

**Prof. Yang Xiao, Ph. D.**

Assistant Professor of Chemical Engineering

Principal Investigator of *Reaction Engineering and Catalysis Science Laboratory (RECSL)*

Department of Chemical Engineering, Institute for Micromanufacturing (IfM)

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Postdoc	<b>Purdue University</b> (West Lafayette, Indiana)	2015 - 2018
Ph.D. in Chemical Engineering	<b>Southeast University</b> (Nanjing, China)	2010 - 2015
<i>Co-advisors:</i>		
	<i>Prof. Arvind Varma, Purdue University</i>	<i>2012 - 2015</i>
	<i>Prof. Guomin Xiao, Southeast University</i>	<i>2010 - 2012</i>
B.S. in Chemical Engineering	<b>Southeast University</b> (Nanjing, China)	2006 - 2010

**Ph. D. Dissertation**

Yang Xiao, Heterogeneous Catalysis for Biodiesel Production and Utilization of its Byproduct Crude Glycerol by Selective Oxidation, Southeast University (China), May **2015**, 137 + xii pages. Co-advised by Prof. Arvind Varma (*Purdue University*) and Prof. Guomin Xiao (*Southeast University*).

**Appointments**

<b>Assistant Professor</b>	Louisiana Tech University	2022 - Present
<b>Senior Research Engineer (PI)</b>	Purdue University	2019 - 2022
<b>Research Scientist</b>	Purdue University	2018 - 2019

**Grants and Awards**

<i>TIRE Grant (PI)</i>	Louisiana Transportation Research Center	2024 - Present
<i>ERI Grant (PI)</i>	National Science Foundation	2024 - Present
<i>LAMDA LINK Award (PI)</i>	NSF EPSCoR	2024 - Present
<i>LAMDA Track 1B Award (PI)</i>	NSF EPSCoR	2023 - Present
<i>REA Grant (PI)</i>	NASA EPSCoR	2023 - Present
<i>ACS Project SEED (co-PI)</i>	American Chemical Society	2023

**Research Group****Ph.D. Graduate Students:**

Tobias K. Misicko	Louisiana Tech University	2022 - present
Xiaoyang Gao ( <i>co-advised</i> )	Louisiana Tech University	2022 - present

Joaquin Herrero	Louisiana Tech University	2024 - <i>present</i>
Mantasha Noyela	Louisiana Tech University	2024 - <i>present</i>

**Master's Graduate Students:**

Henrik Ketting	Louisiana Tech University	2023 - <i>present</i>
Gabriel Chukwuka ( <i>co-advised</i> )	Louisiana Tech University	2023 - <i>present</i>
Thapaswi Movva	Louisiana Tech University	2024 - <i>present</i>

**Undergraduate Students:**

Piper Smith	Louisiana Tech University	2023 - <i>present</i>
Caroline Cresap	Louisiana Tech University	2023 - <i>present</i>
Sean Clay	Louisiana Tech University	2023 - <i>present</i>
Sarah Siharath	Louisiana Tech University	2023 - <i>present</i>
Robert Martin	Louisiana Tech University	2023 - <i>present</i>

**Group Alumni****Undergraduate Students:**

Brady Duplessis	Louisiana Tech University	2022 - 2023
Paul Macip	Louisiana Tech University	2022 - 2023
Jacob Christ	Louisiana Tech University	2022 - 2023

**High School Students:**

Piper Smith	2023
Mir Z. Ali	2023

**Teaching Experience**

<i>Sustainable Chemical Processes (CMEN 450)</i>	Louisiana Tech University	Present (Fall Quarter)
<i>Sustainable Chemical Processes (CMEN 557)</i>	Louisiana Tech University	Present (Fall Quarter)
<i>Chemical Plant Design I (CMEN 431)</i>	Louisiana Tech University	Present (Fall Quarter)
<i>Chemical Plant Design II (CMEN 432)</i>	Louisiana Tech University	Present (Winter Quarter)
<i>Chemical Plant Design III (CMEN 434)</i>	Louisiana Tech University	Present (Spring Quarter)
<i>Transport Phenomena (CMEN 304)</i>	Louisiana Tech University	2022 - 2024
<i>Engineering Problem Solving II (ENG 121)</i>	Louisiana Tech University	2022 - 2023
<i>Heat and Mass Transfer (CHE 378)</i>	Purdue University	2021
<i>Chemical Reaction Engineering (CHE 660)</i>	Purdue University	2019
<b>(Co-Instructor)</b>		

