

VIKTOR J. CYBULSKIS, P.E.

Syracuse University Biomedical and Chemical Engineering
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EDUCATION

Ph.D.	Purdue University , Chemical Engineering, West Lafayette, IN	5/2016
B.S.	Purdue University , Chemical Engineering, West Lafayette, IN	5/2005

PROFESSIONAL EXPERIENCE

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

AWARDS AND RECOGNITION

ACS PRF Doctoral New Investigator Award (<i>ACS Petroleum Research Fund</i>)	2022
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 th Annual Spring Symposium Oral Presentation Award (<i>Michigan Catalysis Society</i>)	2016
Graduate Student Symposium 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
Spring Symposium Student Poster Award (<i>Catalysis Club of Chicago</i>)	2013
Eastman Chemical Company Travel Award (<i>Purdue ChE</i>)	2013
Eagle Scout (<i>Boy Scouts of America</i>)	2000

PUBLICATIONS

13. Roslova, M.; Cybulskis, V.J.; Davis, M.E.; Zones, S.I.; Zou, X.; Xie, D. "Structure Elucidation and Computationally Guided Synthesis of SSZ-43: A One-Dimensional 12-Membered Ring Zeolite with Unique Sinusoidal Channels." *Angewandte Chemie International Edition*. **2022**, *61*, 1-9. (Hot Paper).
12. Zhu, R.; Liu, B.; Wang, S.; Huang, X.; Schuarca, R.L.; He, W.; Cybulskis, V.J.; Bond, J.Q. "Understanding the Mechanism(s) of Ketone Oxidation on VO_x/γ-Al₂O₃." *Journal of Catalysis*. **2021**, *404*, 109-127.

11. Cybulskis, V.J.; Gawecki, P.; Zvinevich, Y.; Gounder, R.; Ribeiro, F.H. “Demonstrating Concepts in Catalysis, Renewable Energy, and Chemical Safety with the Catalytic Oxidation of Hydrogen.” *Journal of Chemical Education*. **2021**, *98*(6), 2036-2041.
10. Cybulskis, V.J.; Gounder, R.; Mojarad, S.; Davis, M.E. “Initiating a Research-Focused Academic Career in Chemical Engineering: Perspectives from Faculty at Different Career Stages.” *AIChE Journal*. **2020**, *66*(4), 1-9.
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/SiO₂.” *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/Al₂O₃ for the Water-Gas Shift Reaction.” *Journal of Catalysis*. **2016**, *339*, 163-172. (Featured Article, July 2016).

INVITED PRESENTATIONS

7. He, W.; Cybulskis, V.J.; “Catalytic Behavior of Lewis Acid Zeotypes for Cross-Aldol Reactions between Aldehydes.” *American Chemical Society, Spring 2021 National Meeting, Surface Chemistry and Solvation Effects for Catalysis in Confined Environments Symposium*, Virtual (4/2021).
6. Cybulskis, V.J.; “Synthetic Routes to Chemical Building Blocks and Carbohydrates from Formaldehyde.” *Catalysis Society of Metropolitan New York, 2019 Annual Symposium*, Princeton, NY (3/2019).
5. Cybulskis, V.J.; “Connecting Structure and Function: Using Alkane Probe Reactions to Evaluate Physicochemical Properties and Guide Catalyst Design.” *Syracuse University, Biomedical and Chemical Engineering*, Syracuse, NY (2/2018).
4. Cybulskis, V.J.; “Synthesis of Unidimensional Zeolites for Alkane Hydrocracking and Hydroisomerization.” *Chevron Energy Technology Company*, Richmond, CA (11/2016).
3. Cybulskis, V.J.; “Catalysis by Supported Noble Metals for the Water-Gas Shift Reaction.” *Shell Technology Center*, Houston, TX (10/2015).
2. Cybulskis, V.J.; “Catalysis by Supported Metals for Water-Gas Shift and Alkane Dehydrogenation.” *ExxonMobil Chemical Company*, Baytown, TX (10/2015).

