

## VIKTOR J. CYBULSKIS, P.E.

Syracuse University Biomedical and Chemical Engineering  
329 Link Hall, 130 Smith Drive, Syracuse, NY 13244  
Office: (315) 443-4053, Email: vjcybuls@syr.edu  
Website: <https://cybulskisresearch.org>

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### EDUCATION

Ph.D.	<b>Purdue University</b> , Chemical Engineering, West Lafayette, IN	5/2016
B.S.	<b>Purdue University</b> , Chemical Engineering, West Lafayette, IN (Graduated with honors)	5/2005

### PROFESSIONAL EXPERIENCE

Assistant Professor	<b>Syracuse University</b> , Biomedical and Chemical Engineering, Syracuse, NY	8/2018 – Current
Postdoctoral Scholar	<b>California Institute of Technology</b> , Chemical Engineering, Pasadena, CA (Advisor: Mark E. Davis)	6/2016 – 7/2018
Graduate Research Assistant	<b>Purdue University</b> , Chemical Engineering, West Lafayette, IN (Advisors: Fabio H. Ribeiro, W. Nicholas Delgass)	3/2011 – 6/2016
Production Engineer	<b>TPC Group, Inc.</b> , Baytown, TX	7/2009 – 3/2011
Research Engineer	<b>LyondellBasell Industries</b> , Alvin, TX	4/2007 – 7/2009
Production Engineer	<b>Lyondell Chemical Company</b> , Corpus Christi, TX	7/2005 – 4/2007

### AWARDS AND RECOGNITION

Organic Reactions Catalysis Society Travel Award ( <i>North American Catalysis Society</i> )	2018
Chair of Inaugural Gordon Research Seminar in Catalysis ( <i>Gordon Research Conferences</i> )	2018
37 <sup>th</sup> Annual Spring Symposium Oral Presentation Award ( <i>Michigan Catalysis Society</i> )	2016
Graduate Student Symposium First Place Oral Presentation Award ( <i>Purdue ChE</i> )	2015
School of Chemical Engineering Excellence in Safety Award ( <i>Purdue ChE</i> )	2015
Purdue Presidential Safety Award ( <i>Purdue ChE</i> )	2015
National School on Neutron and X-Ray Scattering Oral Presentation Award ( <i>ANL-ORNL</i> )	2014
Spring Symposium Best Student Poster Award ( <i>Catalysis Club of Chicago</i> )	2013
Eastman Chemical Company Travel Award ( <i>Purdue ChE</i> )	2013
Purdue University Community Service Learning Project Grant ( <i>Purdue ChE</i> )	2012
Eagle Scout ( <i>Boy Scouts of America</i> )	2000

### PUBLICATIONS

9. **Cybulskis, V.J.**; “An Alternate Route: Working Before Graduate School.” *Chemical Engineering Progress*. **2019**, *115*, 26-27.
8. Guo, Q.; Ren, L.; Kumar, P.; **Cybulskis, V.J.**; Mkhoyan, A.K.; Davis, M.E.; Tsapatsis, M.; “A Chromium Hydroxide/MIL-101(Cr) Composite Catalyst and its use for Selective Glucose Isomerization to Fructose.” *Angewandte Chemie International Edition*. **2018**, *130*, 5020-5024.

