Influence of the electrode-electrolyte interface on electrochemical CO2 reduction reaction and hydrogen evolution reaction

Ye, C.

List of Publications

This thesis is based on these publications:

Chapter 2
Ye, C.; Raaijman, S. J.; Chen, X.; Koper, M. T. M.
Enhanced Electrochemical CO_2 Reduction to Formate on Poly(4-vinylpyridine)-modified Copper and Gold Electrodes
ACS Appl. Mater. Interfaces **2022,** *14* (40), 45263-45271

Chapter 3
Ye, C.; Dattila, F.; Chen, X.; Lopez, N.; Koper, M. T. M.
(Both authors contributed equally)
Influence of Cations on HCOOH and CO Formation during CO_2 Reduction on a $Pd_{ML}Pt(111)$ Electrode
J. Am. Chem. Soc. **2023**, 145 (36), 19601-19610

Chapter 4
Ye, C.; Liu, X.; Koper, M. T. M.
The Role of Cations in Hydrogen Evolution Reaction on a Platinum Electrode in Mildly Acidic Media
Eletrochem. Commun. **2024**, 166, 107784

Other publications:

Phan, T. H.; Banjac, K.; Cometto, F. P.; Dattila, F.; García-Muelas, R.; Raaijman, S. J.; **Ye, C.**; Koper, M. T. M.; López, N.; Lingenfelder, M.
Emergence of Potential-Controlled Cu-Nanocuboids and Graphene-Covered Cu-Nanocuboids under *Operando* CO_2 Electroreduction
Nano Lett., **2021**, 21(5), 2059-2065

Hersbach, T. J. P.; **Ye, C.**; Garcia, A. C.; Koper, M. T. M.
Tailoring the electrocatalytic activity and selectivity of Pt(111) through cathodic corrosion
ACS Catal. **2020,** *10* (24), 15104-15113

Ye, C.; Huang, H.; Zeng, J.
Precisely Controlled Synthesis of Pt-Pd Octahedral Nanoframes as a Superior Catalyst towards Oxygen Reduction Reaction.
Chinese J Chem Phys. **2017**, 30, 581

Ye, C., Li, K., Huang, H.; Zeng, J.
Preparation and Application of Ultrathin PtRh Nanowires.
CN106925771A, **2017** (Chinese Patent)

Ye C.; Li X.; Huang, H.; Zeng, J.
Preparation and Application of Pd@PdFe Icosahedral Nanocrystals
CN106876732A, **2017** (Chinese patent)

Curriculum vitae

Chunmiao Ye was born on December 18th, 1992, in Anhui, China. She attended Maotanchang High School from 2008 to 2010. In 2010, she enrolled at the University of Science and Technology of China (USTC) to pursue a Bachelor's degree in Materials Chemistry, graduating in June 2014. Chunmiao continued her academic journey at USTC, where she completed her Master's degree in Chemical Physics in July 2017. Her master's research focused on designing nanostructures with high surface atom exposure for electrocatalytic applications.

In October 2017, Chunmiao began her PhD at Leiden University under the supervision of Prof. Dr. Marc Koper. Her PhD project was part of the Marie Curie ITN ELCOREL, which included collaborations with seven partner institutions, fostering a dynamic and interdisciplinary research environment. Her research primarily investigated the factors affecting the activity and selectivity of the electrochemical CO_2 reduction reaction. Additionally, she had the opportunity to work on large-scale CO_2 electrolysis systems during her time as a visiting researcher at Avantium, a chemical technology company specializing in renewable chemistry solutions, based in Amsterdam. There, she was supervised by Dr. Klaas Jan Schouten and Matthew Philips. The results of Chunmiao's research are presented in this thesis, and parts of her work have been showcased at several national and international conferences. During her PhD, she also contributed to teaching "Organic Chemistry" practical courses.

In 2022, Chunmiao joined Dompatent von Kreisler as a trainee patent attorney. She is currently exploring the field of intellectual property and pursuing her qualification as a European patent attorney.

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