

Hydrogenation of CO₂: Insights from catalyst preparation

Damien P. Debecker

UCLouvain

- ✓ CO₂ hydrogenation is an important challenge for the society and for catalysis scientists (but we rely on renewable H₂ production).^[1]
- ✓ Performance is largely influenced by the interaction between the active metal and the support.^[2]
- ✓ Aerosol route is an efficient way to obtain tunable, doped, and nanostructured hydrogenation catalysts, in one step.^[3]
- ✓ It is pertinent to tackle the capture and utilization of CO₂ directly from flue gases (e.g. using Dual Functional Materials).^[4]

- [1] M. M. F. Hasan, L. M. Rossi, D. P. Debecker, K. C. Leonard, Z. Li, B. C. E. Makhubela, C. Zhao, A. Kleij, *ACS Sus. Chem. Eng.* **2021**, *9*, 12427-12430.
- [2] A. Kim, D. P. Debecker, F. Devred, V. Dubois, C. Sanchez, C. Sassoey, *Appl. Catal. B* **2018**, *220*, 615-625.
- [3] C. Paris, A. Karelovic, R. Manrique, S. Le Bras, F. Devred, V. Vykoukal, A. Styskalik, P. Eloy, D. P. Debecker, *ChemSusChem* **2020**, *13*, 6409-6417.
- [4] P. Melo, D. P. Debecker, *Waste Disposal & Sustainable Energy* **2019**, *1*, 53–65.