7. Cui, Y.; Li, Z.; Zhao, Z.; **Cybulskis, V.J.**; Sabnis, K.D.; Han, C.W.; Ortalan, V.; Schneider, W.F.; Greeley, J.; Delgass, W.N.; Ribeiro, F.H.; “Participation of Interfacial Hydroxyl Groups in the Water-Gas Shift Reaction Over Au/MgO Catalysts.” *Catalysis Science and Technology*. **2017**, *7*, 5257-5266. (2017 HOT article).
6. **Cybulskis, V.J.**; Bukowski, B.C.; Tseng, H.-T.; Gallagher, J.R.; Wu, Z.; Wegener, E.; Kropf, A.J.; Ravel, B.; Ribeiro, F.H.; Greeley, J.; Miller, J.T. “Zinc Promotion of Platinum for Catalytic Light Alkane Dehydrogenation: Insights into Geometric and Electronic Effects.” *ACS Catalysis*. **2017**, *7(6)*, 4173-4181.
5. **Cybulskis, V.J.**; Pradhan, S.U.; Lovón-Quintana, J.J.; Hock, A.S.; Hu, B.; Zhang, G.; Delgass, W.N.; Ribeiro, F.H.; Miller, J.T. “The Nature of the Isolated Gallium Active Center for Propane Dehydrogenation on Ga/SiO<sub>2</sub>.” *Catalysis Letters*. **2017**, *147*, 1252-1262.
4. **Cybulskis, V.J.**; Harris, J.; Zvinevich, Y.; Ribeiro, F.H.; Gounder, R. “A Transmission Infrared Cell Design for Temperature-Controlled Adsorption and Reactivity Studies on Heterogeneous Catalysts.” *Review of Scientific Instruments*. **2016**, *87(10)*, 1031011-1031018.
3. **Cybulskis, V.J.**; Smeltz, A.D.; Zvinevich, Y.; Gounder, R.; Delgass, W.N.; Ribeiro, F.H. “Learning the Fundamentals of Kinetics and Reaction Engineering with the Catalytic Oxidation of Methane.” *Chemical Engineering Education*. **2016**, *50(3)*, 202-210.
2. **Cybulskis, V.J.**; Ribeiro, F.H.; Gounder, R. “Using a Hands-On Hydrogen Peroxide Decomposition Activity to Teach Catalysis Concepts to K-12 Students.” *Journal of Chemical Education*. **2016**, *93(8)*, 1406-1410.
1. **Cybulskis, V.J.**; Wang, J.; Pazmiño, J.H.; Ribeiro, F.H.; Delgass, W.N. “Isotopic Transient Studies of Sodium Promotion of Pt/Al<sub>2</sub>O<sub>3</sub> for the Water-Gas Shift Reaction.” *Journal of Catalysis*. **2016**, *339*, 163-172. (Featured Article, July 2016).

### **MANUSCRIPTS IN PREPARATION**

2. **Cybulskis, V.J.**; Zones, S.I.; Chen, C.-Y.; Xie, D.; Davis, M.E.; “Using *n*-Alkane Hydroconversion to Probe Zeolite Internal Pore Architecture and Interpret Unknown Structures.”
1. **Cybulskis, V.J.**; Cui, Y.; Lovón-Quintana, J.J.; Milligan, C.; Delgass, W.N.; Ribeiro, F.H.; “Water Activation by Supported Pt Catalysts for the Water-Gas Shift Reaction.”

### **INVITED PRESENTATIONS**

6. Catalysis Society of Metropolitan New York, 2019 Annual Symposium, Princeton, NY (3/2019).
5. Syracuse University, Biomedical and Chemical Engineering, Syracuse, NY (2/2018).
4. Chevron Energy Technology Company, Richmond, CA (11/2016).
3. Shell Technology Center, Houston, TX (10/2015).
2. ExxonMobil Chemical Company, Baytown, TX (10/2015).
1. Purdue Energy Camp, West Lafayette, IN (6/2012).

### **CONTRIBUTED PRESENTATIONS**

\*Presenting author.

23. **Cybulskis, V.J.\***; “Enabling New Reaction Pathways through Creation of Tailored Molecular Sieve Catalysts.” *Catalysis Gordon Research Conference*, New London, NH (6/2018) – Poster.

