

June 3rd, 2021

MIAO YU

Empire Innovation Professor
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EDUCATION

Ph.D., Chemical Engineering, University of Colorado at Boulder, Apr 2007
Ph.D. Candidate, Chemical Engineering, University of Minnesota, Jan 2004 – May 2004
M.S., Chemical Engineering, Tianjin University, Jun 2002
B.S., Chemical Engineering, Tianjin University, Jul 1998

PROFESSIONAL EXPERIENCE

Professor, Dept. of Chem. & Biol. Eng. University at Buffalo, Buffalo, NY	Jan 2021 – present
Associate Professor, Dept. of Chem. & Biol. Eng. Rensselaer Polytechnic Institute, Troy, NY	Aug 2017 – Jan 2021
Assistant Professor, Dept. of Chem. Eng. University of South Carolina, Columbia, SC	Aug 2012 – Aug 2017
Assistant Research Professor, Dept. of Chem. & Biol. Eng. University of Colorado, Boulder, CO	Jun 2010 – Jun 2012
Research Associate, Dept. of Chem. & Biol. Eng. University of Colorado, Boulder, CO	May 2007 – May 2010
Lecturer, Dept. of Chem. & Biol. Eng. University of Colorado, Boulder, CO	Aug 2007 – Dec 2007

HONORS AND AWARDS

Invited speaker, Shell, Apr 2021
Empire Innovation Professor, University at Buffalo, Jan 2021
Priti and Mukesh Chatter Career Development Chair, Rensselaer Polytechnic Institute, Oct 2018
UofSC Breakthrough Star Award, University of South Carolina, May 2016
Career Award, National Science Foundation, Apr 2015

Keynote speaker, International Congress on Membranes and Membrane Processes, Jul 2014
 Invited speaker, American Business Conference: Graphene Commercialization & Applications Summit, Oct 2013
 3rd award (\$10,000 cash), Inventevent at University of South Carolina, May 2013
 Postdoctoral Fellowship, Colorado Center of Biorefining and Biofuels (C2B2), Jul 2009
 American Institute of Chemists Postdoctoral Award, University of Colorado, May 2008
 American Institute of Chemists Graduate Award, University of Colorado, May 2007
 Student Travel Award, North American Membrane Society (NAMS) Annual Meeting, May 2007
 Graduate Assistantship in Areas of National Need (GAANN) Fellowship, U.S. Department of Education, May 2004 – May 2007
 3rd place award, Student Annual Research Symposium (StARS) at University of Colorado, Apr 2006
 University fellowship, University of Minnesota, Twin Cities, Jan 2004
 Outstanding Graduate Student Scholarship, Tianjin University, 1999~2001
 Outstanding Undergraduate Student Scholarship, Tianjin University (1st in class), 1997~1998

GRANTS AND CONTRACTS

Summary of Research Funding:

Funding Category	Total	Candidate's Share
External sources	\$21,225,000	\$7,309,200
Internal sources	\$15,000	\$15,000
Total	\$21,225,000	\$7,324,200

Funding:

1. Compact Catalytic Membrane Reactor for One-Step High-Efficiency Ammonia (NH₃) Synthesis at Moderate Temperatures and Pressures, PI: Shoujie Ren (E2H2NANO, LLC*), Co-PI: Miao Yu (UB), 4/1/2021 – 3/31/2024, DOE, \$2,000,000 (25% share)
 * *Yu's startup company*
2. Direct Air Capture Using Trapped Small Amines in Hierarchical Nanoporous Capsules on Porous Electrospun Fibers, PI: Miao Yu (UB), Co-PI: Shiguang Li (Gas Technology Institute), 2/1/2020 – 7/31/2022, DOE, \$800,000 (61% share)
3. Dehydration Membrane Reactor for Direct Production of Dimethyl Carbonate (DMC) from CO₂ and H₂, PI: Shiguang Li (Gas Technology Institute), Co-PI: Miao Yu (UB), Xinhua Liang (Missouri University of Science and Technology), 10/1/2020 – 9/30/2022, DOE, \$1,000,000 (31% share)
4. Transformational Molecular Layer Deposition Tailor-made Size-Sieving Sorbents for Post-Combustion CO₂ Capture, PI: Miao Yu (UB), Co-PIs: James A. Ritter (University of South Carolina), Shiguang Li (Gas Technology Institute), Andrew Sexton (Trimeric Corporation), 10/1/2019 – 9/30/2022, DOE, \$3,000,000 (40% share)
5. Bench-scale Development of a Transformational Graphene Oxide-based Membrane Process for Post-combustion CO₂ Capture, PI: Shiguang Li (Gas Technology Institute), Co-PI: Miao Yu (UB), 10/1/2018-9/30/2021, DOE, \$3,000,000 (50% share)

6. CARRER: A Few Layer Thin, Graphene-Based Membranes: Nanostructure Understanding, Permeation Mechanisms and Separation Applications, PI: Miao Yu, 4/1/2015 – 3/31/2021, NSF, \$500,000 (100% share)
7. “A Novel Hollow Fiber Membrane Reactor for High Purity H₂ Generation from Thermal Catalytic NH₃ Decomposition”, PI, DOE ARPA-E, \$1,600,000, 4/1/2017 – 5/31/2020 (Yu’s share at RPI: ~\$800,000; co-PIs: Jochen Lauterbach (University of South Carolina); Shiguang Li (Gas Technology Institute))
8. “A Novel Catalytic Membrane Reactor for DME Synthesis from Renewable Resources”, co-PI, DOE ARPA-E, \$2,300,000, 4/1/2017-3/31/2020, 4/1/2017 – 5/31/2020 (Yu’s share at RPI: \$500,000; PI: Shiguang Li (Gas Technology Institute))
9. “Center for a Sustainable Water, Energy, and Food Nexus (SusWEF)”, co-PI, NSF EPSCoR: RII Track-2 FEC, \$4,000,000, 8/1/2016 – 7/31/2020 (Yu’s share at USC: \$270,000; PI: Nelson Cardona Martinez (University of Puerto Rico-Mayagüez); co-PI: Andreas Heyden (University of South Carolina))
10. “Energy Efficient GO-PEEK Hybrid Membrane Process for Post-Combustion Carbon Dioxide Capture”, co-PI, DOE, \$2,000,000, 10/1/2015 – 9/30/2018 (Yu’s share at USC: \$800,000; PI: Shiguang Li (Gas Technology Institute))
11. “Catalysis for Renewables: Applications, Fundamentals and Technologies (CRAFT)”, co-PI, NSF EPSCoR: RII Track-2 FEC, \$4,000,000, 8/1/2015 – 7/31/2019 (Yu’s share at USC: \$667,000; PI: Bala Subramaniam (university of Kansas); co-PI: John Regalbuto (University of South Carolina))
12. “Production of High-Purity O₂ via Membrane Contactor with Oxygen Carrier Solutions”, co-PI, DOE, \$500,000, 10/1/2014 – 9/30/2016 (Yu’s share at USC: \$250,000; PI: Shiguang Li (Gas Technology Institute))
13. “Collaborative Research: Advanced Zeolite-Composite Adsorbents with Fine Tuned Pore Sizes for Molecular Sieving Separation”, PI, NSF, \$450,000, 7/1/2014 – 6/30/2017 (Yu’s share at USC: \$227,000; co-PI: Xinhua Liang (Missouri University of Science and Technology))
14. “Nano-Valved Materials for Natural Gas Storage”, co-PI, DOE ARPA-E, \$875,000, 1/1/2013 – 12/31/2014 (Yu’s share at USC: \$310,000; PI: Shiguang Li (Gas Technology Institute); co-PI: Moises A. Carreon (Colorado School of Mine))
15. “I/UCRC: Efficient Molecular Separation Using Polymeric Membranes Integrated with Novel Structure-Tunable Organic Nanocages”, co-PI, National Science Foundation, \$199,998, July 2012 – June 2014 (PI: Wei Zhang (University of Colorado at Boulder))
16. “Efficient CO₂ Capture Using Thin Polymerized Ionic Liquid Membranes Integrated with Novel Shape-Persistent Molecular Cages”, co-PI, NSF-Membrane Applied Science & Technology (MAST) Center, \$127,500 (direct cost), January 2011 – December 2013 (PI: Wei Zhang (University of Colorado at Boulder))
17. “High-Efficiency, Dye-Sensitized Solar Cells”, co-PI, NSF, \$300,000, August 2010 – July 2013 (PI: John L. Falconer (University of Colorado at Boulder); Richard D. Noble (University of Colorado at Boulder))