**Research Publications**

\* *corresponding authors*; † *these authors contributed equally*

31. Hao Li, Xue Liu, Yan Zhang, Yang Xiao\*, and Kun Cao\*, A Kinetic Model of the Cycloaddition Reactions Between Cyclopentadiene and 1, 3-Butadiene for Synthesis of 5-vinyl-2-norbornene, The Cana-

- dian Journal of Chemical Engineering, In Press, DOI: 10.1002/cjce.25172, **2024**.
30. Zhe Li<sup>†</sup>, Tobias K. Misicko<sup>†</sup>, Fan Yang<sup>†</sup>, Xiaopeng Liu, Zhenwei Wu, Xiaoyang Gao, Tao Ma, Jeffrey T. Miller, Daniela S. Mainardi, Collin D. Wick, Zhenhua Zeng\*, Yang Xiao\*, Yue Wu\*, Two-dimensional Atomically Thin Pt Layers on MXenes: The Role of Electronic Effects During Catalytic Dehydrogenation of Ethane and Propane, *Nano Research*, **2024**, 17 (3), 1251-1258.
  29. Zhichao Shang, Teng Wang, Aoxia Ren, Yong Yu, Yan Zheng, Yuan Tao, Peizhong Feng, Yang Xiao\*, Xiaohong Wang\*, Hollow Macroporous CeO<sub>2</sub>/β-Bi<sub>2</sub>O<sub>3</sub> Heterostructure Sphere via One-step Spray Solution Combustion Synthesis for Efficient Photocatalysis, *Applied Surface Science*, **2023**, 619, 156718.
  28. Yang Xiao\*, Anand Ramanathan, Bala Subramaniam and Arvind Varma, Guaiacol Hydrodeoxygenation and Hydrogenation over Bimetallic Pt-M (Nb, W, Zr)/KIT-6 Catalysts with Tunable Acidity, *ACS Sustainable Chemistry & Engineering*, **2022**, 10 (15), 4831-4833.
  27. Zhichao Shang, Yong Yu, Hang Yang, Zhongxiang Yang, Yang Xiao\*, Xiaohong Wang\* One-step Solution Combustion Synthesis of Micro/nano-scale Porous Cu/CeO<sub>2</sub> with Enhanced Photocatalytic Properties, *Journal of Rare Earths*, **2023**, 41 (2), 250-258.
  26. Zhe Li<sup>†</sup>, Yang Xiao\*<sup>†</sup>, Prabudhya Roy Chowdhury, Zhenwei Wu, Tao Ma, Johnny ZhuChen, Gang Wan, Tae-Hoon Kim, Dapeng Jing, Peilei He, Pratik J. Potdar, Lin Zhou, Zhenhua Zeng, Xiulin Ruan, Jeffrey T. Miller, Jeffrey P. Greeley, Yue Wu\*, Direct Methane Activation by Atomically Dispersed Platinum Nanolayers on Two-dimensional Metal Carbides (MXenes), *Nature Catalysis*, **2021**, 4, 882-891.
  25. Ruiping Wei, Xumin Qu, Yang Xiao\*, Jingdeng Fan, Gaoli Geng, Lijing Gao, Guomin Xiao, Glycerol Hydrogenolysis Propanediols over Silicotungstic Acid Catalysts Intercalated with CuZnFe Hydrotalcite-like Compounds **2021**, *Catalysis Today*, **2021**, 368, 224-231.
  24. Chunxiao Xu, Yayong Li, Ryan A. Adams, Vilas G. Pol, Yang Xiao, Arvind Varma, Pengwan Chen, One-Step Combustion Synthesis of Carbon-Coated NiO/Ni Composites for Lithium and Sodium Storage, *Journal of Alloys and Compounds*, **2021**, 310, 110578.
  23. Yuanfeng Wu, Yang Xiao, Hui Yuan, Zongqi Zhang, Shengbin Shi, Ruiping Wei, Lijing Gao and Guomin Xiao, Imidazolium ionic liquid functionalized UiO-66-NH<sub>2</sub> as highly efficient catalysts for chemical fixation of CO<sub>2</sub> into cyclic carbonates, *Microporous and Mesoporous Materials*, **2021**, 310, 110578.
  22. Feng Jiang, Shanshan Wang, Bing Liu, Jie Liu, Li Wang, Yang Xiao, Yuebing Xu, and Xiaohao Liu, Insights into the Influence of CeO<sub>2</sub> Crystal Facet on CO<sub>2</sub> Hydrogenation to Methanol over Pd/CeO<sub>2</sub> Catalysts *ACS Catalysis*, **2020**, 10 (19), 11493–11509.
  22. Yuanfeng Wu, Yang Xiao, Hui Yuan, Zongqi Zhang, Shengbin Shi, Ruiping Wei, Lijing Gao and Guomin Xiao, Imidazolium ionic liquid functionalized UiO-66-NH<sub>2</sub> as highly efficient catalysts for chemical fixation of CO<sub>2</sub> into cyclic carbonates, *Microporous and Mesoporous Materials*, **2021**, 310, 110578.
  21. Zhichao Shang, Zhongxiang Yang, Yang Xiao\*, and Xiaohong Wang\*, Ordered mesoporous Ag/CeO<sub>2</sub> nanocrystalline via silica-templated solution combustion for enhanced photocatalytic performance, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **2020**, 604, 125301.
  20. Yang Xiao\*, Rexonni Lagare, Lindsey Blanshan, Enrico N. Martinez, and Arvind Varma, Refinement of the Kinetic Model for Guaiacol Hydrodeoxygenation over Platinum Catalysts, *AIChE Journal*, **2020**,

