CURRICULUM VITAE

HAIQING LIN

EMPLOYMENT HISTORY:

University at Buffalo, The State University of New York
Department of Chemical and Biological Engineering

Associate Professor	8/2018 - present
Assistant Professor	8/2013 – 7/2018

Membrane Technology and Research, Inc. (MTR), Newark, CA

Senior Research Engineer and Team Leader of Gas Separation	9/2005 - 7/2013

EDUCATION:

Ph.D. Chemical Engineering;	The University of Texas at Austin	2005
M.S. Chemical Engineering;	North Carolina State University	2001
M.S. Chemical Engineering;	Xiamen University, P.R. China	1999
B.S. Chemical Engineering;	Xiamen University, P.R. China	1996

AWARDS:

- UB Blue Skye Gold Coin 2019
- I&EC Research Excellence in Review Awards 2017
- NSF CAREER Award 2016
- UB SEAS Early Career Researcher of the Year Award 2015
- UB Individual Development Award ..... 2015 - 2017
- Top cited paper in 2011 and 2012 in *Journal of Membrane Science* 2013
- Distinguished Alumni Award (Chemical Engineering, Xiamen University) 2011
- Most downloaded paper in 2006 and 2007 in *Journal of Molecular Structure* 2008
- University of Texas CO-OP Research Excellence Award for Best Research Paper in 2006
- AIChE Separation Division Graduate Student Award 2006
- North American Membrane Society Graduate Student First Place Poster Award .2003
- DuPont Fellowship (Xiamen University) 1999

AWARDS WON BY GRADUATE STUDENTS:

- Liang Huang: Young Investigator Fellowship from North American Membrane Society Conference (NAMS) 2019
- Lingxiang Zhu: Winner of Chinese Government Award for Outstanding Self-financed Students Abroad (2018); Graduate Research Award of Membranes of AIChE Separation Division (2018); Student Fellowship from North American Membrane Society Conference (NAMS) 2018; Dean's Graduate Achievement Award from UB 2018; Finalist of AIChE Graduate Research Award of Polymers 2017; Student Speaker Award by the CBE Department 2017; Elias Klein traveling award from NAMS 2015
- Milad Yavari: A&WMA Student Award 2017
- Nima Shahkaramipour: First Prize Poster Award at NAMS 2018; First Prize Poster Award at Graduate Research Symposium of CBE 2018; Air & Waste Management Association (A&WMA) Student Award 2018; 2nd place NY P2I Student Competition by Pollution Prevention Program 2016; Elias Klein traveling award from NAMS 2016

- Junyi Liu: Graduate Research Award of Membranes of AIChE Separation Division (2019); Student Speaker Award by the CBE Department (2018 and 2017)
- Thien (James) Tran: Student Speaker Award by the CBE Department (2019); Finalist of ACS Graduate Research Award of PMSE 2018; Elias Klein traveling award from NAMS 2017
- Hien Nguyen: First Prize Poster Award at AIChE 2019; First Prize Poster Award at Graduate Research Symposium of CBE 2019; Third Prize Poster Award and Elias Klein traveling award from NAMS 2018
- Xiaoyi Chen: Elias Klein traveling award from NAMS 2019

PROFESSIONAL SERVICES AND MEMBERSHIPS:

- Board Director of NAMS (2020-2023)
- Director of Separation Division of AIChE (2019 – 2024); Chair and vice-chair of Area 2D of Membrane-based Separation of Separation Division of AIChE (2015-2019)
- Editor of Scientific Reports (2016-present). Editorial board member of Advances in Polymer Technology (2018-present) and Heliyon (2008-present)
- Guest editor of a special issue entitled "Polymeric Membranes: Chemistry, Physics, and Applications" for *Journal of Polymer Science* (2019)
- Guest editor of a special issue entitled "Polymeric Membranes for Gas Separation" for *Membranes* (2018)
- Symposium co-organizer of MRS Advanced Membranes for Energy-efficient Molecular Separation and Ion Conduction (November 2019) and Functional Nanostructured Polymers for Emerging Energy Technologies (November 2016)
- Invitation to participate ACS workshop to develop a roadmap to accelerate the application of a new generation of energy-efficient fluid separation processes (2016)
- Symposium organizer of ACS Polymeric Materials Science and Engineering (PMSE) "Nanostructured Porous Polymers: Synthesis, Property, and Function" (March 2015)
- Panel leader of Membranes for Shale Gas Applications of Gordon Research Conferences on Membranes: Materials and Processes (2014)
- Session co-chair at Sino-US Joint Chemical Engineering Conference (2013 and 2015), ACS National Conference (2012 and 2017), AIChE National Conference (2006, 2013-2018), and NAMS conferences (2008, 2009, 2011, 2012, 2016-2018)
- Proposal reviewer for NSF DMR and CBET Program (2014 - 2018), UK EPSRC Program (2014-2017), ACS PRF Program (2014-2018), U.S.-Israel Binational Agricultural Research and Development Fund (BARD 2013), DOE Hydrogen Program (2007 and 2009), and DOE Advanced Energy Manufacturing (2009).
- Peer reviewer for research journals (~50 manuscripts/year): ACS Applied Materials and Interfaces, ACS Macro Letters, ACS Nano, AIChE Journal, Chemistry of Materials, Industrial & Engineering Chemistry Research, Journal of Materials Chemistry A, Journal of Membrane Science, Macromolecules, Nano Letter, Nature Communications, Polymer, Progress in Polymer Science, Scientific Reports, etc.
- Board of Directors, Vice-Chair, and Chair of AIChE Northern California Section: 2006-2012
- Membership of ACS, AIChE, MRS, and NAMS.