1. Cybulskis, V.J.; “Catalysis for Clean Energy.” *Purdue Energy Camp*, West Lafayette, IN (6/2012).

CONTRIBUTED PRESENTATIONS

*Presenting author.

33. He, W.*; Zhang, Z.; Flaherty, D.W.; Cybulskis V.J.; “Assessing Lewis Acidity and Confinement for Zeotype-Catalyzed Aldol Condensation between Lower Aldehydes.” *27th North American Meeting of the Catalysis Society*, New York, NY (5/2022).
32. Mon, T.*; Liu, J.; Cybulskis, V.J.; Kyriakidou, E.; “High-Silica Pd/LTA Catalysts for Low Temperature CH₄ Oxidation.” *27th North American Meeting of the Catalysis Society*, New York, NY (5/2022) – Poster.
31. Liu, J.*; Mon, T.; Kyriakidou, E.; Cybulskis, V.J.; “Designing Pd/CHA Zeolite Catalysts for Complete Methane Oxidation.” *27th North American Meeting of the Catalysis Society*, New York, NY (5/2022) – Poster.
30. He, W.*; Cybulskis, V.J.; “Examining Acid-Base Cooperativity in Zeotype Catalysts to Direct Cross-Aldol Condensation Reactions between Aldehydes.” *42nd Annual Michigan Catalysis Society Symposium*, Virtual (9/2021).
29. Liu, J.*; Mon, T.; Kyriakidou, E.; Cybulskis, V.J.; “Examining Pd Small-Pore Zeolites for Low-Temperature Catalytic Oxidation of Methane.” *42nd Annual Michigan Catalysis Society Symposium*, Virtual (9/2021).
28. Mon, T.*; Liu, J.; Cybulskis, V.J.; Kyriakidou, E.; “Improved Low Temperature CH₄ Oxidation over Pd/H-LTA with Si/Al > 8.” *2021 CLEERS Workshop*, Virtual (9/2021).
27. He, W.*; Cybulskis, V.J.; “Examining Acid-Base Cooperativity in Zeotype Catalysts to Direct Cross-Aldol Condensation Reactions between Aldehydes.” *Catalysis Club of Chicago Spring Symposium*, Virtual (5/2021) – Poster.
26. Mon, T.*; Chen, J.; Liu, C.H.; Liu, J.; Cybulskis, V.J.; Kyriakidou, E.; “Development of Zeolite-Based Catalysts for Improved Low Temperature CH₄ Conversion.” *NREL Natural Gas Vehicle Technology Forum*, Virtual (5/2021).
25. Cybulskis, V.J.*; “Synthetic Routes to Chemical Building Blocks from Formaldehyde over Lewis Acidic Molecular Sieves.” *2019 American Institute of Chemical Engineers Annual Meeting*, Orlando, FL (11/2019).
24. Cybulskis, V.J.*; “A Synthetic Route to Platform Chemicals through a Formose-Inspired Approach with Lewis Acidic Zeotypes.” *Nanoporous Materials and Their Applications – Gordon Research Conference*, Andover, NH (8/2019) – Poster.
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.” *27th 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.” *2017 American Institute of Chemical Engineers Annual Meeting*, 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.” *2017 American Institute of Chemical Engineers Annual Meeting*, Minneapolis, MN (10/2017).
19. Cybulskis, V.J.*; “Enabling New Reaction Pathways through Creation of Tailored Molecular Sieve Catalysts.” *2017 American Institute of Chemical Engineers Annual Meeting*, 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.” *25th 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.” *25th 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.” *255rd 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.” *2016 American Institute of Chemical Engineers Annual Meeting*, 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.” *2016 American Institute of Chemical Engineers Annual Meeting*, 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.” *37th 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 Pt₁Zn₁ Nanoparticle Alloys during the Catalytic Dehydrogenation of Ethane.” *11th 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.” *251st 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.; Ortalan, V.; Greeley, J.P.; Delgass, W.N.; Ribeiro, F.H.; “Au/MgO Catalyst for the Water Gas Shift Reaction.” *2015 American Institute of Chemical Engineers Annual Meeting*, 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.” *24th 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.” *2014 American Institute of Chemical Engineers Annual Meeting*, 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/Al₂O₃ for the Water-Gas Shift Reaction by Isotopic Transient Techniques.” *23rd 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/Al₂O₃ 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.” *2012 American Institute of Chemical Engineers Annual Meeting*, Pittsburgh, PA (10/2012).