- 66 (5), e16913.
19. Kanak Roy, Luca Artiglia, Yang Xiao, Arvind Varma and Jeroen A. van Bokhoven, Role of Bismuth in the Stability of Pt-Bi Bimetallic Catalyst for Methane Mediated Deoxygenation of Guaiacol, an APXPS study, *ACS Catalysis*, **2019**, 9 (4), 3694-3699.
  18. Johnny ZhuChen, Zhenwei Wu, Xiaoben Zhang, Slgi Choi, Yang Xiao, Arvind Varma, Wei Liu, Guanghui Zhang and Jeffrey T. Miller, Identification of the Structure of the Bi Promoted Pt Non-oxidative Coupling of Methane Catalyst: A Nanoscale Pt<sub>3</sub>Bi Intermetallic Alloy, *Catalysis Science & Technology*, **2019**, 9, 1349-1356.
  17. Yuan Wang, Yang Xiao\* and Guomin Xiao, Sustainable Value-added C<sub>3</sub> Chemicals from Glycerol Transformations: A Mini Review for Heterogeneous Catalytic Processes, **2019**, *Chinese Journal of Chemical Engineering*, **2019**, 27, 1536-1542.
  16. Xiaoni Du, Xiaohong Wang and Yang Xiao, Bi<sub>5</sub>O<sub>7</sub>NO<sub>3</sub> and Ag/Bi<sub>5</sub>O<sub>7</sub>NO<sub>3</sub> Composites: One-step Solution Combustion Synthesis, Characterization and Photocatalytic Properties, *CrystEngComm*, **2018**, 20, 7536-7542.
  15. Yang Xiao, Yuan Wang and Arvind Varma, Low-Temperature Selective Oxidation of Methanol over Pt-Bi Bimetallic Catalysts, *Journal of Catalysis*, **2018**, 363, 144-153.
  14. Yang Xiao and Arvind Varma, Highly Selective Nonoxidative Coupling of Methane over Pt-Bi Bimetallic Catalysts, *ACS Catalysis*, **2018**, 8 (4), 2735-2740.
  13. Yang Xiao and Arvind Varma, Bio-oil Upgrading Using Methane: A Mechanistic Study of Model Compound Guaiacol Reactions over Pt-Bi Bimetallic Catalysts, *ACS Sustainable Chemistry & Engineering*, **2018**, 6 (12), 17368-17375.
  12. Yang Xiao and Arvind Varma, Kinetics of Glycerol Conversion to Hydrocarbon Fuels over Pd/H-ZSM-5 Catalyst, *AIChE Journal*, **2017**, 63 (12), 5445-5451.
  11. Yang Xiao and Arvind Varma, Kinetics of Guaiacol Deoxygenation over the Pt-Bi Catalyst, *Reaction Chemistry & Engineering*, **2017**, 2, 36-43.
  10. Yang Xiao, Jeffrey Greeley, Arvind Varma, Zhi-Jian Zhao and Guomin Xiao, An Experimental and Theoretical Study of Glycerol Oxidation to 1,3-Dihydroxyacetone Over Bimetallic Pt-Bi Catalysts, *AIChE Journal*, **2017**, 63 (2), 705-715. (as Most Read Article)
  9. Yang Xiao and Arvind Varma, Conversion of Glycerol to Hydrocarbon Fuels via Bifunctional Catalysts, *ACS Energy Letters*, **2016** 1 (5), 963-968.
  8. Danni Gao, Yang Xiao and Arvind Varma, Guaiacol Hydrodeoxygenation over Platinum Catalyst: Reaction Pathways and Kinetics, *Industrial & Engineering Chemistry Research*, **2015**, 54 (43), 10638-10644.
  7. Yang Xiao and Arvind Varma, Catalytic Deoxygenation of Guaiacol Using Methane, *ACS Sustainable Chemistry & Engineering*, **2015**, 3 (11), 2606-2610.
  6. Haoyang Li, Xiaomei Pan, Yang Xiao, Guomin Xiao and Jinjin Huang, Simulation of Biodiesel Industrial Production via Solid Base Catalyst in a Fixed-bed Reactor, *Journal of Southeast University (English Edition)*, **2014**, 30 (3), 380-386.
  5. Yang Xiao, Guomin Xiao and Arvind Varma, A Universal Procedure for Crude Glycerol Purification

