

Steven P. Crossley

Professional Preparation

Oklahoma City University

Chemistry

B.S.: 2004

University of Oklahoma

Chemical Engineering

Ph.D.: 2009

Appointments

- Assistant Professor, University of Oklahoma, August 2011 to present
- Associate Engineer, ConocoPhillips, Hydroprocessing Research, January 2011 to July 2011.
- Associate Engineer, ConocoPhillips, Integrated Hydrocracking/FCC Research, September 2010 to December 2010.
- Research Engineer, ConocoPhillips, Integrated Hydrocracking/FCC Research, June 2009 to September 2010.
- Research and Development Intern, ConocoPhillips, Advanced Hydrocarbon Fuels, May-July, 2008

Publications

1. Solid Nanoparticles that Catalyze Biofuel Upgrade Reactions at the Water/Oil Interface, Steven P. Crossley, Jimmy Faria, Min Shen, Daniel E. Resasco, *Science*, 327, 68-72, 2010.
2. Catalytic Conversion of Anisole over HY and HZSM-5 Zeolites in the Presence of Different Hydrocarbon Mixtures, Teerawit Prasomsri, Anh T. To, Steven Crossley, Walter E. Alvarez, Daniel E. Resasco, *Applied Catalysis B: Environmental*, 106(1-2), 204-211, 2011.
3. Etherification of 2-methylpentanal on Supported Palladium Catalysts, Trung Pham, Steven P. Crossley, Tawan Sooknoi, Lance L. Lobban, Daniel E. Resasco, Richard G. Mallinson, *Applied Catalysis A: General*, 379 (1-2), 135-140, 2010.
4. Activity Inhibition By Nitrogen Compounds in the Simultaneous Hydrogenation of Polyaromatic Compounds over NiMo/Al₂O₃ Catalyst in the Presence of Sulfur, Andrea R. Beltramone, Steven Crossley, Daniel E. Resasco, Tushar Choudhary, and Walter E. Alvarez. *Catalysis Letters*, 123, 181-185, 2008.
5. Direct Conversion of Triglycerides to Olefins and Paraffins over Noble Metal Supported Catalysts, Martina Chiappero, Phuong Thi Mai Do, Steven Crossley, Lance L. Lobban, Daniel E. Resasco, *Fuel*, 90 (3), 1155-1165, 2011.
6. Molecular Engineering Approach in the Selection of Catalytic Strategies For Upgrading

of Biofuels, Daniel E. Resasco, Steven P. Crossley, *AIChE Journal*, 55(5), 1082-1089, 2009.

7. A Novel Micropyrolysis Index (MPI) to Estimate Sooting Tendency of Fuels, Steven P. Crossley, Walter E. Alvarez, Daniel E. Resasco. *Energy and Fuels*, 22(4), 2455-2464, 2008.
8. Challenges and Opportunities for Catalysis Research in Biofuel Refining, Daniel E. Resasco, Steven Crossley, *AIChE CEP*, 105(5), 11, 2009.
9. Catalytic Strategies for Improving Specific Fuel Properties, Phuong Do, Steven Crossley, Malee Santikunaporn, and Daniel E. Resasco, *Catalysis* (Special Periodical Reports) Royal Society of Chemistry, 20, 33-64, 2007.

Presentations (presenter underlined)

1. The Role of Acidic Support on the Catalytic Upgrading of Bio-Oils. Steven Crossley, Sunya Boonyasuwat, Daniel Resasco, 2011 AIChE Annual Meeting, October 16-21, 2011.
2. Model compound studies of small aldehyde condensation reactions, Steven Crossley, Quincy Amen, Trung Pham, Lance Lobban, Richard Mallinson, and Daniel E. Resasco. 237th American Chemical Society National Meeting, March 22-26, 2009.
3. Catalytic strategies for upgrading of fuels from conventional and renewable resources, Steven Crossley, Surapas Sithisa, Phuong Do, Trung Pham, and Daniel E. Resasco. 237th American Chemical Society National Meeting, March 22-26, 2009.
4. Impact of Oxygen Incorporation In Molecular Structure on Pyrolytic Soot Formation and Oxidizability, Steven P. Crossley, Maria Pilar Ruiz, Liang Zhang, and Daniel E. Resasco, 2008 AIChE Annual Meeting, November 16-21, 2008.
5. Applications of a Micropyrolysis Index (MPI) towards Molecular Engineering of Fuels, Steven P. Crossley, Maria Pilar Ruiz, Liang Zhang, and Daniel E. Resasco. 2008 AIChE Annual Meeting, November 16-21, 2008.
6. Development of a Coke Index for estimating PM emissions, Steven Crossley and Daniel E. Resasco. North American Catalysis Society - 20th North American Meeting, June 17-22, 2007.
7. Prediction of Hydrogenolysis Product Selectivity of Various Model Hydrocarbons over Ir/Al₂O₃, Steven P. Crossley, Phuong T. Do, Siraprapha Dokjampa, and Daniel E. Resasco, North American Catalysis Society - 20th North American Meeting, June 17-22 2007.
8. Development and Prediction of a New Fuel Property to Measure PM Emissions, Steven Crossley and Daniel E. Resasco. Spring AIChE 2007 Spring National Meeting, April 22-26.
9. Conversion of Biodiesels to Normal Diesels, Steven Crossley, Phuong T. Do, Tanate Danuthai, Somchai Osuwan, and Daniel E. Resasco, AIChE 2007 National Meeting, November 4-9.

Synergistic Activities:

Industry/University Collaborations:

While a member of ConocoPhillips R&D from June 2009-July 2011, served as a ConocoPhillips representative in a collaboration with the University of Oklahoma. This type of relationship strengthens the bonds between industry and academia while supporting graduate students both financially, by funding their education, and developmentally through mentoring. Participated in monthly meetings with graduate students involved and provided mentoring related with their projects.

Collaborators: (Name: current affiliation)

- *Dr. Walter E. Alvarez: Chief Scientist at ConocoPhillips*
- *Dr. Tushar V. Choudhary: Director, Hydroprocessing R&D at ConocoPhillips*
- *Martina Chiappero: Process Engineer at ISOVER Saint-Gobain Italy*
- *Dr. Phuong T. Do: Post-doctoral associate at the University of Delaware*
- *Jimmy Faria: Ph.D. student at the University of Oklahoma*
- *Dr. Lance L. Lobban: Director, School of Chemical, Biological and Materials Engineering, Francis W. Winn Chair and Professor at the University of Oklahoma*
- *Dr. Richard G. Mallinson: C.M. Sliepcevich Professor at the University of Oklahoma*
- *Dr. Trung Pham: Post-doctoral associate at the University of Oklahoma*
- *Dr. Teerawit Prasomsri: Post-doctoral associate at Massachusetts Institute of Technology*
- *Dr. Daniel E. Resasco: D. and H. Bourne Chair and George Lynn Cross Professor at the University of Oklahoma*
- *Dr. Min Shen: Scientist at Thermo Fisher Scientific*
- *Dr. Ed Sughrue: Senior Research Fellow at ConocoPhillips*
- *Anh T. To: Ph.D. student at the University of Oklahoma*