Scott L. Nauert

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Education

- NORTHWESTERN UNIVERSITY, Ph.D. Chemical Engineering (GPA 4.00/4.00), summer 2018 (expected)
- RICE UNIVERSITY, B.S. Chemical Engineering, *summa cum laude* (GPA 4.08/4.33), applied mathematics minor, May 2013

Research and Professional Experience

Notestein Lab, Northwestern University – *Ph.D. Candidate*, January 2014—Present Evanston, IL

Investigating speciation and reduction-oxidation properties of supported late transition metal oxide catalysts for selective oxidation of alkanes with molecular oxygen.

Link Lab, Rice University – *Research Assistant*, January 2011—July 2013 Houston, TX

Developed a new imaging technique to measure surface plasmon polariton propagation and coupling efficiency in gold nanowires and chains for design of next generation high throughput plasmonic devices.

Shanks Lab, Iowa State University – *Research Assistant*, June 2012—Aug 2012 Ames, IA

Worked to develop a hydrothermally stable solid acid catalyst from biorenewable feedstocks for the hydrodeoxygenation of biological feedstocks to valuable consumer chemicals.

Publications:

- **Nauert, S.**; Schax, F.; Limberg, C.; Notestein, J. M.; "Cyclohexane oxidative dehydrogenation over copper oxide catalysts," *Journal of Catalysis* **2016**, *341*, 180-190. (**DOI**: 10.1021/acscatal.6b01796)
- Thornburg, N.; **Nauert, S.**; Thompson, A.; Notestein, J. M.; "Synthesis-structure-function relationships of silica-supported niobium(V) catalysts for alkene epoxidation with H_2O_2," *ACS Catalysis*, accepted. (**DOI:** 10.1021/acscatal.6b01796)
- Ardagh, M.; Bo, Z.; **Nauert, S.**; Notestein, J. M.; "Depositing SiO_2 on Al_2O_3: A route to tunable Brønsted acid catalysts," *ACS Catalysis*, accepted. (**DOI:** 10.1021/acscatal.6b01077)
- **Nauert, S.**; Paul, A.; Zhen, Y.R.; Solis, D.; Vigderman, L.; Chang, W.S.; Zubarev, E.R.; Nordlander, P.; Link, S. "Influence of cross sectional geometry on surface plasmon polariton propagation in gold nanowires," *ACS Nano* **2014**, *8*, 572. (**DOI:** 10.1021/nn405183r)
- Paul, A.; Solis, D.; Bao, K.; Chang, W.S.; **Nauert, S.**; Vigderman, L.; Zubarev, E.R.; Nordlander, P.; Link, S. "Identification of higher order long-propagation-length surface plasmon polariton modes in chemically prepared gold nanowires," *ACS Nano* **2012**, *6*, 8105. (**DOI:** 10.1021/nn3027112)
- Solis, D.; Willingham, B.; Nauert, S.; Slaughter, L.S.; Olson, J.; Swanglap, P.; Paul, A.; Chang, W.S.; Link, S. "Electromagnetic energy transport in nanoparticle chains via dark plasmon modes," *Nano Letters*, **2012**, *12*, 1349. (**DOI:** 10.1021/nl2039327)

Presentations:

- **Nauert, S.**; Notestein, J. M. "Spectroscopic investigation of supported copper catalysts for ethanol dehydrogenation," Chicago Catalysis Club Summer 2016 Symposium, May 17, 2016 (Poster)
- **Nauert, S.**; Notestein, J. M. "Synthesis-structure relationships for supported copper catalysts," UNICAT Northwestern joint scientific meeting, August 25, 2015 (Poster)
- **Nauert, S.**; Notestein, J. M. "Synthesis-structure relationships for supported copper catalysts," Chicago Catalysis Club Summer 2015 Symposium, May 14, 2015 (Poster)
- **Nauert, S.**; Anderson, J.; Johnson, R.; Shanks, B.; "Synthesis and characterization of carbon supported solid sulfonic acid catalysts," Iowa State REU Poster Session, August 2012 (Poster)

- **Nauert, S.**; Solis, D.; Vigderman, L.; Paul, A.; Khanal, B.; Bao, K.; Chang, W.S.; Link, S. "Effects of cross section on plasmon propagation in gold nanowires," Rice University Undergraduate Research Symposium, April 2012 (Poster)
- **Nauert, S.**; Solis, D.; Chang, W.S.; Link, S.; "Bleached image plasmon propagation processing for gold nanowires," Rice University Quantum Institute Summer Research Colloquium, August 2011 (Poster)

Key Technical Competencies

- Laboratory: Heterogeneous catalyst synthesis with air-free techniques (Schlenk line, glove box). Flow phase kinetic testing and reactor design. Extensive experience with Swagelok fluid systems. Materials characterization using UV-visible spectroscopy, X-ray absorption near edge structure (XANES), extended X-ray absorption fine structure (EXAFS), diffuse reflectance infrared Fourier transform spectroscopy (DRIFTS), temperature programmed techniques such as TPR/TPO/TPD, elemental analysis by ICP-OES, thermogravimetric analysis (TGA), powder X-ray diffraction (pXRD), solid state NMR.
- Safety: Completed coursework in chemical process safety. Designed safety systems for high temperature and high pressure flow reactor (NU). Trained for safe use of high pressure gas cylinders and concentrated hydrofluoric acid (HF).
- Programming: Kinetic modeling, data management, numerical analysis, and image analysis experience (MATLAB). Exposure to Python, C, C++, regular expressions, and parallel programming using MPI and CUDA.

Awards, Fellowships, and Memberships

- NSF Graduate Research Fellows, 2014—Present
- Ryan Fellowship for Nanotechnology at Northwestern, 2013—2015
- Cabell Northwestern University Research Fellowship, 2014—2015
- Phi Beta Kappa society, 2013
- Professional memberships in American Institute of Chemical Engineers (2011—Present), American Chemical Society (2015—Present), Catalysis Club of Chicago (2013—Present)