22. Brand, S.K.; **Cybulskis, V.J.\***; Davis, M.E.; “Enantioselective Catalysis of Light Oxygenates with Chiral STW Molecular Sieves.” *27<sup>th</sup> Organic Reaction Catalysis Society Conference*, San Diego, CA (4/2018).
21. **Cybulskis, V.J.**; Bukowski, B.C.; Tseng, H.-T.\*; Gallagher, J.R.; Wu, Z.; Wegener, E.; Kropf, A.J.; Ravel, B.; Ribeiro, F.H.; Greeley, J.; Miller, J.T.; “Geometric and Electronic Effects of Zn Promotion on Pt for Ethane Dehydrogenation.” *17<sup>th</sup> Annual Meeting American Institute of Chemical Engineers*, Minneapolis, MN (11/2017).
20. **Cybulskis, V.J.\***; Zones, S.I.; Davis, T.M.; Chen, C.-Y.; Deem, M.W.; Davis, M.E.; “Structure-Property Relationships for Unidimensional, Large and Extra-Large Pore Zeolites Using Alkane Hydrocracking and Hydroisomerization as Probe Reactions.” *17<sup>th</sup> Annual Meeting American Institute of Chemical Engineers*, Minneapolis, MN (10/2017).
19. **Cybulskis, V.J.\***; “Enabling New Reaction Pathways through Creation of Tailored Molecular Sieve Catalysts.” *17<sup>th</sup> Annual Meeting American Institute of Chemical Engineers*, Minneapolis, MN (10/2017) – Faculty Candidate Poster.
18. **Cybulskis, V.J.\***; Zones, S.I.; Davis, T.M.; Chen, C.-Y.; Deem, M.W.; Davis, M.E.; “Structure-Property Relationships for Unidimensional, Large and Extra-Large Pore Zeolites Using Alkane Hydrocracking and Hydroisomerization as Probe Reactions.” *Nanoporous Materials and Their Applications – Gordon Research Conference*, Andover, NH (8/2017) – Poster.
17. **Cybulskis, V.J.\***; Zones, S.I.; Davis, T.M.; Chen, C.-Y.; Deem, M.W.; Davis, M.E.; “Structure-Property Relationships for Unidimensional, Large and Extra-Large Pore Zeolites Using Alkane Hydrocracking and Hydroisomerization as Probe Reactions.” *Nanoporous Materials and Their Applications – Gordon Research Seminar*, Andover, NH (8/2017).
16. **Cybulskis, V.J.\***; Zones, S.I.; Chen, C.-Y.; Davis, M.E.; “High-Silica, Large-Pore Zeolites for Alkane Hydrocracking and Hydroisomerization.” *25<sup>th</sup> North American Meeting of the Catalysis Society*, Denver, CO (6/2017).
15. **Cybulskis, V.J.**; Bukowski, B.C.; Tseng, H.-T.\*; Gallagher, J.R.; Wu, Z.; Wegener, E.; Kropf, A.J.; Ravel, B.; Ribeiro, F.H.; Greeley, J.; Miller, J.T.; “Toward Predictive Design of Supported Metal Catalysts for Light Alkane Upgrading.” *25<sup>th</sup> North American Meeting of the Catalysis Society*, Denver, CO (6/2017).
14. **Cybulskis, V.J.\***; Davis, M.E.; “Synthesis of Formaldehyde-Derived Intermediates by Lewis Acidic Molecular Sieves.” *Catalysis Center for Energy Innovation Spring Symposium*, Newark, DE (5/2017) – Poster.
13. **Cybulskis, V.J.**; Gallagher, J.R.; Tseng, H.-T.; Bukowski, B.C.; Wu, Z.; Wegener, E.; Kropf, A.J.; Ravel, B.; Greeley, J.; Ribeiro, F.H.; Miller, J.T.\*; “Tuning Nanoparticle Alloys to Enhance C-H Bond Activation for the Catalytic Dehydrogenation of Ethane.” *253<sup>rd</sup> American Chemical Society Meeting*, San Francisco, CA (3/2017) – Priestley Medalist Symposium.
12. **Cybulskis, V.J.\***; Gallagher, J.R.; Tseng, H.-T.; Bukowski, B.C.; Wu, Z.; Wegener, E.; Kropf, A.J.; Ravel, B.; Greeley, J.; Ribeiro, F.H.; Miller, J.T.; “Tuning Nanoparticle Alloys to Enhance C-H Bond Activation for the Catalytic Dehydrogenation of Ethane.” *16<sup>th</sup> Annual Meeting American Institute of Chemical Engineers*, San Francisco, CA (11/2016).
11. **Cybulskis, V.J.\***; Cui, Y.; Shekhar, M.; Lovón-Quintana, J.J.; Delgass, W.N.; Ribeiro, F.H.; “The Role of the Support for Pt Catalysts during the Water-Gas Shift Reaction.” *16<sup>th</sup> Annual Meeting American Institute of Chemical Engineers*, San Francisco, CA (11/2016).
10. **Cybulskis, V.J.\***; Cui, Y.; Shekhar, M.; Lovón-Quintana, J.J.; Delgass, W.N.; Ribeiro, F.H.; “The Role of the Support for Pt Catalysts during the Water-Gas Shift Reaction.” *37<sup>th</sup> Annual Michigan Catalysis Society Spring Symposium*, Midland, MI (5/2016).