PUBLICATIONS

Total citations: 4431; h-index: 35 (Source: Google Scholar, June 2021)

Theses

“Separation Mechanisms and Microstructure Characterization of Zeolite Membranes”, Doctoral thesis, University of Colorado at Boulder, 2007

“Removal of H₂S from Natural Gas by Solvent Coated Porous Silica Gel”, Master thesis, Tianjin University, 2002

Refereed Journal Articles (*denotes graduate student; +denotes undergraduate student; #denotes postdoc)

Published

1. Ji Jiang#, Qiaobei Dong*, Katherine McCullough*, Jochen Lauterbach, Shiguang Li, Miao Yu, “Novel hollow fiber membrane reactor for high purity H₂ generation from thermal catalytic NH₃ decomposition”, *Journal of Membrane Science* (impact factor: 7.015), 629, 119281 (2021)
2. Qiaobei Dong*, Ji Jiang#, Shiguang Li, and Miao Yu, “Molecular Layer Deposition (MLD) Modified SSZ-13 Membrane for Greatly Enhanced H₂ Separation”, *Journal of Membrane Science* (impact factor: 7.015), 622, 119040 (2021)
3. Pranav Ramesh*, Weiwei L Xu#, Mirco Sorci#, Carrie Trant*, Sangwoo Lee, James Kilduff, Miao Yu, Georges Belfort, “Organic Solvent Filtration by Brush Membranes: Permeability, Selectivity And Fouling Correlate With Degree of SET-LRP Grafting”, *Journal of Membrane Science* (impact factor: 7.015), 618, 118699 (2021)
4. Huazheng Li#, Shoujie Ren#, Shenxiang Zhang#, Surya Padinjarekutt*, Bratin Sengupta*, Xinhua Liang, Shiguang Li, Miao Yu, “The High-Yield Direct Synthesis of Dimethyl Ether From CO₂ And H₂ In A Dry Reaction Environment”, *Journal of Materials Chemistry A* (impact factor: 10.733), 9, 2678 (2021)
5. Sewoon Kim, Farivash Gholamirad, Miao Yu, Chang Min Park, Am Jang, Min Jang, Nadar Taheri-Qazvini, Yeomin Yoon, “Enhanced adsorption performance for selected pharmaceutical compounds by sonicated Ti₃C₂TX MXene”, *Chemical Engineering Journal* (impact factor: 8.355), 406, 126789 (2021)
6. Ji Jiang, Syed Islam, Qiaobei Dong, Fanglei Zhou, Shiguang Li, Miao Yu, “Deposition of An Ultrathin Palladium(Pd) Coating on SAPO-34 Membranes for Enhanced H₂/N₂ Separation”, *International Journal of Hydrogen Energy* (impact factor: 4.939), 45, 33648 (2020)
7. Qiaobei Dong*, Fanglei Zhou*, Ji Jiang*, Weiwei Xu*, Dinesh Behera*, Bratin Sengupta*, and Miao Yu, “Advanced Functional Hierarchical Nanoporous Structures with Tunable Microporous Coatings Formed via an Interfacial Reaction Processing”, *ACS Applied Materials & Interfaces* (impact factor: 8.456), 12, 26360 (2020)
8. Ji Jiang*, Qiaobei Dong*, Fanglei Zhou*, Weiwei Xu*, Shiguang Li, Miao Yu, “Gel-Modulated Growth of High-quality Zeolite Membranes”, *ACS Applied Materials & Interfaces* (impact factor: 8.456), 12, 26095 (2020)
9. Bin Wang, Tangyin Wu, Miao Yu, Shiguang Li, Rongfei Zhou, Weihong Xing, “Highly Ordered Nanochannels in a Nanosheet-Directed Thin Zeolite Nanofilm for Precise and Fast CO₂ Separation”, *Small* (impact factor: 11.459), 16, 2002836 (2020)

