

New Publication by CADIAC in *Nature Catalysis*

Chemists from *The Carbon Dioxide Activation Center* have recently published a review in *Nature Catalysis* with the title “*Chemically and electrochemically catalysed conversion of CO₂ to CO with follow-up utilisation to value-added chemicals*”, *Nature Catal.* **2018**, 1, 244–254. The authors include Dennis U. Nielsen, Xin-Ming Hu, Kim Daasbjerg and Troels Skrydstrup from the Interdisciplinary Nanoscience Center and Department of Chemistry.

Carbon dioxide is ubiquitous and a vital molecule for maintaining life on our planet. However, the ever-increasing emission of anthropogenic CO₂ into our atmosphere has provoked dramatic climate changes. In principle, carbon dioxide could represent an important one-carbon building block for the chemical industry, yet its high thermodynamic and kinetic stability has limited its applicability to only a handful of industrial applications. On the other hand, carbon monoxide represents a more versatile reagent applied in many industrial transformations. In this review, the different methods for converting CO₂ to CO with specific focus on the reverse water gas shift reaction, main element reductants, and electrochemical protocols applying homogeneous and heterogeneous catalysts are covered. Particular emphasis is given to synthetic methods, which couple the deoxygenation step with a follow-up carbonylation step for the synthesis of carbonyl-containing molecules, thus avoiding the need to handle or store this toxic but highly synthetically useful diatomic gas.