9. **Cybulskis, V.J.**; Bukowski, B.C.; Tseng, H.-T.; Gallagher, J.R.; Wu, Z.; Wegener, E.; Kropf, A.J.; Ravel, B.; Ribeiro, F.H.\*; Greeley, J.; Miller, J.T.; “Selective C-H Bond Activation by Supported Pt<sub>1</sub>Zn<sub>1</sub> Nanoparticle Alloys during the Catalytic Dehydrogenation of Ethane.” *11<sup>th</sup> Natural Gas Conversion Symposium*, Tromsø, Norway (6/2016) – Keynote Presentation.
8. **Cybulskis, V.J.**; Cui, Y.; Shekhar, M.; Lovón-Quintana, J.J.; Delgass, W.N.; Ribeiro, F.H.\*; “Water Activation by the Supports for Pt Catalysts during the Water-Gas Shift Reaction.” *251<sup>st</sup> American Chemical Society Meeting*, San Diego, CA (3/2016) – Ipatieff Award Symposium.
7. Cui, Y.\*; Li, Z.; Sabnis, K.D.; **Cybulskis, V.J.**; Zhao, Z.-J.; Han, C.W.; Ortolan, V.; Greeley, J.P.; Delgass, W.N.; Ribeiro, F.H.; “Au/MgO Catalyst for the Water Gas Shift Reaction.” *15<sup>th</sup> Annual Meeting American Institute of Chemical Engineers*, Salt Lake City, UT (11/2015).
6. **Cybulskis, V.J.\***; Pradhan, S.U.; Lovón-Quintana, J.J.; Hock, A.S.; Hu, B.; Zhang, G.; Miller, J.T.; Delgass, W.N.; Ribeiro, F.H.; “*Operando* X-ray absorption and kinetic study of single-site gallium catalysts for propane dehydrogenation.” *24<sup>th</sup> North American Meeting of the Catalysis Society*, Pittsburgh, PA (6/2015).
5. **Cybulskis, V.J.\***; Lovón-Quintana, J.J.; Cui, Y.; Delgass, W.N.; Ribeiro, F.H.; “Isotopic transient studies of water activation on supported Pt catalysts during the water-gas shift reaction.” *Catalysis Club of Chicago Spring Symposium*, Naperville, IL (5/2015) – Poster.
4. Cui, Y.\*; Sabnis, K.D.; **Cybulskis, V.J.**; Li, Z.; Akatay, M.C.; Delgass, W.N.; Ribeiro, F.H.; “Fe-Promoted Au/Rutile for the Water-Gas Shift Reaction.” *14<sup>th</sup> Annual Meeting American Institute of Chemical Engineers*, Atlanta, GA (11/2014).
3. Wang, J.; Pazmiño, J.H.; **Cybulskis, V.J.\***; Delgass, W.N.; Ribeiro, F.H.; “An investigation of sodium promotion of Pt/Al<sub>2</sub>O<sub>3</sub> for the water-gas shift reaction by isotopic transient techniques.” *23<sup>rd</sup> North American Meeting of the Catalysis Society*, Louisville, KY (6/2013).
2. Wang, J.; Pazmiño, J.H.; **Cybulskis, V.J.\***; Delgass, W.N.; Ribeiro, F.H.; “The use of isotopic transient techniques to study sodium promotion of Pt/Al<sub>2</sub>O<sub>3</sub> for the water-gas shift reaction.” *Catalysis Club of Chicago Spring Symposium*, Naperville, IL (5/2013) – Poster.
1. Wang, J.\*; Pazmiño, J.H.; **Cybulskis, V.J.**; Shekhar, M.; Williams, W.D.; Miller, J.T.; Delgass, W.N.; Ribeiro, F.H.; “The Use of Isotopic Transient Techniques to Investigate the Nature of Alkali Promotion for the Water-Gas Shift Reaction on Pt Catalysts.” *12<sup>th</sup> Annual Meeting American Institute of Chemical Engineers*, Pittsburgh, PA (10/2012).