10. Shenxiang Zhang#, Huazheng Li#, Huanghe Li*, Bratin Sengupta*, Shangwen Zha#, Shiguang Li, Miao Yu, “Negative Charge-confined Amine-carriers within the Nanowire Network for Stable and Efficient Membrane Carbon Capture”, *Advanced Functional Materials* (impact factor: 15.621), 30, 2002804 (2020)
11. Seohui Jung, Yufei Cui, Morgan Barnes, Chinmay Satam, Shenxiang Zhang#, Reaz A Chowdhury, Aparna Adumbumkulath, Onur Sahin, Corwin Miller, Seyed M Sajadi, Lucas M Sassi, Yue Ji, Matthew R Bennett, Miao Yu, Jefferson Friguglietti, Fatima A Merchant, Rafael Verduzco, Soumyabrata Roy, Robert Vajtai, J Carson Meredith, Jeffrey P Youngblood, Nikhil Koratkar, Muhammad M Rahman, Pulickel M Ajayan, “Multifunctional Bio-Nanocomposite Coatings for Perishable Fruits”, *Advanced Materials* (impact factor: 25.809), in press, 2020
12. Huazheng Li#, Chenglong Qiu, Shoujie Ren#, Qiaobei Dong*, Shenxiang Zhang#, Fanglei Zhou*, Xinhua Liang, Jianguo Wang, Shiguang Li, Miao Yu, “Na⁺-gated water-conducting nanochannels for boosting CO₂ conversion to liquid fuels”, *Science* (impact factor: 41.063), 367, 667 (2020)
13. Fanglei Zhou*, Huynh Ngoc Tien#, Qiaobei Dong*, Weiwei L. Xu*, Bratin Sengupta*, Shangwen Zha#, Ji Jiang*, Dinesh Behera*, Shiguang Li, and Miao Yu, “Novel carbon-based separation membranes composed of integrated zero- and one-dimensional nanomaterials”, *Journal of Materials Chemistry A* (impact factor: 10.733), 8, 1084 (2020)
14. Sewoon Kim, Juan C Muñoz-Senmache, Byung-Moon Jun, Chang Min Park, Am Jang, Miao Yu, Arturo J Hernández-Maldonado, Yeomin Yoon, “A Metal Organic Framework-Ultrafiltration Hybrid System for Removing Selected Pharmaceuticals and Natural Organic Matter”, *Chemical Engineering Journal* (impact factor: 8.355), 382, 122920 (2020)
15. Sewoon Kim, Miao Yu, Yeomin Yoon, “Fouling and Retention Mechanisms of Selected Cationic and Anionic Dyes in a Ti₃C₂T_x MXene-Ultrafiltration Hybrid System”, *ACS Applied Materials & Interfaces* (impact factor: 8.456), 12, 16557 (2020)
16. Shoujie Ren#, Xiao Fan, Zeyu Shang, Weston R Shoemaker, Lu Ma, Tianpin Wu, Shiguang Li, Naomi B Klinghoffer, Miao Yu, Xinhua Liang, “Enhanced Catalytic Performance of Zr Modified Cu_o/Zno/Al₂O₃ Catalyst for Methanol and DME Synthesis via CO₂ Hydrogenation”, *Journal of CO₂ Utilization* (impact factor: 5.189), 36, 82 (2019)
17. Yuting Li, Konstantin Khivantsev#, Yu Tang, Luan Nguyen, Mahdi Fathizadeh#, Jingyue Liu, Miao Yu, Franklin Tao, “Synthesis of NaA nanoFAU Zeolite Catalyst and Catalysis for Production of Formic Acid with NaA nanoFAU”, *Catalysis Letters* (impact factor: 2.799), 149, 1965 (2019)
18. Qiaobei Dong*, Zhuonan Song*, Fanglei Zhou*, Huazheng Li#, Miao Yu, “Ultrathin, Fine-Tuned Microporous Coating Modified 5A Zeolite for Propane/Propylene Adsorptive Separation”, *Microporous and Mesoporous Materials* (impact factor: 4.182), 281, 9 (2019)
19. Shoujie Ren#, Shiguang Li, Naomi Klinghoffer, Miao Yu, Xinhua Liang, “Effects of Mixing Methods of Bifunctional Catalysts on Catalyst Stability of DME Synthesis via CO₂ Hydrogenation”, *Carbon Resources Conversion* (impact factor: N/A), 2, 85 (2019)
20. Lesley Joseph, Byung-Moon Jun, Min Jang, Chang Min Park, Juan C Muñoz-Senmache, Arturo J Hernández-Maldonado, Andreas Heyden, Miao Yu, Yeomin Yoon, “Removal of Contaminants of Emerging Concern by Metal-Organic Framework Nanoadsorbents: A Review”, *Chemical Engineering Journal* (impact factor: 8.355), 369, 928 (2019)
21. Fanglei Zhou*, Huynh Ngoc Tien#, Qiaobei Dong*, Weiwei L Xu*, Huazheng Li#, Shiguang Li, Miao Yu, “Ultrathin, Ethylenediamine-Functionalized Graphene Oxide Membranes on Hollow Fibers for CO₂ Capture”, *Journal of Membrane Science* (impact factor: 7.015), 573, 184 (2019)

22. Shoujie Ren#, Weston R Shoemaker, Xiaofeng Wang, Zeyu Shang, Naomi Klinghoffer, Shiguang Li, Miao Yu, Xiaoqing He, Tommi A White, Xinhua Liang. “Highly Active and Selective Cu-Zno Based Catalyst for Methanol and Dimethyl Ether Synthesis via CO₂ Hydrogenation”, *Fuel* (impact factor: 5.128), 239, 1125 (2019)
23. Sewoon Kim, Chang Min Park, Am Jang, Min Jang, Arturo J Hernández-Maldonado, Miao Yu, Jiyong Heo, Yeomin Yoon, “Removal of Selected Pharmaceuticals in An Ultrafiltration-Activated Biochar Hybrid System”, *Journal of Membrane Science* (impact factor: 7.015), 570, 77 (2019)
24. Mahdi Fathizadeh#, Weiwei L Xu*, Margaret Shen, Emily Jeng+, Fanglei Zhou*, Qiaobei Dong*, Dinesh Behera*, Zhuonan Song*, Lei Wang*, Abolfazl Shakouri, Konstantin Khivantsev#, Miao Yu, “Antifouling UV-treated GO/PES Hollow Fiber Membranes in A Membrane Bioreactor (MBR)”, *Environmental Science: Water Research & Technology* (impact factor: 4.195), 5, 1244 (2019)
25. Mahdi Fathizadeh#, Huynh Ngoc Tien#, Konstantin Khivantsev#, Zhuonan Song*, Fanglei Zhou*, and Miao Yu, “Polyamide/Nitrogen-Doped Graphene Oxide Quantum Dots (N-GOQD) Thin Film Nanocomposite Reverse Osmosis Membranes for High Flux Desalination”, *Desalination* (impact factor: 1.234), 451, 125 (2019)
26. Sewoon Kim, Chang Min Park, Min Jang, Ahjeong Son, Nauguk Her, Miao Yu, Shane Snyder, Do-Hyung Kim, Yeomin Yoon, “Aqueous Removal of Inorganic and Organic Contaminants by Graphene-Based Nanoadsorbents: A Review”, *Chemosphere* (impact factor: 5.108), 212, 1104 (2018)
27. Weiwei L Xu*, Fanglei Zhou*, Miao Yu, “Tuning Water Nanofiltration Performance of Few-Layered, Reduced Graphene Oxide Membranes by Oxygen Plasma”, *Industrial & Engineering Chemistry Research* (impact factor: 3.37), 57, 16103 (2018)
28. Fanglei Zhou*, Mahdi Fathizadeh#, Miao Yu, “Single- to Few-Layered, Graphene-Based Separation Membranes”, *Annual Review of Chemical and Biomolecular Engineering* (impact factor: 8.676), 9, 17 (2018)
29. Konstantin Khivantsev#, Alessandro Biancardi, Mahdi Fathizadeh#, Fahad Almalki, Job L Grant, Huynh Ngoc Tien#, Abolfazl Shakouri, Douglas A Blom, Thomas M Makris, John R Regalbuto, Marco Caricato, Miao Yu, “Catalytic N–H Bond Activation and Breaking by a Well-Defined Co^{II}O₄ Site of a Heterogeneous Catalyst”, *ChemCatChem* (impact factor: 4.495), 10, 736 (2018)
30. Mahdi Fathizadeh#, Konstantin Khivantsev#, Travis J Pyrzynski, Naomi B Klinghoffer, Abolfazl Nabi Shakouri, Miao Yu, Shiguang Li, “Bio-mimetic Oxygen Separation via A Hollow Fiber Membrane Contactor with O₂ Carrier Solutions”, *Chemical Communications* (impact factor: 6.164), 54, 9454 (2018)
31. Sewoon Kim, Kyoung Hoon Chu, Yasir AJ Al-Hamadani, Chang Min Park, Min Jang, Do-Hyung Kim, Miao Yu, Jiyong Heo, Yeomin Yoon, “Removal of contaminants of emerging concern by membranes in water and wastewater: A review”, *Chemical Engineering Journal* (impact factor: 8.355) 335, 896 (2018)
32. Zhuonan Song*, Qiaobei Dong*, Weiwei L. Xu*, Xinhua Liang and Miao Yu, “Molecular Layer Deposition (MLD) Modified Zeolites for Highly Efficient CO₂ Capture”, *ACS Applied Materials & Interfaces* (impact factor: 8.456), 10, 769 (2018)
33. Fanglei Zhou*, Huynh Ngoc Tien#, Jung-Tsai Chen#, Weiwei L. Xu*, Qiuli Liu, Ethan Hicks+, Mahdi Fathizadeh#, Shiguang Li, and Miao Yu, “Ultrathin Graphene Oxide-Based Hollow Fiber Membranes with Brush-Like CO₂-Philic Agent for Highly Efficient CO₂ Capture”, *Nature Communications* (impact factor: 11.880), 8, Article No. 2107 (2017)

