



B08-0931: Homogeneous and Heterogeneous Porphyrin Architectures for Electrocatalysis

Wednesday, 29 May 2019

15:00 - 15:20

📍 *Dallas Sheraton Hotel - City View 7*

Catalysts are central to energy conversion in biology and technology; they provide low-energy pathways for steering chemical transformations and are used in applications ranging from manufacturing fuels and fine chemicals to controlling the bioenergetic reactions essential to all living organisms. Accordingly, the study of homogeneous molecular catalysts, including porphyrins, has provided researchers significant insights regarding the mechanisms and structure–function relationships governing myriad catalytic processes, as well as design principles for further improving the performance of human-engineered catalysts. Our research group has recently reported on the favorable catalytic properties of pi-extended porphyrins for hydrogen evolution, demonstrating the promise of extended macrocycles as a design element and structural motif for preparing electrocatalysts. [1-5] The pi-extended architecture provides an alternative strategy, compared to using electron-withdrawing or electron-donating functional groups, for adjusting the redox properties of a molecular catalyst and thus a promising avenue for catalyst design warranting further analysis.

1. D. Khusnutdinova, B. L. Wadsworth, M. Flores, A. M. Beiler, E. A. Reyes Cruz, Y. Zenkov, G. F. Moore, *ACS Catal.*, 8, 9888–9898 (2018); DOI: 10.1021/acscatal.8b01776
2. D. Khusnutdinova, A. M. Beiler, B. L. Wadsworth, S. I. Jacob, G. F. Moore, *Chem. Sci.*, 8, 253–259 (2017); DOI: 10.1039/c6sc02664h
3. A. M. Beiler, D. Khusnutdinova, B. L. Wadsworth, G. F. Moore, *Inorg. Chem.*, 56, 12178–12185 (2017); DOI:10.1021/acs.inorgchem.7b01509
4. A. M. Beiler, D. Khusnutdinova, S. I. Jacob, G. F. Moore, *ACS Appl. Mater. Interfaces*, 8, 10038–10043 (2016); DOI: 10.1021/acsami.6b01557
5. B. L. Wadsworth, A. M. Beiler, D. Khusnutdinova, S. I. Jacob, G. F. Moore, *ACS Catal.*, 6, 8048–8057 (2016); DOI: 10.1021/acscatal.6b02194

Authors

Gary F. Moore

Arizona State University

Brian L. Wadsworth

Arizona State University

Diana Khusnutdinova

Arizona State University

Marco Flores

Arizona State University

Anna M. Beiler

Arizona State University

Edgar A. Reyes Cruz

Arizona State University

Yegor Zenkov

Arizona State University

Jenifer M. Urbine

Arizona State University

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