## **PATENTS**

1. **Cybulskis, V.J.**; Webber, K.M.; “Steam Cracking Process.” U.S. Patent Application US-20110073524-A1 (2011), filed on September 25 (2009).

## **PROFESSIONAL SERVICE AND ACTIVITIES**

**Licensure:** Professional Engineer (PE11400325), Indiana (2014-Current)

**Leadership:** Academia Young Professionals Liaison, AIChE (2015-2017)

**Advisory:** Professional Engineer (PE) Taskforce, AIChE (2016-2018)

**Sessions Chaired and Organized:** Gordon Research Seminar in Catalysis (2018), AIChE Annual Meeting (2017-2019)

**Manuscript Reviewer:** Journal of Catalysis, Journal of Physical Chemistry C, Journal of Chemical Education, Science Advances

**Proposal Reviewer:** National Science Foundation (CBET-Catalysis and Biocatalysis)

**Conference Abstract Peer Reviewer:** North American Meeting of the Catalysis Society

**Outreach Activities (K-12):** Innovation-to-Reality (I2R) through Purdue Women In Engineering program (10/2015), Engineering FYI: For Your Imagination through Purdue Women In Engineering program (7/2015), Duke Energy Academy at Purdue (6/2015), Innovation-to-Reality (I2R) through Purdue Women In Engineering program (4/2015), and Purdue Energy Camp (6/2012)

**Department Service:** Syracuse BMCE Ph.D. Admissions Committee (2019), Syracuse BMCE Faculty Search Committee (2018-2019), Purdue ChE Head Search Committee (2015-2016), Purdue ChE Safety Committee (2014-2015), Purdue ChE Laboratory Safety Officer (2013-2014)

**Member:** American Chemical Society (ACS), American Institute of Chemical Engineers (AIChE), Catalysis Society of Metropolitan New York, International Zeolite Association (IZA), National Society of Professional Engineers (NSPE), North American Catalysis Society (NACS), Omega Chi Epsilon ( $\Omega$ XE)

## **TEACHING EXPERIENCE**

**Chemical Engineering Laboratory II (CEN 412), Undergraduate Core Course:** Fall 2019, Fall 2018 (28 students)

## **CURRENT RESEARCH GROUP**

### **Ph.D. Students:**

- Hansheng Li (Jan. 2019-Current). ChE, Syracuse University.

### **Undergraduate Students:**

- Reem Alqasayar (Jan. 2019-Current). ChE, Syracuse University.
- Wenlin He (Jan. 2019-Current). ChE, Syracuse University.
- Jingzhi Liu (Jan. 2019-Current). ChE, Syracuse University.