from Different Feedstocks in Biodiesel Production: Experimental and Simulation Study, *Industrial & Engineering Chemistry Research*, **2013**, 52 (39), 14291-14296.

4. Yang Xiao, Haoyang Li, Guomin Xiao, Lijing Gao and Xiaomei Pan, Simulation of the Catalytic Reactive Distillation Process for Biodiesel Production via Transesterification, *International Conference on Materials for Renewable Energy and Environment*, Chengdu, China, **2013**, 1, 196-199.
3. Guomin Xiao, Haoyang Li and Yang Xiao, Applications of Chemical Simulation Softwares in the Course of Transport Phenomena, *Chemical Industry Times*, **2012**, 26 (10), 53-59.
2. Yang Xiao, Lijing Gao, Guomin Xiao, Baosong Fu and Lei Niu, Experimental and Modeling Study of Continuous Catalytic Transesterification to Biodiesel in a Bench-Scale Fixed-Bed Reactor, *Industrial & Engineering Chemistry Research*, **2012**, 51 (37), 11860-11865.
1. Yang Xiao, Lijing Gao, Guomin Xiao and Jianhua Lv, Kinetics of the Transesterification Reaction Catalyzed by Solid Base in a Fixed-bed Reactor, *Energy & Fuels*, **2010**, 24 (11), 5829-5833.

## U. S. Patents and Patent Applications

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6. Yang Xiao, Arvind Varma, Zhe Li and Yue Wu, Transition Metal Carbides for Catalytic Methane Activation, Patent No. US11524279B1, December 13, **2022**.
5. Yang Xiao, Arvind Varma, Anand Ramanathan, and Bala Subramaniam, Method of Enhanced Aromatic Products from Bio-oil Upgrading, Patent Application US20220356137A1, June 22, **2019**.
4. Yang Xiao and Arvind Varma, Catalytic Deoxygenation of Bio-Oils Using Methane, Patent, No. US10023809 B2, July 17, **2018**.
3. Yang Xiao and Arvind Varma, Method of Producing Formaldehyde from Methanol, Patent No. US10392333B2, December 19, **2018**.
2. Yang Xiao and Arvind Varma, Method of Conversion of Glycerol to Hydrocarbon Fuels, Patent No. US10781376B2, October 3, **2018**.
1. Yang Xiao and Arvind Varma, Non-oxidative Production of Hydrocarbon from Methane, Patent No. US10450247B2, September 19, **2018**.

## Conference Presentations

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37. Yang Xiao, Zhe Li, Tobias Misicko, Jeff T. Miller, Yue Wu, Arvind Varma Atomically Thin Platinum Nanolayers on MXene for Catalytic Non-oxidative Coupling of Methane, *The 27th International Symposium for Chemical Reaction Engineering (ISCRE 27)*, Quebec City, Quebec, Canada, June 11-14, **2023**.
36. Tobias Misicko and Yang Xiao Thermal Runaway of Catalytic Reactors: an Experimental, Modeling and Machine-Learning Study *Southeastern Catalysis Society 2023 Annual Symposium*, Tuscaloosa, AL, February 27 - 28, **2023**.
35. Yang Xiao, Tobias Misicko, Jeffrey Miller and Yue Wu, Atomically Thin Pt Nanolayer Catalysts Supported on Two-dimensional Molybdenum Titanium Carbide (MXene) for Shale Gas Conversion, *Southeastern Catalysis Society 2023 Annual Symposium*, Tuscaloosa, AL, February 27 - 28, **2023**.
34. Zhe Li, Yang Xiao, Prabudhya Chowdhury, Zhenwei Wu, Tao Ma, Johnny Zhuchen, Gang Wan, Tae-