DEPARTMENT SERVICES:

- Committee member of graduate study (08/2018 – present)
- Committee member of the Tenure and Promotion of School of Engineering and Applied Science of UB (08/2018 – present)

- Committee member of academic grievance (11/2015 – 12/2019)
- Advisor to the student chapter of AIChE at UB (5/2014 – 07/2018), and committee member of undergraduate study (09/2014 – 07/2018)
- Committee member of the Annual Graduate Research Symposium (9/2013 – 07/2018)
- Committee member of faculty search (10/2015 – 5/2017)

RESEARCH SUPERVISION (Female students' names are in *italics*)**:**

Postdoctoral associates (2): Dr. Leiqing Hu; Dr. Liang Huang

Ph.D. students (8): *Taliehsadat Alebrahim*, *Xiaoyi Chen*, *Krysta Clark*, Hien Nguyen, Sankhajit Pal, Ameya Tandel, Thien Tran, and Gengyi Zhang

M.S. students (6): Alisa Chakraborty, Erda Deng, Xiao-ci Lin, Himangshu Mondal, Darius Rub, and Riliwan Sanni

Visiting scholars (4): Shaojian He (North China Electric Power University), Qingping Xin (Tianjin Polytechnic University), Meng You (Tianjin Polytechnic University), and Wenhai Zhang (Beijing University of Technology)

Graduated Ph.D. (5): Junyi Liu (Air Liquide), *Maryam Omidvar* (Technical University of Denmark), Nima Shahkaramipour, Milad Yavari (SRI International), and Lingxiang Zhu (DOE NETL)

Graduated M.S. (16): *Shabdiki Chaurasia (*Jordi Lab*), Xiaoyi Chen* (UB), Sarthak Doshi, *Janavi Gohil* (Pall), Xianda Hou (Daqing Pure Hemp Technology Corp., China), Weiguang Jia (Jushi), Benjamin Lam (Helios-NRG), Junyi Liu (Air Liquide), Praphulla Mandadapu (Dow Chemical), Nachiket Paranjape (Yahoo), Sankara Ramanan (FluoroFusion); Shawreen Shah (Akorn), *Yichen Tu* (Intel), *Haley Valentine* (Thermo Fisher Scientific), Gengyi Zhang (UB), and Shizhong Zhao (Biopeptech)

Past Visiting scholars (6): *Ming-yin Hsiao* (Meiji University, JP), *Qing Huo* (Beijing Union University), Kisato Nishida (Meiji University, JP), Leiqing Hu (Zhejiang University, China), *Huiling Zhao* (Eastern China University of Science and Technology, China), and Takahiro Suizu (Meiji University, JP)

Undergraduate students (42, including 11 female students):
2019: Vinh Bu, Zhihao Feng, *Sarah Howard*, Mohamed Kawy, Robert Kirisits, Omran Omar, Darius Rub, and Skye Schaefer
2018: *Tanahiry Escamilla;* Suting Huang; Zhihao Feng, Chen Lin, Mohamed Kawy, and Omran Omar
2017: *Stephanie Hall;* Suting Huang; Mingi Ji; *Fleurie Kelley*; Chen Lin; and Yash Savla
2016: *Jennifer Park*; Hunter Steven; *Sumbal Zaman; Tanahiry Escamilla; Beatrices Bacolod*; and Chris Chan
2015: Ananthan Balachandran; Kaipin Huang; James Kim; Tho Le; John Schneible; Brandon Chin; Ryan Fair; Ken He; *Azza Hosny*; Tony Huynh; *Vivian Huyhn*; and Norman Ng
2014: Po-Han Chen; *Dana Havas*; Weiguang Jia; and Min Wei

CURRENT AND PAST GRANTS AND CONTRACTS AT UNIVERSITY AT BUFFALO

Summary:

- Total funding of ~$14 million, including ~$7 million for the projects with Haiqing Lin as the PI.
- Lin's lab has a share of ~$5 million.