34. Mahdi Fathizadeh#, Huynh Ngoc Tien#, Konstantin Khivantsev#, Jung-Tai Chen#, and Miao Yu, "Printing Ultrathin Graphene Oxide Nanofiltration Membranes for Water Purification", *Journal of Materials Chemistry A* (impact factor: 10.733), 5, 20860 (2017)
35. Weiwei L. Xu*, Chao Fang, Fanglei Zhou*, Zhuonan Song*, Qiuli Liu, Rui Qiao, and Miao Yu, "Self-Assembly: A Facile Way of Forming Ultrathin, High Performance Graphene Oxide Membranes for Water Purification", *Nano Letters* (impact factor: 12.344), 17, 2928 (2017)
36. Kyoung Hoon Chu, Mahdi Fathizadeh#, Miao Yu, Joseph RV Flora, Am Jang, Min Jang, Chang Min Park, Sung Soo Yoo, Namguk Her, Yeomin Yoon, "Evaluation of Removal Mechanisms in a Graphene Oxide-Coated Ceramic Ultrafiltration Membrane for Retention of Natural Organic Matter, Pharmaceuticals, and Inorganic Salts", *ACS Applied Materials & Interfaces* (impact factor: 8.456), 9, 40369 (2017)
37. Yanzhe Qin, Yongyou Hu, Stephan Koehler, Liheng Cai, Junjie Wen, Xiaojun Tan, Weiwei L. Xu*, Qian Sheng, Xu Hou, Jianming Xue, Miao Yu, David Weitz, "Ultrafast Nanofiltration through Scalable Single-layered Graphene Membranes", *ACS Applied Materials & Interfaces* (impact factor: 8.456), 9, 9239 (2017)
38. X. Wang, M. R. Bayan, M. Yu, D. K. Ludlow, X. Liang, "Atomic layer deposition surface functionalized biochar for adsorption of organic pollutants: improved hydrophilia and adsorption capacity", *International Journal of Environmental Science and Technology* (impact factor: 2.037), 4, 1825 (2017)
39. Kyoung Hoon Chu, Yi Huang#, Miao Yu, Jiyong Heo, Joseph R.V. Flora, Am Jang, Min Jang, Chanil Jung, Chang Min Park, Do-Hyung Kim, Yeomin Yoon, "Evaluation of graphene oxide-coated ultrafiltration membranes for humic acid removal at different pH and conductivity conditions", *Separation and Purification Technology* (impact factor: 5.107), 181, 139 (2017)
40. Xiaojie Zhang#, Guoqing Zuo, Xin Lu, Changqing Tang, Shuo Cao, and Miao Yu, "Anatase TiO₂ Sheet-assisted Synthesis of Ti³⁺ Self-doped Mixed Phase TiO₂ Sheet with Superior Visible-light Photocatalytic Performance: Roles of Anatase TiO₂ Sheet", *Journal of Colloid and Interface Science* (impact factor: 6.361), 490, 774-782 (2017)
41. Mahdi Fathizadeh#, Weiwei L. Xu*, Fanglei Zhou*, Yeomin Yoon, and Miao Yu, "Graphene Oxide: A Novel 2-Dimensional Material in Membrane Separation for Water Purification", *Advanced Materials Interfaces* (impact factor: 4.713), Article No. 1600918 (2017) (invited review)
42. Zhong, S.L., Bu, N., Zhou, R.F., Jin, W.Q., Yu, M., and Li, S.G., "Aluminophosphate-17 and silicoaluminophosphate-17 membranes for CO₂ separations", *Journal of Membrane Science* (impact factor: 7.015), 520, 507-514 (2016)
43. Song, Z.N.*, Nambo, A., Tate, K.L., Bao, A.N., Zhu, M.Q., Jasinski, J.B., Zhou, S.J., Meyer, H.S., Carreon, M.A., Li, S.G., and Yu, M., "Nano-Valved Adsorbents for CH₄ Storage", *Nano Letters* (impact factor: 12.344), 16, 3309-3313 (2016)
44. Song, Z.N.*, Fathizadeh, M.#, Huang, Y.#, Chu, K.H., Yoon, Y.B., Wang, L.*, Xu, W.W.L.*, and Yu, M., "TiO₂ Nanofiltration Membranes Prepared by Molecular Layer Deposition for Water Purification", *Journal of Membrane Science* (impact factor: 7.015), 510, 72-78 (2016)
45. Zong, Z.W., Huang, Y.#, Song, Z.N.*, Feng, X.H., Zhou, R.F., Meyer, H.S., Zhou, S.J., Carreon, M.A., Yu, M., and Li, S.G., "Highly Permeable N₂-Selective SAPO-34 Membranes for N₂/CH₄ Separation", *Microporous & Mesoporous Materials* (impact factor: 4.182), 224, 36-42 (2016)

