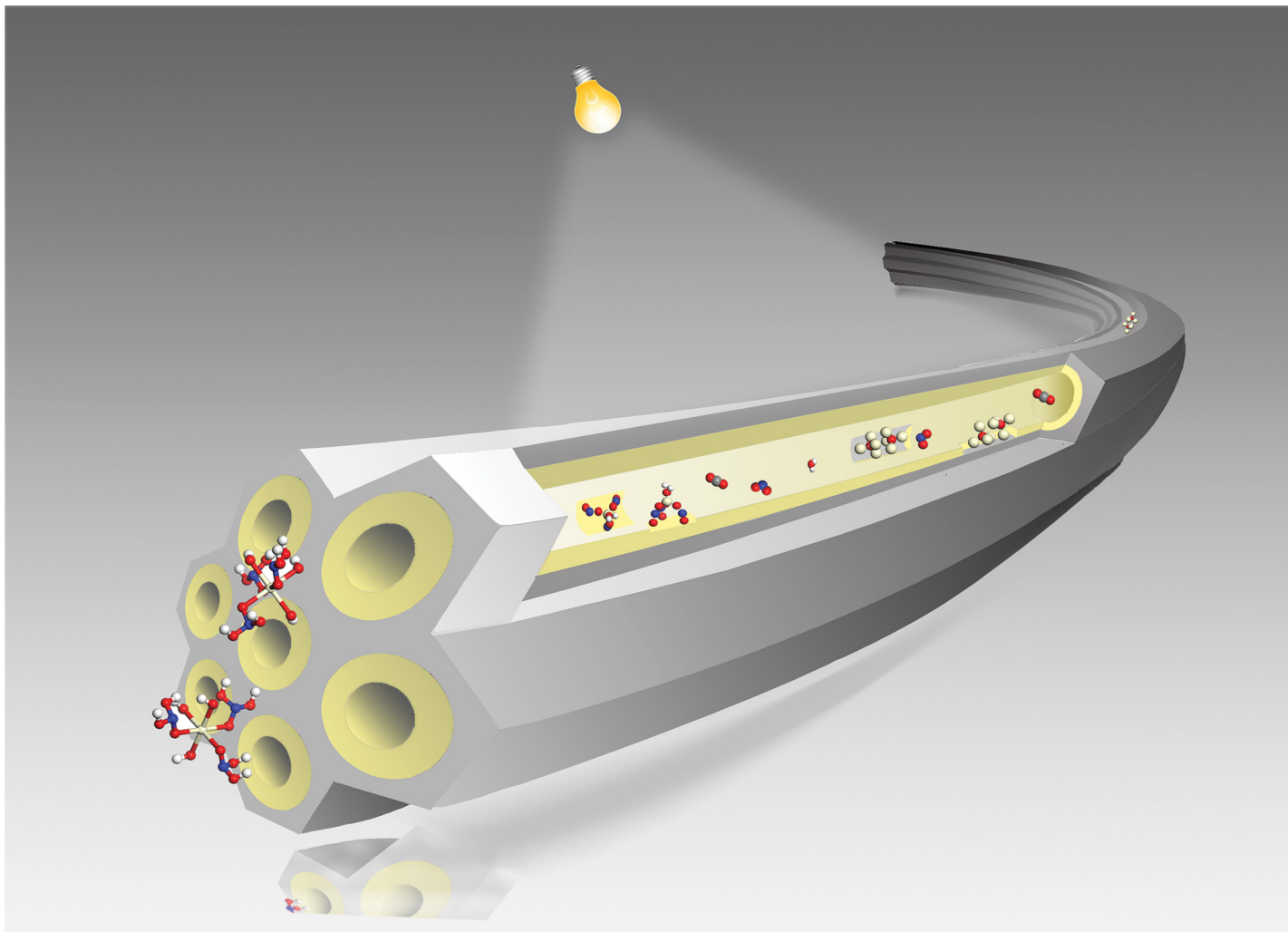
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Fundamental questions
Elemental answers



**Showcasing research from Professor Hess's laboratory,
Department of Chemistry, Technical University of Darmstadt,
Germany.**

Controlling the dispersion of ceria using nanoconfinement:
application to $\text{CeO}_2/\text{SBA-15}$ catalysts for $\text{NH}_3\text{-SCR}$

Loading the active phase of catalytic materials in a highly dispersed fashion onto porous supports is still a great challenge. As illustrated for ceria-based catalysts, we show that template P123 can be used to control the crystal growth, with direct implications for the catalytic performance. To elucidate the detailed mechanism of this template-assisted synthesis of SBA-15 supported ceria we have applied *in situ* spectroscopies. On this basis, a rational catalyst synthesis was developed by exploiting nanoconfinement effects, resulting in an improved ceria dispersion and superior $\text{NH}_3\text{-SCR}$ performance.

As featured in:



See Jun Shen and Christian Hess,
Mater. Adv., 2021, 2, 7400.