PATENTS

2. Cybulskis, V.J.; “On-site Destruction of Recalcitrant Perfluoroalkyl Substances by Molecular Sieves.” U.S. Patent Application 17/529,738 filed on November 18 (2021).
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 - Indiana PE11400325 (2014-Current), New York 102007 (2019-Current)

Leadership and Conference Organization:

- Technical Program Committee Member, 28th North American Catalysis Society Meeting, Providence, RI (2022-2023)
- Secretary, AIChE Licensing and Professional Development Committee (2020-Current)
- Chair, Gordon Research Seminar in Catalysis (2018)
- Academia Liaison, AIChE Young Professionals Committee (2015-2017)

Sessions Chaired and Organized: North American Catalysis Society Meeting (2019, 2022), AIChE Annual Meeting (2017-2021)

Manuscript Reviewer: ACS Catalysis, ACS Engineering Au, Chemical Engineering Science, Chemistry of Materials, Journal of the American Chemical Society, Journal of Catalysis, Journal of Chemical Education, Journal of Physical Chemistry C, Physical Chemistry Chemical Physics, Reaction Chemistry and Engineering, Science Advances

Proposal Reviewer: National Science Foundation (CBET-Catalysis, CHE-Chemical Catalysis), CenterState NY Corporation for Economic Opportunity (Grants for Growth), U.S. Department of Energy (Office of Science-Catalysis Science, SBIR-STTR)

Conference Abstract Peer Reviewer: North American Catalysis Society Meeting (2013, 2019, 2022)

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 and University Service: Syracuse BMCE Graduate Seminar Series (2021-Current), Syracuse University Chemical Receiving & Tracking Group (2019-2021), Syracuse BMCE Ph.D. Admissions Committee (2019-Current), Syracuse BMCE Faculty Search Committee (2018-Current), 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), Michigan Catalysis Society (MCS), North American Catalysis Society (NACS), Omega Chi Epsilon (ΩXE)

TEACHING EXPERIENCE

Process Design (CEN 474), Undergraduate Core Course: Spring 2022 (Co-Instructor, 19 students)

Methods in Materials Characterization (CEN 400/600, regularized as CEN 429/629), Elective Course: Spring 2021 (16 students), Spring 2020 (16 students)

Chemical Engineering Laboratory II (CEN 412), Undergraduate Core Course: Fall 2022 (TBD) Fall 2021 (19 students), Fall 2020 (22 students), Fall 2019 (25 students), Fall 2018 (28 students)

Teaching Development: ASEE/AICHE Summer School for Engineering Faculty (2022), Aspen Tech Process Modeling using Aspen Plus (2021), Gateway Course Redesign Workshop at Syracuse University (2019)

CURRENT RESEARCH GROUP

Ph.D. Students (3)

- Weixin Li (8/2020-Current) Syracuse University
- Wenlin He (1/2020-Current) Syracuse University (*Graduate Fellow*)
- Jingzhi Liu (8/2019-Current) Syracuse University

RESEARCH GROUP ALUMNI

*Undergraduate student enrolled in graduate school.

Visiting Researchers (1)

- Hansheng Li (2021) Syracuse University, **Ph.D. Student at Syracuse University** (*Quinn Qiao*)

Undergraduate Students (6)

- Jacob Shellhamer (2020) Syracuse University
- Brent Gosselin* (2020) Syracuse University, **BS/MBA (3-2 Program) at Syracuse University**
- Reem AlQasayar* (2020) Syracuse University, **Ph.D. Student at UPenn** (*Daeyeon Lee, Ray Gorte*)
- Dakota Story (2019) Syracuse University (*ECS Leadership Scholar*)
- Wenlin He* (2019) Syracuse University, **Ph.D. Student at Syracuse University**
- Jingzhi Liu* (2019) Syracuse University, **Ph.D. Student at Syracuse University**