46. Zhang, X.J.#, Wang, L.*, Du, Q.C., Wang, Z.Y., Ma, S.G., and Yu, M., “Photocatalytic CO₂ Reduction over B₄C/C₃N₄ with Internal Electric Field under Visible Light Irradiation”, *Journal of Colloid and Interface Science* (impact factor: 6.361), 464, 89-96 (2016)
47. Song, Z.N.*, Huang, Y.#, Xu, W.W.*, Li, S.G., and Yu, M., “Continuously Adjustable, Molecular-Sieving ‘Gate’ on 5A Zeolite for Distinguishing Small Organic Molecules by Size”, *Scientific Reports* (impact factor: 4.525), 5, Article number: 139821 (2015) doi:10.1038/srep13981
48. Zhang, X.J.#, Wang, L.*, Chen, S.Q., Huang, Y.#, Song, Z.N.*, and Yu, M., "Photocatalytic CO₂ Reduction under Visible Light Using Ti³⁺-Doped TiO₂ with Anatase-Rutile Phase Junction", *Frontiers of Chemical Science & Engineering* (impact factor: 2.239), 9, 349-358 (2015) DOI 10.1007/s11705-015-1523-5 (invited paper)
49. Huang, Y.#, Wang, L.*, Song, Z.N.*, Li, S.G., and Yu, M., “Growth of High Quality, Thickness-Reduced Zeolite Membranes towards N₂/CH₄ Separation Using High-Aspect-Ratio Seeds”, *Angewandte Chemie International Edition* (impact factor: 12.257), 127, 10993-10997 (2015) doi:10.1002/ange.201503782 (Featured as Back Cover)
50. Zhou, R.F., Wang, H.M., Wang, B., Chen, X.S., Li, S.G., and Yu, M., “Defect-Patching of Zeolite Membranes by Surface Modification Using Siloxane Polymers for CO₂ Separation”, *Industrial & Engineering Chemistry Research* (impact factor: 3.37), 54, 7516-7523 (2015)
51. Nam, S.W., Jung, C., Li, H., Yu, M., Flora, J.R., Boateng, L.K., Her, N., Zoh, K.D., Yoon, Y., “Adsorption Characteristics of Diclofenac and Sulfamethoxazole to Graphene Oxide in Aqueous Solution”, *Chemosphere* (impact factor: 5.108), 136, 20-26 (2015)
52. Li, S.G., Zong, Z.W., Zhou, S.J., Huang, Y., Song, Z.N.*, Feng, X.H., Zhou, R.F., Meyer, H.S., Yu, M., and Carreon, M.A., “SAPO-34 Membranes for N₂/CH₄ Separation: Preparation, Characterization, Separation Performance and Economic Evaluation”, *Journal of Membrane Science* (impact factor: 7.015), 487, 141-151 (2015)
53. Song, J., Huang, Y.#, Nam, S.W., Yu, M., Heo, J.Y., Her, N., Flora, J., and Yoon, Y., “Ultrathin Graphene Oxide Membranes for the Removal of Natural Organic Matter”, *Separation and Purification Technology* (impact factor: 5.107), 144, 162-167 (2015)
54. Huang, Y.#, Li, H.*, Wang, L.*, Qiao, Y.L., Tang, C.B., Jung, C., Yoon, Y., Li, S.G., and Yu, M., “Ultrafiltration Membranes with Structure-Optimized Graphene Oxide Coatings for Anti-Fouling Oil/Water Separation”, *Advanced Materials Interfaces* (impact factor: 4.713), 2, Article No. 1400433, DOI: 10.1002/admi.201400433 (2015)
55. Song, Z.N.*, Huang, Y.#, Li, S.G., and Yu, M., “Composite 5A Zeolite with Ultrathin Porous TiO₂ Coating for Selective Gas Adsorption”, *Chemical Communications* (impact factor: 6.164), 51, 373-375 (2015)
56. Li, H.*, Huang, Y.#, Mao, Y.T., Xu, W.W.*, Ploehn, H.J., and Yu, M., “Tuning Underwater Oleophobicity of Graphene Oxide Coatings via UV Irradiation”, *Chemical Communications* (impact factor: 6.164), 50, 9849-9851 (2014)
57. Li, H.*, Song, Z.N.*, Zhang, X.J.#, Huang, Y.#, Li, S.G., Mao, Y.T., Ploehn, H.J., Bao, Y., and Yu, M., “Ultrathin, Molecular-Sieving Graphene Oxide Membranes for Selective Hydrogen Separation”, *Science* (impact factor: 41.063), 342, 95-98 (2013)
58. Yu, M., Noble, R.D., Falconer, J.L. “Zeolite Membranes: Microstructure Characterization and Permeation Mechanisms”, *Accounts of Chemical Research* (impact factor: 21.661), 44, 1196-1206 (2011)

59. Liang, X.H., Li, J.H., Yu, M., McMurray, C.N., Falconer, J.L., Weimer, A.W., “Stabilization of Supported Metal Nanoparticles using an Ultrathin Porous Shell”, *ACS Catalysis* (impact factor: 12.221), 1, 1162-1165 (2011)
60. Yu, M., Funke, H.H., Noble, R.D., Falconer, J.L., “H₂ Separation Using Defect-free, Inorganic Composite Membranes”, *Journal of the American Chemical Society* (impact factor: 14.695), 133, 1748-1750 (2011)
61. Yu, M., Funke, H.H., Falconer, J.L., Noble, R.D., “Gated Ion Transport through Dense Carbon Nanotube Membranes”, *Journal of the American Chemical Society* (impact factor: 14.695), 132, 8285-8290 (2010)
62. Liang, X.H., Lu, X.Y., Yu, M., Cavanagh, A.S., Gin, D.L., Weimer, A.W. , “Modification of Nanoporous Supported Lyotropic Liquid Crystal Polymer Membranes by Atomic Layer Deposition”, *Journal of Membrane Science* (impact factor: 7.015), 349, 1-5 (2010)
63. Liang, X.H., Yu, M., Li, J.H., Jiang*, Y.B., Weimer, A.W., “Ultra-Thin Microporous/Mesoporous Metal Oxide Films Prepared by Molecular Layer Deposition (MLD)”, *Chemical Communications* (impact factor: 6.164), 7140-7142 (2009)
64. Yu, M., Funke, H.H., Falconer, J.L., Nobler, R.D., “High-Density, Vertically-Aligned Carbon Nanotube Membranes”, *Nano Letters* (impact factor: 12.344), 9, 225-229 (2009)
65. Yu, M., Falconer, J.L., Noble, R.D., “Characterizing Non-Zeolitic Pores in MFI Membranes”, *Industrial & Engineering Chemistry Research* (impact factor: 3.37), 47, 3943-3948 (2008)
66. Yu, M., Falconer, J.L., Noble, R.D., “Characterizing Non-Zeolitic Pore Volume in Zeolite Membranes by Temperature-Programmed Desorption”, *Microporous & Mesoporous Materials* (impact factor: 4.182), 113, 224-230 (2008)
67. Yu, M., Wyss, J.C., Noble, R.D., Falconer, J.L., “2,2-Dimethylbutane Adsorption and Diffusion in MFI Zeolite”, *Microporous & Mesoporous Materials* (impact factor: 4.182), 111, 24-31 (2008)
68. Yu, M., Li, S.G., Falconer, J.L., Noble, R.D., “Reversible Hydrogen Storage Using A SAPO-34 Zeolite Layer”, *Microporous & Mesoporous Materials* (impact factor: 4.182), 110, 579-582 (2008)
69. Yu, M., Amundsen, T.J., Hong, M., Falconer, J.L., Noble, R.D., “A Controllable Nanometer-sized Valve”, *Advanced Materials* (impact factor: 25.809), 19, 3032-3036 (2007)
70. Yu, M., Falconer, J.L., Amundsen, T.J., Hong, M., Noble, R.D., “Flexible Nanostructure of MFI Zeolite Membranes”, *Journal of Membrane Science* (impact factor: 7.015), 298, 182-189 (2007)
71. Yu, M., Falconer, J.L., Noble, R.D., Krishna, R., “Modeling Transient Permeation of Polar Organic Mixtures through a MFI Zeolite Membrane using the Maxwell-Stefan Equations”, *Journal of Membrane Science* (impact factor: 7.015), 293, 167-173 (2007)
72. Yu, M., Hunter, J.T., Falconer, J.L., Noble, R.D., “Adsorption of Benzene Mixtures on Silicalite-1 and NaX Zeolites”, *Microporous & Mesoporous Materials* (impact factor: 4.182), 96, 376-385 (2006)
73. Yu, M., Falconer, J.L., Noble, R.D., “Adsorption of Liquid Mixtures on Silicalite-1 Zeolite: a Density-Bottle Method”, *Langmuir* (impact factor: 3.683), 21, 7390-7397 (2005)
74. Zhou, L., Yu, M., Zhong, L.M., Zhou, Y. P., “Feasibility Study on Pressure Swing Sorption for Removing H₂S from Natural Gas”, *Chemical Engineering Science* (impact factor: 3.372), 59, 2401-2406 (2004)
75. Zhou, L., Zhong, L.M., Yu, M., Zhou, Y. P., “Sorption and Desorption of a Minor Amount of H₂S

on Silica Gel Covered with a Film of Triethanolamine”, *Industrial & Engineering Chemistry Research* (impact factor: 3.37), 43, 1765-1767 (2004)

In Review

None.