Grants and Contracts as a PI at UB

Status	Co-PIs	Title	Funding Agent	Effective Dates	Total Amount
Current	Tim Cook, Tim Merkel, Andrew Sexton	Rational Development of Novel Metal-Organic Polyhedra-based Membranes for CO2 Capture	DOE NETL	7/1/19 – 6/30/22	$2,857,557
			NYSTAR		$599,999
	Raj Singh (LANL) and Andrew Sexton (Trimeric)	AOI [1] Development of ultrahigh-flux hollow fiber membranes based on carbon molecular sieve with superior H_2/CO_2 separation properties	DOE NETL	9/1/18-8/31/21	$800,000
	N/A	CAREER: SusChEM: Design and Discovery of Polymers with Pendant Rings for Membrane Gas Separations	NSF CBET	3/1/16-2/28/21	$500,000
Past	N/A	Stable Ultrathin Film Composite Membranes with High CO_2 Flux	Korea Carbon Capture and Sequestration R&D Center	6/1/14 - 5/31/17	$400,000
	Jongmin Shin and Jinyoung Song	Zero Energy Adaptive Façade (ZEAF) for Energy Efficient Buildings	UB SMART	4/1/16-3/31/17	$34,981
	Chong Cheng	Feasibility Study of Antifouling Membranes for Wastewater Reuse	NY Pollution Prevention Program	8/1/14 - 12/31/16	$93,925
	N/A	Development of Advanced Membrane Materials for Industrial Gas Separation and Water Reuse	UB CMI	2/1/15 – 6/30/15	$25,000
	N/A	Nanofiltration membranes for Li recovery	FMC	12/5/14 – 6/5/15	$3,600
	N/A	Membrane Testing for Lubrizol	Lubrizol	12/5/14 – 6/5/15	$8,995
	Bing Gong	Nanostructured Membranes with Sub-Nanometer Channels for Energy Efficient Seawater Desalination and Food Processing	UB RENEW	9/1/14 – 8/31/15	$25,300
	N/A	SBIR: Advanced Membrane Technology for Helium Recovery	Helios/DOE	4/1/14 - 3/31/15	$10,000
	Jeff Errington	Rational Development of Robust Membranes for Nitrate Removal from Wastewater	Stony Brook University	10/1/17 – 9/30/18	$35,000
	N/A	Collaborative Research: SusChEM: Molecular Design of Durable Lewis Basic Elastomeric Membranes for Clean Energy Conversion and CO_2 Separation	NSF DMR	7/1/15 - 6/30/19	$180,102

	Mark Swihart & Tim Merkel	AOI [1L2] Sorption Enhanced Mixed Matrix Membranes for CO_2 Capture from Precombustion Processes	DOE NETL	10/1/15 - 12/31/19	$1,470,099

Grants and Contracts as a Subcontractor or a Co-PI (*Italic: PI at UB*)