- Hoon Kim, Dapeng Jing, Peilei He, Pratik Potdar, Lin Zhou, Zhenhua Zeng, Xiulin Ruan, Jeffrey T. Miller, Jeffrey Greeley, Yue Wu and Arvind Varma, Nonoxidation Coupling of Methane over Nano-Layer Platinum Catalysts on Two-Dimensional Metal Carbides (MXenes), *AIChE Annual Meeting*, Phoenix, AZ, November 13 - 18, **2022**.
33. Yang Xiao, Anand Ramanathan, Bala Subramaniam and Arvind Varma, Guaiacol Hydrodeoxygenation and Hydrogenation over Bimetallic Pt-M (Nb, W, Zr)/KIT-6 Catalysts with Tunable Acidity *AIChE Annual Meeting*, Phoenix, AZ, November 13 - 18, **2022**.
32. Yang Xiao, Pratik Potdar, Kaida Liu, Arvind Varma and Guomin Xiao A Machine Learning Tool for Thermal Runaway Prediction of Chemical Reactors *AIChE Annual Meeting (Virtual)* November 16 - 20, **2020**.
31. Yang Xiao, Feng Jiang, Guomin Xiao and Arvind Varma, CO<sub>2</sub> Hydrogenation to Ethanol over Pd/Bi<sub>2</sub>O<sub>3</sub> Catalysts: The Synergistic Effect of Pd Particle Size and Surface Oxygen Vacancy *AIChE Annual Meeting (Virtual)* November 16 - 20, **2020**.
30. Yang Xiao and Arvind Varma, Parametric Sensitivity and Runaway in Fixed-Bed Reactors: Example of Methanol Selective Oxidation over Pt-Bi Catalysts, *AIChE Annual Meeting*, Orlando, Florida, November 10-15, **2019**.
29. Yang Xiao, Anand Ramanathan, Bala Subramaniam and Arvind Varma, Enhanced Aromatic Selectivity during Deoxygenation of Phenolic Model Compounds over Bifunctional Catalysts, *AIChE Annual Meeting*, Orlando, Florida, November 10-15, **2019**.
28. Yang Xiao, Anand Ramanathan, Bala Subramaniam and Arvind Varma, Enhanced Aromatic Selectivity during Deoxygenation of Phenolic Model Compounds over Bifunctional Catalysts, *2019 North American Catalysis Society Meeting (NAM26)*, Chicago, Illinois, June 23-28, **2019**.
27. Johnny ZhuChen, Zhenwei Wu, Slgi Choi, Yang Xiao, Arvind Varma, Wei Liu, Guanghui Zhang and Jeffrey T. Miller, Structure Determination of Nanoscale Pt<sub>3</sub>Bi Intermetallic Alloy Catalysts for Non-Oxidative Coupling of Methane and Propane Dehydrogenation, *2019 North American Catalysis Society Meeting (NAM26)*, Chicago, Illinois, June 23-28, **2019**.
26. Yang Xiao and Arvind Varma, A Mechanistic Study of Glycerol Conversion to Aromatic Hydrocarbons over Bifunctional Metal-Supported H-ZSM-5 Catalysts, *The 4th North American Symposium for Chemical Reaction Engineering (NASCRE 4)*, **invited talk in honor of Prof. Dan Luss' contributions to the field of chemical reaction engineering**, Houston, Texas, March 10-13, **2019**.
25. Yang Xiao and Arvind Varma, Highly Selective Nonoxidative Coupling of Methane (NOCM) over Pt-Bi Bimetallic Catalysts, *AIChE Annual Meeting*, Pittsburgh, Pennsylvania, October 28 - November 2, **2018**.
24. Arvind Varma and Yang Xiao, Bio-Oil Upgrading Using Methane: A Mechanistic Study of Model Compound Guaiacol Reactions over Pt-Bi Bimetallic Catalysts, **invited talk in honor of Prof. Doraiswami Ramkrishna' contributions to the field of chemical reaction engineering**, *AIChE Annual Meeting*, Pittsburgh, Pennsylvania, October 28 - November 2, **2018**.
23. Yang Xiao, Yuan Wang and Arvind Varma, Methanol Conversion to Formaldehyde at Low Temperatures over Pt-Bi Bimetallic Catalysts, *AIChE Annual Meeting*, Pittsburgh, Pennsylvania, October 28 - November 2, **2018**.