Refereed Proceedings Articles

None

Proceedings Articles

None

TECHNICAL PRESENTATIONS

Invited Talks

1. Graphene-Based Molecular Filters, Graphene Commercialization & Applications Summit, American Business Conferences, Santa Clara, CA, Dec 10-11, 2013
2. Graphene-Based Membranes for Separation Applications, International Congress on Membranes and Membrane Processes, Suzhou, China, July 2014
3. Graphene-Based Membranes for Separation Applications”, AICHE, Membrane Research and Innovation Activities Around the World session, Atlanta, USA, November 2014
4. Advanced Nanostructures for Energy and Environmental Applications, Tianjin University, Tianjin, China, July 2014
5. Engineering Nanoporous Structures for Distinguishing Molecules, Penn State University, March 2017
6. Engineering Nanoporous Structures for Distinguishing Molecules, University of Colorado at Boulder, April 2017
7. Engineering Nanoporous Structures for Distinguishing Molecules, Rensselaer Polytechnic Institute, March 2017
8. Engineering Nanoporous Structures for Distinguishing Molecules, North Carolina State University, April 2017
9. Engineering Nanoporous Structures for Distinguishing Molecules, Stony Brook University, March 2017
10. Engineering Nanoporous Structures for Distinguishing Molecules, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, China, July 2018
11. Engineering Nanoporous Structures for Distinguishing Molecules, Department of Chemical and Biological Engineering, Zhejiang University of Technology, China, July 2018
12. Advanced Nanoporous Structures for Energy and Environmental Applications, Tianjin University, China, July 2019
13. Advanced Nanoporous Structures for Energy and Environmental Applications, Nanjing Tech University, China, August 2019
14. Na⁺-gated Nanochannel Membrane for Renewable Fuel Synthesis, Shell, April 2021

Abstracts and Other Conference Presentations (presenter name underlined; *graduate student; +undergraduate student; #postdoc)

1. Li, H.*, Huang, Yi# and Yu, M., “Graphene Oxide Membranes with Hierarchical Roughness for High Flux, Anti-Fouling Oil/Water Separation”, North American Membrane Society (NAMS) Meeting, Houston, TX, 2014
2. Huang, Yi#, Li, H.* and Yu, M., “Ultrafiltration Membranes with Structure-Optimized Graphene Oxide Coatings for Anti-Fouling Oil/Water Separation”, American Institute of Chemical Engineers (AIChE) Meeting, Atlanta, GA, 2014
3. Song, Z.N.* and Yu, M., “TiO₂ Nanofiltration Membranes Prepared by Molecular Layer Deposition for Water Purification”, North American Membrane Society (NAMS) Meeting, Boston, MA, 2015
4. Yu, M. and Huang, Yi#, “Growth of High-Quality, Thickness-Reduced Zeolite Membranes towards N₂/CH₄ Separation Using High-Aspect-Ratio Seeds”, American Institute of Chemical Engineers (AIChE) Meeting, Salt Lake City, Utah, 2015
5. Xu, W.W.* and Yu, M., “Enhancing Water Permeation through Graphene Oxide Membranes via Tuning the Interlayer Nanostructures”, 13th International Conference on Inorganic Membranes, Atlanta, Georgia, 2016
6. Xu, W.W.* and Yu, M., “Enhancing Water Permeation through Graphene Oxide Membranes via Tuning the Interlayer Nanostructures”, North American Membrane Society (NAMS) Meeting, Bellevue, WA, 2016
7. Fathizadeh, Mahdi#, Li, Shiguang, Klinghoffer, Naomi and Yu, M., “Bio-Mimetic Hollow Fiber Membrane Contactor Process for Low-Cost High-Purity Oxygen Production”, American Institute of Chemical Engineers (AIChE) Meeting, San Francisco, CA, 2016
8. Khivantsev, Konstantin# and Yu, M., “Catalytic Ammonia Decomposition to Hydrogen and Nitrogen on Supported Nanosized and Single-Site Cobalt Catalysts: Effects of Atomicity, Ligand Environment and Support”, American Institute of Chemical Engineers (AIChE) Meeting, San Francisco, CA, 2016
9. Li, Shiguang, S. James Zhou, Howard Meyer, Mahdi Fathizadeh#, Miao Yu “Production of High-Purity O₂ Via Gas-Liquid Membrane Contactor with Oxygen Carrier Solutions”, The 12th International Conference on Gas-Liquid & Gas-Liquid-Solid Reactor Engineering, June 28-July 2, 2015, New York City, NY.
10. Li, Shiguang, Travis Pyrzynski, Naomi B. Klinghoffer, Howard Meyer, Mahdi Fathizadeh#, Miao Yu “Production of High-Purity O₂ Via Gas-Liquid Membrane Contactor with Oxygen Carrier Solutions”, The 2015 Gasification Systems and Coal & Coal-Biomass to Liquids Workshop, August 10-11, Morgantown, WV.
11. Pyrzynski, Travis, Naomi Klinghoffer, Howard Meyer, Shiguang Li, Miao Yu, Mahdi Fathizadeh#, “Bio-mimetic Hollow Fiber Membrane Contactor Process for Low-Cost High-Purity Oxygen Production”, 26th Annual North American Membrane Society Annual (NAMS 2016) Meeting, May 21 - 25, 2016, Bellevue, WA.
12. Li, Shiguang, Travis Pyrzynski, Naomi B. Klinghoffer, Howard Meyer, Miao Yu, Mahdi Fathizadeh#, “Production of High-Purity O₂ Via Gas-Liquid Membrane Contactor with Oxygen Carrier Solutions”, The 2017 Review Meeting for Crosscutting Research, Gasification Systems

and Rare Earth Elements Research Portfolios, March 20-23, 2017, Pittsburgh, PA.