Status	PI	Title	Funding Agent	Effective Dates	Total Amount (Lin share)
Current	*Ravi Prasad (Helios-NRG)*	*Novel Algae Technology to Utilize CO_2 for Value Added Products*	*DOE NETL*	*7/1/19-6/30/22*	*$1,499,558 ($192,800)*
	Mark Swihart (PI) and Carl Lund (co-PI)	Manufacturing USA: GOALI: Designing Catalytic Membrane Reactors (CMRs) for Low-Temperature CO_2 Utilization and Methane Dry Reforming	NSF CBET	8/1/18-7/31/21	$360,000 ($120,000)
	Tim Cook	Buffalo Blue Sky	UB	6/13/19-6/30/21	$45,000 ($20,000)
	Ravi Prasad (Helios-NRG)	*Novel Algae Technology for CO_2 Utilization*	*DOE SBIR Phase II*	*5/21/18-5/20/20*	*$1,000,000 ($199,806)*
	Hans Wijmans (MTR)	*AOI [1] Development of Self-Assembly Isoporous Supports Enabling Transformational Membrane Performance for Cost-Effective Carbon Capture*	*DOE NETL*	*4/1/18 – 3/31/21*	*$2,907,219 ($299,587)*
	Liang Feng	Laser Chip Lithography-Patterned Nanomembranes for Wastewater Treatment	NSF CMMI	9/1/16-8/31/20	$250,000 ($86,000)
Past	*Ravi Prasad (Helios-NRG)*	*Scalable Polymerized Metal-Organic Frameworks with CO_2-philic Rubbery Polymers for Membrane CO_2/N_2 Separation*	*DOE STTR Phase I*	*7/2/18 – 4/1/19*	*$150,000 ($75,000)*
	Tim Cook	Mixed Matrix Membranes Comprising Polymers and Metal-Organic Polyhedra for Olefin/Paraffin Separation	UB IMPACT	1/15/17 – 1/14/18	$32,000 ($16,000)
	Ravi Prasad (Helios-NRG)	*Novel Algae Technology for CO_2 Utilization*	*DOE SBIR Phase I*	*2/21/17– 11/20/17*	*$150,000 ($35,000)*
	Javid Rzayev	Isoporous Ultrafiltration Membranes by Self-Assembly of Block Copolymers for Water Purification	UB IMPACT	2/1/16-1/31/17	$35,000 ($17,500)
	Liang Feng	IMPACT: Robust Nanoscale-Patterned Membranes for Wastewater Treatment Using Laser Chips-Based Lithography	UB IMPACT	5/15/15 - 4/14/16	$34,354 ($12,000)
	Ravi Prasad (Helios-NRG)	*Novel Integrated Technology Incorporating Anti-fouling Membranes to Dewater Algal Harvests*	*DOE SBIR Phase I*	*6/8/15 - 3/7/16*	*$150,000 ($45,000)*
	Uttam Singisetti	Ultrathin High Flux Atomic Layer Deposited (ALD) Metal Membranes for Green H_2 Production	UB IMPACT	4/1/14 - 3/31/15	$34,947 ($11,800)
	Mark Swihart	Study of Chlorine Adsorption in Scrubber Bed Material	AVOX Systems	8/1/14-10/31/14	$13,972 ($6,900)
	Ning Dai	Innovative Seawater Desalination Systems Coupling Peroxide	Department of Interior	3/1/18 – 8/31/19	$150,000 ($75,000)

		Oxidation and Reactive Graphene Oxide Modified Membranes			
	Bing Gong	Nanoporous Membranes Based on Sub-Nanometer Pores	NSF CBET	6/15/15-5/31/19	$300,000 ($0)

PAST GRANTS AND CONTRACTS AT MTR (2005 - 2013)

Summary: Total funding of ~$3.7 million, with Lin as the PI unless otherwise noted.

1. California Energy Commission, Energy Innovations Small Grant Programs, "Prototype and Demonstration of Membrane Processes for Natural Gas Dehydration," $94,995, 1/2012-12/2012
2. DOE Small Business Innovation Program (SBIR) Phase II, "Advanced Membrane Technology for Helium Recovery," $67,000, 11/2011 – 9/1013, [subcontractor to Helios-NRG (PI)]
3. EPA SBIR Phase II, "Novel Membrane Process to Utilize Dilute Methane Streams," $225,000, 5/2011 – 4/2013
4. DOE SBIR Phase I, "Novel Thermally Rearranged Polymers for Olefin-Paraffin Separations," $150,000, 6/2011 – 3/2012 (with University of Texas at Austin)
5. EPA SBIR Phase I, "Novel Membranes for Natural Gas Dehydration," $80,000, 3/2011 – 8/2011
6. DOE SBIR Phase III Xlerator program, "Field Demonstration of CO_2 Capture from Coal-Derived Syngas," $1,499,990, 9/2010 – 6/2013
7. DOE Industrial Technology Program Grand Challenge Project, "Novel Membrane and Processes for Oxygen Enrichment," $385,819, 8/2010 – 8/2011 (with Gas Technology Institute and Tetramer Technology)
8. EPA SBIR Phase I, "Novel Membrane Process to Utilize Dilute Methane Streams," $70,000, 3/2010 – 9/2010
9. EPA SBIR Phase I, "High Flux Membranes to Upgrade Biogas from Anaerobic Digesters," $70,000, 2/2009 – 7/2009
10. DOE SBIR Phase II, "Membrane System for Coal Bed CO_2 Sequestration and Methane Production," $750,000, 8/2008 – 7/2010
11. NSF SBIR Phase II, "New Synthesis Approach to High Performance, Low Cost CO_2/CH_4 Gas Separation Membranes," $500,000, 2/2008 – 2/2010 (subcontract to Tetramer Technologies)
12. EPA SBIR Phase II, "A Membrane Pre-concentrator for Portable Trace VOC Detector," $225,000, 5/2007 – 4/2009
13. DOE NETL, "Membrane Process to Sequester CO_2 from Power Plant Flue Gas," $800,000, 4/2007 – 3/2009 (I participated in this project, which lead to the second and third phases of the technology development with a total funding of $20,000,000 from DOE)
14. DOE SBIR Phase I, "Energy-Efficient Process to Utilize Dilute Methane Emissions," $100,000, 9/2006 – 3/2007
15. EPA SBIR Phase I, "A Membrane Pre-concentrator for Portable Trace VOC Detector," $70,000, 2/2006 – 8/2006
16. DOE SBIR Phase II, "Stable Membranes for Separating Hydrogen Containing Petrochemical and Refinery Stream," $750,000, 7/2005 – 7/2007

