

Spring 4-11-2016

Poly(4-vinylpyridine) as a platform for robust CO₂ electroreduction

Irina Cheryshova
Columbia Univeristy

Chang Yun
Columbia University

Ponisseril Somasundaran
Columbia University

Sathish Ponnurangam
University of Calgary

Follow this and additional works at: http://dc.engconfintl.org/co2_summit2

 Part of the [Environmental Engineering Commons](#)

Recommended Citation

Irina Cheryshova, Chang Yun, Ponisseril Somasundaran, and Sathish Ponnurangam, "Poly(4-vinylpyridine) as a platform for robust CO₂ electroreduction" in "CO₂ Summit II: Technologies and Opportunities", Holly Krutka, Tri-State Generation & Transmission Association Inc. Frank Zhu, UOP/Honeywell Eds, ECI Symposium Series, (2016). http://dc.engconfintl.org/co2_summit2/55

This Abstract is brought to you for free and open access by the Proceedings at ECI Digital Archives. It has been accepted for inclusion in CO₂ Summit II: Technologies and Opportunities by an authorized administrator of ECI Digital Archives. For more information, please contact franco@bepress.com.

Poly(4-vinylpyridine) as a platform for robust CO₂ electroreduction

Irina V. Chernyshova,^a Sathish Ponnurangam,^b Chang Min Yun,^a and Ponisseril Somasundaran^a

^aDepartment of Earth and Environmental Engineering, Columbia University, New York, New York, 10027, United States of America

^bDepartment of Chemical and Petroleum Engineering, University of Calgary, Calgary T2N 1N4 Canada

Abstract

The development of efficient *and* robust catalysts is critical for the viability of the electrocatalytic conversion of CO₂ into useful chemicals. Herein, we discover a new class of metal-polymer electrocatalysts with incorporated mechanisms of their stabilization which is based on a poly(4-vinyl pyridine). We attribute the outstanding catalytic properties of the new hybrid material to new intrinsic mechanisms of the metal stabilization offered by the N-heteroaromatic polymer. More generally, our study offers a new simple strategy to design and prepare robust CO₂ reduction electrocatalysts.