

Copper-based electrodes for electrochemical CO₂ conversion

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Electrochemical conversion of CO₂ to value-added products is being intensively investigated. To improve selectivity and overcome sluggish kinetics of the CO₂ reduction reaction (CO₂RR), appropriate electrocatalysts are needed. Cu-based materials are most interesting and widely studied [1].

Our previous work studied Cu-Sn bimetallic electrodes with different surface compositions and nano-architectures toward the CO₂RR [2]. The ongoing work studies Cu with various oxide states for converting CO₂ to tunable syngas. We are also exploring other Cu based bimetallic materials such as CuZn and CuSb.

Reference:

[1] H. Xie, T. Wang, J. Liang, Q. Li, S. Sun, *Nano Today* 21 (2018) 41-54.

[2] J. Zeng, K. Bejtka, W. Ju, M. Castellino, A. Chiodoni, A. Sacco, M.Amin Farkhondehfal, S. Hernández, D. Rentsch, C. Battaglia, C. F. Pirri, *Appl. Catal. B: Environ.* 236 (2018) 475-482.