PUBLICATIONS (Google Scholar Citation of 5735 in total; H-index: 30; https://scholar.google.com/citations?hl=en&user=7cxhEhwAAAAJ&sortby=pubdate)

Note 1: Articles with the title in bold have Prof. Lin as the corresponding author.
Note 2: The students' names from PI Lin's group at UB are in italics.

Refereed Journals after Graduation

1. *N. Shahkaramipour*, A. Jafari, *T. Tran*, C.M. Stafford, C. Cheng, and H. Lin, **Maximizing the grafting of zwitterions onto the surface of ultrafiltration membranes to improve antifouling properties**, submitted to *Journal of Membrane Science*.
2. M. Ghafari, B. Xiong, L. Su, T. M. Mohona, H. Lin, D.L. Plata, N. Dai, Compatibility of Aromatic Polyamide Membrane with Peracetic Acid for Wastewater Reuse, submitted to *Environmental Science and Technology*
3. *X. Chen*, *Z. Feng*, *J. Gohil*, C.M. Stafford, N. Dai, L. Huang, and H. Lin, **Reduced Holey Graphene Oxide Membranes for Desalination with Improved Water Permeance**, *ACS Appl. Mater. & Interfaces,* in press.
4. *T. Tran*, *Y. Tu*, *S. Hall-Laureano*, *C. Lin*, *M. Kawy*, and H. Lin, **"Non-stick" Membranes Prepared by Facile Surface Fluorination for Water Purification,** *Industrial & Engineering Chemistry Research,* in press
5. *M. Omidvar*, *H. Nguyen*, L. Huang, C.M. Doherty, A.J. Hill, C.M. Stafford, X. Feng, M.T. Swihart, and H. Lin, **Unexpectedly Strong Size-Sieving Ability in Carbonized Polybenzimidazole for Membrane H_2/CO_2 Separation**, *ACS Appl. Mater. & Interfaces,* 11 (50), 47365-47372 (2019)
6. Y. Li, M. Yavari, A. Baldanza, E. Di Maio, G. Mensitieri, Y. Okamoto, H. Lin and M. Galizia, Volumetric and sorption behavior of fluorinated polymers with dioxolane pendant rings for membrane applications, *Industrial & Engineering Chemistry Research*, in press.
7. *W. Jia*, J. Jeon, *L. Zhu*, C. Bae, and H. Lin, **Fluorinated Polystyrene-*b*-polybutadiene-*b*-polystyrene (F-SBS) for Membrane Gas Separation,** *Journal of Membrane Science*, 591, 117296 (2019).
8. *J. Liu*, S. Zhang, D. Jiang, C. M. Doherty, A. J. Hill, C. Cheng, H. Park, and H. Lin, **Highly Polar but Amorphous Polymers with Superior Membrane CO_2/N_2 Separation Properties**, *Joule*, 3(8), 1881-1894 (2019).
9. *L. Zhu*, D. Yin, Y. Qin, S. Konda, S. Zhang, A. Zhu, S. Liu, T. Xu, M. T. Swihart, H. Lin, **Sorption-Enhanced Mixed Matrix Membranes with Facilitated Hydrogen Transport for Hydrogen Purification and CO_2 Capture**, *Advanced Functional Materials*, 1904357 (2019).
10. *M. Yavari*, *M. Omidvar*, H. Lin, **Effect of Pendant Dioxolane Rings in Polymers on Gas Transport Characteristics**. *ACS Appl. Polym. Mater.,* 1, 1641-1647 (2019).
11. *H. Nguyen*, M. Wang, *M. Hsiao*, K. Nagai, Y. Ding, and H. Lin, **Suppression of crystallization in thin films of cellulose diacetate and its effect on CO_2/CH_4 separation properties,** *J. Membr. Sci.*, 586, 7-14 (2019).
12. *J. Liu*; *G. Zhang*; *K. Clark*; H. Lin. **Maximizing ether oxygen content in polymers for membrane CO_2 removal from natural gas**. *ACS Applied Materials & Interfaces*. 11 (11) 10933-10940 (2019).
13. *M. Omidvar*, C. Stafford, and H. Lin, **Thermally Stable Cross-linked P84 with Superior Membrane H_2/CO_2 Separation Properties at 100 °C**, *Journal of Membrane Science*, 575, 118-125 (2019)
14. *T. Tran*, *C. Lin*, *S. Chaurasia*, and H. Lin, **Elucidating the relationship between states of water and ion transport properties in hydrated polymers**, *Journal of Membrane Science*, 574, 299-308 (2019)
15. L. Huang, *S. Huang*, S.R. Venna, and H. Lin, **Rightsizing Nanochannels in Reduced-Graphene Oxide Membranes by Solvating for Dye Desalination**, *Environmental Science and Technology*, 52 (21), 12649-12655 (2018)
16. L. Huang, and H. Lin, **Engineering Sub-nanometer Channels in Two-Dimensional Materials for Membrane Gas Separation**, *Membranes*, 8(4), 100 (2018)
17. S. Konda, M. M. Mohammadi, R. D. Buchner, H. Lin, and M. T. Swihart, Flame-based Synthesis and *in situ* Functionalization of Palladium Alloy Nanoparticles, *AIChE J.*, 64 (11), 3826-3834 (2018)
18. S. Luo, Q. Zhang, *L. Zhu*, H. Lin, B. A. Kazanowska, C. M. Doherty, A. J. Hill, P. Gao, and R. Guo, Ultra-selective and ultra-permeable thermally rearranged polymer membranes for hydrogen purification and CO_2 removal from natural gas, *Chemistry of Materials*, 30, 15, 5322 – 5332 (2018)