22. Yang Xiao and Arvind Varma, Bimetallic Catalysis for Various Shale Gas and Biomass Conversions, *AIChE Annual Meeting*, Pittsburgh, Pennsylvania, October 28 - November 2, **2018**.
21. Rexonni B. Lagare, Yang Xiao and Arvind Varma, Direct Catalytic Conversion of Methane to Liquid Oxygenates *CISTAR Biannual Meeting*, Albuquerque, NM, October 3-5, **2018**.
20. Yang Xiao and Arvind Varma, Upgrading Bio-Oil Model Compound over Pt-Based Catalysts: A Comparative Study Using Hydrogen and Methane, *International Symposium on Chemical Reaction Engineering (ISCRE-25)*, Florence, Italy, May 20 - 23, **2018**.
19. Yang Xiao and Arvind Varma, Highly Selective Nonoxidative Coupling of Methane (NOCM) over Pt-Bi Bimetallic Catalysts *The Catalysis Club of Chicago 2018 Spring Symposium*, Chicago, Illinois, May 11, **2018**.
18. Yang Xiao, Yuan Wang and Arvind Varma, Low-Temperature Selective Oxidation of Methanol to Formaldehyde over Pt-Bi Bimetallic Catalysts, *39th Annual Michigan Catalysis Society Spring Symposium*, Midland, Michigan, May 3, **2018**.
17. Lindsey Blanshan, Yang Xiao and Arvind Varma, Catalytic Conversion of Biomass Model Compounds to Biofuels over Pt-based Supported Catalysts, *AIChE North Central Regional Conference*, West Lafayette, IN, April 6 - 7, **2018**.
16. Yang Xiao and Arvind Varma, Insight and Applications of Pt-Bi Bimetallic Catalysts: A Combined Experimental and DFT Study, *AIChE Annual Meeting*, Minneapolis, MN, October 29 - November 3, **2017**.
15. Yang Xiao and Arvind Varma, Kinetics of Glycerol Conversion to Hydrocarbon Fuels over Pd/H-ZSM-5 Catalysts, *AIChE Annual Meeting*, Minneapolis, MN, October 29 - November 3, **2017**.
14. Yang Xiao and Arvind Varma, Kinetics of Guaiacol Deoxygenation Using Methane over Pt-Bi Catalyst, *5th North American Catalysis Society Meeting*, Denver, CO, June 4-9, **2017**.
13. Xiaohong Wang, Yang Xiao and Arvind Varma, Controllable Solution Combustion Synthesis of Nanoscale  $\alpha / \beta - Bi_2O_3$  and Its Catalytic Application, *AIChE Annual Meeting*, San Francisco, CA, November 13-18, **2016**.
12. Yang Xiao and Arvind Varma, Glycerol to Hydrocarbon Fuels Via Bifunctional Catalysts, *AIChE Annual Meeting*, San Francisco, CA, November 13-18, **2016**.
11. Yang Xiao and Arvind Varma, Guaiacol Deoxygenation Using Methane over Pt-Bi Catalysts: Reaction Pathways and Kinetics, *AIChE Annual Meeting*, San Francisco, CA, November 13-18, **2016**.
10. Yang Xiao and Arvind Varma, Insight into Pt-Bi Bimetallic Catalysts: An Experimental and DFT Study, *AIChE Annual Meeting*, San Francisco, CA, November 13-18, **2016**.
9. Yang Xiao and Arvind Varma, Insight into Pt-Bi Bimetallic Catalysts for Tuning Selectivity and Improving Stability, *International Symposium on Chemical Reaction Engineering (ISCRE-24)*, Minneapolis, MN, June 12-15, **2016**.
8. Yang Xiao and Arvind Varma, Catalytic Deoxygenation of Guaiacol Using Methane, *AIChE Annual Meeting*, Salt Lake City, UT, November 8-13, **2015**.
7. Yang Xiao, Zhi-Jian Zhao, Jeffrey Greeley and Arvind Varma, An Experimental and Theoretical Study of Glycerol Selective Oxidation to 1,3-Dihydroxyacetone Via Bimetallic Platinum-Bismuth Catalysts,

*AIChE Annual Meeting*, Salt Lake City, UT, November 8-13, **2015**.