13. Pyrzynski, Travis, Naomi Klinghoffer, Howard Meyer, Shiguang Li, Miao Yu, Mahdi Fathizadeh#, “Production of High-Purity Oxygen via Gas-Liquid Membrane Contactor with Oxygen Carrier Solutions”, 2017 International Congress on Membranes and Membrane Processes, July 29-August 4, 2017, San Francisco, CA.
14. Shiguang Li, Miao Yu, and Yong Ding, “Energy Efficient GO-PEEK Hybrid Membrane Process for Post-combustion CO₂ Capture”, Carbon Management Technology Conference 2017 (CMTCC 2017), July 17-20, 2017, Houston, TX.
15. Shiguang Li, Naomi Klinghoffer, Travis Pyrzynski, Howard Meyer, Miao Yu, Fanglei Zhou*, Huynh Ngoc Tien#, Jarvis Chen, and Yong Ding “Graphene oxide-PEEK hybrid membrane process for CO₂ Capture”, 2017 International Congress on Membranes and Membrane Processes, July 29 – August 4, 2017, San Francisco, CA.
16. Shiguang Li, Miao Yu, and Yong Ding “Energy Efficient GO-PEEK Hybrid Membrane Process for Post-combustion CO₂ Capture”, The 2017 NETL CO₂ Capture Technology Project Review Meeting, August 21 - 25, 2017, Pittsburgh, PA
17. Fanglei Zhou*, Huynh Ngoc Tien#, Jarvis Chen#, Shiguang Li, and Miao Yu “Amine-enhanced, ultrathin graphene oxide (GO) membranes on hollow fiber for highly efficient CO₂ capture”, 2017 International Congress on Membranes and Membrane Processes, July 29 – August 4, 2017, San Francisco, CA.
18. Fanglei Zhou*, Huynh Ngoc Tien#, Qiaobei Dong*, Weiwei L. Xu*, Huazheng Li#, Hongchao Mao#, Shiguang Li, and Miao Yu “Amine-Functionalized Graphene Oxide Hollow Fiber Membranes for CO₂ Capture”, Oral presentation, 2018 AIChE Annual Meeting, October 28 - November 2, 2018. Pittsburgher, PA.
19. Huazheng Li#, Fanglei Zhou*, Qiaobei Dong*, Shiguang Li, Naomi Klinghoffer, Shoujie Ren#, Xinhua Liang, Miao Yu, “Highly Efficient Synthesis of High Purity Methanol from CO₂ Hydrogenation Using a Dehydration Membrane Reactor”, Oral presentation, 2018 AIChE Annual Meeting, October 28 - November 2, 2018. Pittsburgher, PA.
20. Qiaobei Dong*, Zhuonan Song*, Fanglei Zhou*, Huazheng Li#, and Miao Yu, “Ultrathin, Fine-tuned Microporous Coating Modified 5A Zeolite for Propane/Propylene Adsorptive Separation”, Oral presentation, 2018 AIChE Annual Meeting, October 28 - November 2, 2018. Pittsburgher, PA.
21. Weiwei Xu*, Fanglei Zhou*, and Miao Yu, “Tuning Water Nanofiltration Performance of Few-layered, Reduced Graphene Oxide Membranes by Oxygen Plasma”, Oral presentation, 2018 AIChE Annual Meeting, October 28 - November 2, 2018. Pittsburgher, PA.
22. Ji Jiang#, Syed Islam#, Qiaobei Dong*, Shiguang Li, Naomi Klinghoffer, Xinhua Liang and Miao Yu, “Two-Stage Varying-Temperature Synthesis of High-Performance SAPO-34 Membranes for H₂/N₂ Separation at High Temperature”, Oral presentation, 2018 AIChE Annual Meeting, October 28 - November 2, 2018. Pittsburgher, PA.
23. Shiguang Li, Miao Yu, Yong Ding, “Energy Efficient GO-PEEK Hybrid Membrane Process for Post-combustion Carbon Dioxide Capture”, The 2018 NETL CO₂ Capture Technology Project Review Meeting, August 13 - 17, 2018, Pittsburgh, PA.
24. Miao Yu, Weiwei Xu*, Chao Fang, Fanglei Zhou*, Rui Qiao, “Self-Assembly: A Facile Way of Forming Ultrathin, High-Performance Graphene Oxide Membranes for Water Purification”,

- BIT's 8th Annual World Congress of Advanced Materials, July 22-24, 2019, Osaka, Japan
25. Shiguang Li and Miao Yu, "Transformational Graphene Oxide-Based Membrane Process for Post-combustion CO₂ Capture", 2019 AIChE Annual Meeting, November 10-15, 2019, Orlando, FL.
 26. Surya Padinjarekutt*, Huazheng Li#, Shoujie Ren#, Miao Yu, "Ammonia Separation with Microporous Inorganic Membranes", 2019 AIChE Annual Meeting, November 10-15, 2019, Orlando, FL.
 27. Bratin Sengupta*, Qiaobei Dong*, Fanglei Zhou*, Huazheng Li#, Dinesh Behera*, Georges Belfort, Miao Yu, "Precisely Distinguishing Small Hydrocarbon Molecules by a Continuous Coating of Well-stitched Graphene Oxide Flakes", 2019 AIChE Annual Meeting, November 10-15, 2019, Orlando, FL.
 28. Qiaobei Dong*, Weiwei Xu#, Fanglei Zhou*, Ji Jiang#, Dinesh Behera*, Huazheng Li# and Miao Yu, "Microporous-Mesoporous Hierarchical Structure for Entrapping Functional Materials", 2019 AIChE Annual Meeting, November 10-15, 2019, Orlando, FL.
 29. Shiguang Li, Miao Yu, Yong ding, Andrew Sexton, Katherine Dombrowski, "Energy Efficient GO-PEEK Hybrid Membrane Process for Post-combustion CO₂ Capture", the 2019 Carbon Capture, Utilization, Storage, and Oil and Gas Technologies Integrated Review Meeting, August 26 - 30, 2019, Pittsburgh, PA.
 30. Shiguang Li, Howard Meyer, Miao Yu, Yong Ding, "Advanced Membrane Technologies for Post Combustion CO₂ Capture", the 5th Post Combustion Capture Conference, September 17-20, 2019, Kyoto, Japan.
 31. Huazheng Li#, Fanglei Zhou*, Qiaobei Dong*, Shenxiang Zhang#, Surya Padinjarekutt*, Shoujie Ren#, Xinhua Liang, Shiguang Li, Miao Yu, "Highly Efficient Synthesis of Dimethyl Ether from CO₂ Hydrogenation Using a Dehydration Membrane Reactor", NAMS, May 11-15, 2019, Pittsburgh, PA.

POST-DOCTORAL RESEARCH ASSOCIATES

1. Xiaojie Zhang (Physical Chemistry, Chinese Academy of Science, Lanzhou Branch, PhD 2009), Postdoctoral Research Associate.
Responsible for investigating novel photocatalysts, September 2012-August 2013
2. Yi Huang (Chemical Engineering, Monash University, Australia, PhD 2011), Postdoctoral Research Associate.
Responsible for zeolite membrane synthesis, July 2013-June 2015
3. Mahdi Fathizadeh (Chemical Engineering, Amirkabir University of Technology, Iran, PhD 2011), Postdoctoral Research Associate.
Responsible for investigating solvent for O₂ absorption, April 2015-July 2017
4. Konstantin Khivantsev (Chemical Engineering, University of South Carolina, PhD 2015), Postdoctoral Research Associate.
Responsible for zeolite synthesis, April 2015-July 2017
5. Huynh Ngoc Tien (Materials Science, University of Ulsan, Korea, PhD 2015), Postdoctoral Research Associate.
Responsible for graphene oxide membrane synthesis and testing, April 2015-July 2017