19. J. Xu, *T. Tran*, H. Lin, and N. Dai, Removal of Disinfection Byproducts in Forward Osmosis for Wastewater Recycling, *Journal of Membrane Science*, 564, 352-360 (2018)
20. *L. Zhu*, D. Tian, D. Shin, *W. Jia*, C. Bae, and H. Lin, **Effects of tertiary amines and quaternary ammonium halides in polysulfone on membrane gas separation properties**, *Journal of Polymer Science Part B: Polymer Physics*, 56, 1239-1250 (2018)
21. A. Ghadimi, S. Norouzbahari, H. Lin, H. Rabiee, and B. Sadatnia, Geometric Restriction of Microporous Supports on Gas Permeance Efficiency of Thin Film Composite Membranes, *Journal of Membrane Science,* 563, 643-654 (2018)
22. *L. Hu*, *J. Liu*, *L. Zhu*, *X. Hou*, *L. Huang*, H. Lin, and J. Cheng, **Highly permeable mixed matrix materials comprising crosslinked poly(ethylene oxide) and ZIF-8 nanoparticles for CO_2 capture,** *Separation and Purification Technology,* 205, 58-65 (2018)
23. *S. N. Ramanan*, *N. Shahkaramipour*, *T. Tran*, *L. Zhu*, S. R. Venna, C. Lim, A. Singh, P. N. Prasad and H. Lin, **Self-cleaning membranes for water purification by co-deposition of photo-mobile 4,4'-azodianiline and bio-adhesive polydopamine**, *Journal of Membrane Science,* 554, 164-174 (2018)
24. *M. Yavari*, M. Fang, H. Nguyen, T. C. Merkel, H. Lin, and Y. Okamoto, **Dioxolane-based Perfluoropolymers with Superior Membrane Gas Separation Properties**, *Macromolecules,* 51 (7), 2489-2497 (2018)
25. C. P. Fulong, *J. Liu*, V. J. Pastore, H. Lin, and T. R. Cook, **Mixed-matrix materials using metal-organic polyhedra with enhanced compatibility for membrane gas separation**, *Dalton Transactions*, 47 (24) 7905-7915 (2018)
26. *M. Omidvar*, *H. Nguyen*, *J. Liu*, and H. Lin, **Sorption-Enhanced Membrane Materials for Gas Separation: A Road Less Traveled**, *Current Opinion in Chemical Engineering*, 20, 50-9, 2018
27. *N. Shahkaramipour*, C. K. Lai, S. R. Venna, C. Cheng, and H. Lin, **Co-deposition of thiol-containing zwitterionic polymers and polydopamine to enhance surface antifouling properties of ultrafiltration membranes**, *Industrial & Engineering Chemistry Research*, 57 (6), 2336-2345, 2018
28. *L. Zhu*, M. Swihart and H. Lin, **Unprecedented size-sieving ability in polybenzimidazole doped with polyprotic acids for membrane H_2/CO_2 separation**, *Energy & Environmental Science*, 11, 94-100, 2018
29. *M. Yavari*, Y. Okamoto, and H. Lin, **The Role of Halogens in Polychlorotrifluoroethylene (PCTFE) in Membrane Gas Separations**, *Journal of Membrane Science*, 548, 380-9, 2018
30. *L. Zhu*, M. Swihart and H. Lin, **Tightening nanostructure of PBI for membrane H_2/CO_2 separation**, *Journal of Materials Chemistry A*, 5, 19914-19923, 2017, DOI: 10.1039/C7TA03874G
31. M. Wang, J. M. Gorham, J. P. Killgore, *M. Omidvar*, H Lin, F. W. DelRio, L. M. Cox, Z. Zhang, and Y. Ding, Formation of a crack-free, hybrid skin layer with tunable surface topography and improved gas permeation selectivity on elastomers using gel-liquid infiltration polymerization, *ACS Applied Materials & Interfaces*, 9 (33) 28100-28106 (2017)
32. *N. Shahkaramipour*, *S. N. Ramanan*, D. Fister, E. Park, S. R. Venna, H. Sun, C. Cheng, and H. Lin, **Facile grafting of zwitterions onto membrane surface to enhance antifouling properties for wastewater reuse**, *Industrial & Engineering Chemistry Research*, 56 (32), 9202-9212, 2017.
33. *N. Shahkaramipour*, *T. N. Tran*, *S. Ramanan*, and H. Lin, **Membranes with surface-enhanced antifouling properties for water purification**, *Membranes*, 7 (1), 13, 2017
34. *Tran, T.*; *Ramanan, S.*; and H. Lin, **Synthesis of hydrogels with antifouling properties as membranes for water purification**, *Journal of Visualized Experiments* 2017, 122, doi: 10.3791/55426.
35. H Fan, R Wang, L Shan, H Yan, J Li, S Ji, H Lin, G Zhang, One-step assembly of molecular separation membranes by direct atomizing oligomer, *ACS Applied Materials & Interfaces*, 9(4), 4074-4083, 2017.
36. *N Paranjape*, *P Chandra*, G Wu and H. Lin, **Highly-branched cross-linked poly (ethylene oxide) with enhanced ionic conductivity**, *Polymer*, 111, 1-8, 2017