6. Yang Xiao, Zhi-Jian Zhao, Jeffrey Greeley and Arvind Varma, Glycerol Selective Oxidation to 1,3-Dihydroxyacetone via Bimetallic Platinum-Bismuth Catalysts: An Experimental and Theoretical Study, *AIChE 7th Annual Midwest Regional Conference*, Chicago, IL, March 12-13, **2015**.
5. Yang Xiao, Guomin Xiao and Arvind Varma, Experimental and Simulation Study of a Universal Procedure for Crude Glycerol Purification From Different Feedstocks in Biodiesel Production, *AIChE Annual Meeting*, San Francisco, CA, November 3-8, **2013**.
4. Yang Xiao and Arvind Varma, Experimental and Simulation Study of Crude Glycerol Purification from Different Feedstocks in Biodiesel Production, *246th ACS National Meeting*, Indianapolis, IN, September 8-12, **2013**.
3. Yang Xiao, Haoyang Li, Guomin Xiao, Lijing Gao and Xiaomei Pan, Simulation of the Catalytic Reactive Distillation Process for Biodiesel Production via Transesterification, *International Conference on Renewable Energy and Environmental Materials*, Beijing, China, May 21-23, **2012**.
2. Lijing Gao, Guomin Xiao and Yang Xiao, Study on Intrinsic Kinetics of Transesterification Reaction Catalyzed by Solid Base in Fixed Bed Reactor, *The 6th National Conference on Chemical Engineering and Biochemistry*, Changsha, China, October 29-31, **2010**.
1. Yang Xiao, Lijing Gao, Guomin Xiao and Jianhua Lv, Kinetics of Transesterification Reaction Catalyzed by Solid Base in Fixed Bed Reactor, *International Conference on Chemical and Biological Utilization of Biomass Resources (ICCUB2010)*, Nanjing, China, October 22-26, **2010**.

## Professional Services

### Journal Editorships and Advisory Boards

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Catalysts

Topical Advisory Panel Member

Sustainability

Editorial Board Member

### Proposal Reviewer

NSF

CBET Catalysis Program

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Office of Basic Energy Sciences

### Conference Sessions Chaired

5. Catalysis on Low Dimensional Materials, *AIChE Annual Meeting*, Orlando, FL, November 5 - 10, 2023.
4. Session III, *Southeastern Catalysis Society 2023 Annual Symposium*, Tuscaloosa, AL, February 27 - 28, 2023.
3. Fundamentals of Catalysis and Surface Science II: Zeolites and Acid Catalysis, *AIChE Annual Meeting*, Phoenix, AZ, November 13 - 18, 2022.
2. Biomass Upgrading I: Reaction Fundamentals, *AIChE Annual Meeting*, Boston, MA, November 5 - 11, 2021.
1. Fundamentals and Strategies for Catalytic Biomass Conversion, *AIChE Annual Meeting*, Virtual, November 16 - 20, 2020.



**Manuscript Reviewer**

*ACS Omega, ACS Sustainable Chemistry & Engineering, AIChE Journal, Applied Energy, Applied Catalysis A: General, Applied Surface Science, Asia-Pacific Journal of Chemical Engineering, Biomass and Bioenergy, Biomass Conversion and Biorefinery, Catalysis Communications, Catalysis Letters, Catalysts, Chem, Chem Catalysis, Chemical Engineering and Processing: Process Intensification, Chemical Engineering Journal, Chemical Engineering Science, ChemistrySelect, ChemSusChem, Chinese Journal of Chemical Engineering, ECS Journal of Solid State Science and Technology, Energy Exploration & Exploitation, Energy & Fuels, Fuel Processing, Journal of Environmental Chemical Engineering, Journal of Sustainable Bioenergy Systems, Industrial & Engineering Chemistry Research, Korean Journal of Chemical Engineering, Materials, Molecular Simulation, Molecular Physics, Molecular Catalysis, Molecules, Reaction Chemistry & Engineering, Reviews in Chemical Engineering, Sustainability, and Sustainable Energy & Fuels .*