6. Jung-Tsai (Jarvis) Chen (Chemical Engineering, National Taiwan University, Taiwan, PhD 2014), Postdoctoral Research Associate.
Responsible for graphene oxide membrane synthesis and testing, April 2015-May 2017
7. Eyas Mahmoud (Chemical Engineering, University of Delaware, PhD 2016), Postdoctoral Research Associate.
Responsible for zeolite membrane synthesis, February 2017-July 2017
8. Syed Islam (Chemical Engineering, University of Kentucky, PhD 2017), Postdoctoral Research Associate.
Responsible for membrane reactor testing, May 2017-June 2018
9. Huazheng Li (Chemical Engineering, Dalian University of Technology, China, PhD 2014), Postdoctoral Research Associate.
Responsible for zeolite membrane synthesis, February 2017-present
10. Shangwen Zha (Materials Engineering, New Mexico Institute of Mining and Technology, PhD 2017), Postdoctoral Research Associate.
Responsible for graphene oxide membrane synthesis, July 2017-July 2018
11. Hongchao Mao (Materials Engineering, Chinese Academy of Science, Changchun Branch, PhD 2015), Postdoctoral Research Associate.
Responsible for graphene oxide membrane synthesis, November 2017-February 2019
12. Ji Jiang (Chemical Engineering, Nanjing Tech University, China, PhD 2017), Postdoctoral Research Associate.
Responsible for zeolite membrane synthesis, November 2017-present
13. Shenxiang Zhang (Materials Engineering, Chinese Academy of Sciences, Suzhou Institute of Nano-Tech and Nano-Bionics, PhD 2017), Postdoctoral Research Associate.
Responsible for graphene oxide membrane synthesis, November 2017-May 2021
14. Shoujie Ren (Biological and Agricultural Engineering, Washington State University, PhD 2012), Postdoctoral Research Associate.
Responsible for sorbent for CO₂ capture, June 2018-May 2021
15. Weiwei Xu (Chemical Engineering, University of South Carolina, PhD 2017), Postdoctoral Research Associate.
Responsible for membrane reactor testing, January 2018-June 2019
16. Fanglei Zhou (Chemical Engineering, Rensselaer Polytechnic Institute, PhD 2019), Postdoctoral Research Associate.
Responsible for graphene oxide membrane synthesis, May 2019-November 2019
17. Qiaobei Dong (Chemical Engineering, Rensselaer Polytechnic Institute, PhD 2020), Postdoctoral Research Associate.
Responsible for sorbent materials synthesis, August 2020-March 2021
18. Shailesh Dangwal (Chemical Engineering, Oklahoma State University, PhD 2020), Postdoctoral Research Associate.
Responsible for sorbent materials synthesis, April 2021-present

GRADUATE STUDENTS

Dissertations/Theses Directed (as major professor unless otherwise indicated)

Ph.D. degree

1. Zhuonan Song, PhD, August 2012-June 2016, “Ultrathin Microporous Metal Oxide Coatings: Preparation by Molecular Layer Deposition, Characterization and Application”, working at W.L. Gore & Associates
2. Weiwei Xu, PhD, January 2014-December 2017, “Ultrathin Graphene Oxide Membranes for Water Purification: Fundamentals and Potential Applications”, working at Gas Technology Institute
3. Fanglei Zhou, PhD, August 2015-March 2019, “Ultrathin, Graphene Oxide-Based Membranes for CO₂ Capture from Flue Gas”, working at Membrane Technology & Research, Inc.
4. Qiaobei Dong, PhD, August 2016-May 2020, “Advanced Functional Nanoporous Coatings/Membranes: Preparation by Surface or Interfacial Reaction, Characterization, and Applications”, working at RPI as a postdoc

M.S. degrees

1. Hang Li, MS, August 2012-June 2014, “Ultrathin Graphene Oxide Membranes/coatings for Separations”, current position unknown
2. Lei Wang, MS, August 2012-June 2016, “PVDF Membranes with Stable, Ultrathin Graphene Oxide (GO) Functional Coatings for Antifouling Oil/Water Separation under Cross-Flow Condition”, working as a high school teacher in China

Dissertations/Theses in Progress

1. Kaleb Friedman, PhD, August 2020 – present, degree expected December 2024
2. Bratin Sengupta, PhD, August 2017 – present, degree expected December 2021
3. Dinesh Behera, PhD, August 2017 – present, degree expected December 2021
4. Surya Padinjarekutt, PhD, August 2017 – present, degree expected December 2021
5. Huanghe Li, PhD, August 2017 – present, degree expected December 2021
6. Pranav Ramesh (Co-advised with Dr. Georges Belfort), PhD, August 2018 – present, degree expected December 2022
7. Richard Ciora, PhD, August 2018 – present, degree expected December 2022
8. Fan Wang, PhD, August 2019 – present, degree expected December 2023
9. Mary Margaret Sta. Cruz, PhD, August 2019 – present, degree expected December 2023

Special Achievements of Graduate Students

Hang Li, SPARC Fellowship at the University of South Carolina, Spring 2014

Zhuonan Song, Chinese Government Award for Outstanding Self-Financed Students Abroad, Spring 2016

Surya Padinjarekutt, University Fellowship at Rensselaer Polytechnic Institute, Fall 2017 and Spring 2018

Bratin Sengupta, Groll Award for TA, Fall 2019

Dinesh Kumar Behera, Groll Award for TA, Spring 2020

Dissertation/Thesis Committee Member

Yunya Zhang, Department of Chemical Engineering, PhD, November 2015

Ritubarna Banerjee, Department of Chemical Engineering, PhD, November 2016

Indroneil Roy, Department of Chemical and Biological Engineering, PhD, May 2020

PROFESSIONAL ACTIVITIES

Leadership

Professional Organizations

Session chair for session on “Catalytic and Responsive Membrane Materials” at NAMS Meeting (2019)

Session chair at the Gordon Research Conference on Membranes: From Molecules to Modules (2018)

Session chair for session on “Specialized Membranes-Carbon/Metal Membranes (II)” at International Congress on Membranes and Membrane Processes (2014)

Session chair for poster session on “Membrane-Based Separations” at AIChE (2012, 2013)

Other Service

Journal and Conference Reviewer

Science, Science Advances, Nature Nanotechnology, Nature Energy, Nature Communications, Advanced Materials, Advanced Functional Materials, Applied Catalysis B: Environmental, Journal of Membrane Science, Langmuir, Chemical Engineering & Technology, Industrial & Engineering Chemistry Research, Separation and Purification Technology, and Journal of Materials Chemistry A

Proposal Reviewer

DOE BES (2021); NSF review panel for CMMI (2011) and CBET (2015)

Proposal reviewer for KAUST (2014)

Membership in Professional and Honor Societies

American Institute of Chemical Engineers, Member

North American Membrane Society, Member

UNIVERSITY SERVICE

Department Committees

Faculty meeting recorder, August 2012-May 2014 (University of South Carolina)

Undergraduate scholarship coordinator, August 2014-May 2016 (University of South Carolina)

Member, Graduate Recruitment Committee, August 2016-May 2017 (University of South Carolina)

Member, Faculty Search Committee, October 2016-April 2017 (University of South Carolina)

Faculty advisor for class 2021, August 2017-present (Rensselaer Polytechnic Institute)

Judge for 2019 Gill Award (Rensselaer Polytechnic Institute)

School Committees

None.

University Committees

Faculty Senator, August 2013-May 2016 (University of South Carolina)

Member, ASPIRE Review Panel, March 2014 (University of South Carolina)

Member, RAF Faculty Advisory Committee, April 2018-present (Rensselaer Polytechnic Institute)