37. *L Zhu*, *M Yavari*, *W Jia*, EP Furlani and H. Lin, **Geometric restriction of gas permeance in ultrathin film composite membranes evaluated using an integrated experimental and modeling approach**, *Industrial & Engineering Chemistry Research*, 56 (1), 351-358, 2017
38. *D Havas* and H Lin, **Optimal membranes for biogas upgrade by removing CO_2: High permeance or high selectivity?** *Separation Science and Technology*, 52 (2), 186-196, 2017
39. *M. Yavari*, S. Maruf, Y. Ding, H. Lin, **Physical aging of glassy perfluoropolymers in thin film composite membranes. Part II. Glass transition temperature and the free volume model**, *Journal of Membrane Science*, 525, 399-408, 2017
40. *M. Yavari*, *T. Le*, H. Lin, **Physical aging of glassy perfluoropolymers in thin film composite membranes. Part I. Gas transport properties**, *Journal of Membrane Science*, 525, 387-398, 2017
41. S. Luo, *J. Liu*, H. Lin, B. A. Kazanowska, M. D. Hunckler, R. K. Roeder, R. Guo, "Preparation and gas transport properties of triptycene-containing polybenzoxazole (PBO)-based polymers derived from thermal rearrangement (TR) and thermal cyclodehydration (TC) processes", *Journal of Materials Chemistry A* **4**, 17050-17062, 2016.
42. *J. Liu*, *X. Hou*, H. B. Park, H. Lin, "**High-performance polymers for membrane CO_2/N_2 separation**", *Chemistry - A European Journal*, 22 (45), 15980-15990, 2016.
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Refereed Journals before Graduation (19)

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Book Chapters (6)

1. X. Hou, J. Liu, H. Nguyen, and H. Lin, "**Doping Polymers with Ionic Liquids to Manipulate Morphology and Membrane Gas Separation Properties**," in *Polymerized Ionic Liquids,* Edited by A. Eftekhari, Royal Society of Chemistry, 262-279, 2018
2. L Zhu, M Omid, and H. Lin, "**Manipulating Polyimide Nanostructures via Cross-linking for Membrane Gas Separation,"** in Membranes for Gas Separation, Edited by M. A. Carreon, World Scientific, Volume 1, 243-270, 2017.
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Patents and Applications

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2. N.P. Wynn, H. Lin, A. M. Zhou, J. Ly, and T. C. Merkel, "Low-energy process to produce oxygen-enriched air using membrane technology," US Patent Application 13/439,716 (April 1, 2012), Publication US20130263734A1.
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Invited Talks:

1. H. Lin, "Molecularly Engineered Sorption-enhanced Membrane Materials for CO_2 Capture," Department Seminar, Michigan State University, September 25, 2019
2. H. Lin, "Refining Polybenzimidazole (PBI) for Membrane H_2/CO_2 Separation," Air Liquide, America, September 16, 2019
3. H. Lin, "Molecularly Engineered Sorption-enhanced Membrane Materials for CO_2 Capture," Hanyang University, South Korea, August 2, 2019
4. H. Lin, "Molecularly Engineered Sorption-enhanced Membrane Materials for CO_2 Capture," Department Seminar, Beijing University of Technology, China, July 18, 2019
5. H. Lin, "Molecularly Engineered Sorption-enhanced Membrane Materials for CO_2 Capture," Research Institute of Innovative Technology for the Earth (RITE), Japan, July 12, 2019
6. H. Lin, "Molecularly Engineered Sorption-enhanced Membrane Materials for CO_2 Capture," Department Seminar, Kobe University, Japan, July 11, 2019
7. H. Lin, "Molecularly Engineered Sorption-enhanced Membrane Materials for CO_2 Capture," Department Seminar, Meiji University, Japan, July 9, 2019
8. H. Lin, "Designing Sorption-Enhanced Mixed Matrix Membranes for H_2/CO_2 Separation Using an Integrated Experimental and Modeling Approach," AIChE Conference, Pittsburgh, PA, October 29, 2018
9. H. Lin, "Molecularly Engineering Membranes for Sorption-enhanced Gas Separation," Department Seminar, Beijing University of Chemical Technology, October 18, 2018
10. H. Lin, "Advanced Membranes for Water Reuse and Algae Dewatering," Department Seminar, Beijing Union University, October 17, 2018
11. H. Lin, "Molecularly Engineering Membranes for Sorption-enhanced Gas Separation," Department Seminar, North China Electric Power University, China, October 16, 2018
12. H. Lin, "Sorption-enhanced mixed matrix membranes for pre-combustion CO_2 capture," Clearwater Clean Energy Conference, Clearwater, FL, June 4, 2018
13. H. Lin, "Effect of membrane surface chemistry on water permeance and antifouling properties," ACS Spring meeting, New Orleans, LA, March 19, 2018
14. H. Lin, "Molecularly Engineering of Membrane Materials for Separations through Enhanced Interactions: A Road Less Traveled," Department Seminar, Department of Chemical Engineering, University of Cincinnati, March 2, 2018
15. H. Lin, "Molecularly Engineering of Membrane Materials for Separations through Enhanced Interactions: A Road Less Traveled," Department Seminar, Department of Chemical Engineering, University of Waterloo, January 18, 2018
16. H. Lin, "Molecularly Engineering of Membrane Materials for Separations through Enhanced Interactions: A Road Less Traveled," Department Seminar, Department of Chemical Engineering, Zhejiang University, December 2017
17. H. Lin, "Molecularly Engineering of Membrane Materials for Separations through Enhanced Interactions: A Road Less Traveled," Department Seminar, Department of Chemical Engineering, Tianjin University, December 2017

18. H. Lin, “Molecularly Engineering of Membrane Materials for Separations through Enhanced Interactions: A Road Less Traveled,” Department Seminar, Department of Chemical Engineering, Tianjin Polytechnic University, December 2017
19. H. Lin, “Molecularly Engineering of Membrane Materials for Separations through Enhanced Interactions: A Road Less Traveled,” Department Seminar, Department of Chemical and Materials Engineering, University of Kentucky, March 1, 2017
20. H. Lin, “Facile Grafting of Zwitterions onto Membrane Surface to Improve Antifouling Properties for Wastewater Reuse,” ACS Spring, San Francisco, CA, April 6, 2017
21. H. Lin, “Molecularly Engineering Polymeric Materials with Enhanced Gas Sorption for Membrane CO_2 Capture,” Department Seminar, Department of Chemical Engineering, University of Rochester, October 5, 2016
22. H. Lin, L. Zhu, J. Liu and B. Lam, "Polymeric Membranes for CO_2 Separation,” American Chemical Society PacifiChem, Honolulu, HI, December 17, 2015
20. H. Lin, "Impregnated Membranes for Water Purification by Forward Osmosis," The 8th Sino-US Chemical Engineering Conference, Shanghai, China, October 2015
21. H. Lin, "Designing functional molecules for CO_2 Sorption,” Praxair Inc., Buffalo, NY, September 29, 2015
22. H. Lin, " Development of Membranes for H_2 Purification and CO_2 Capture: From Material Molecular Engineering to Technology Commercialization," Invited presentation at the Fourth EITA Young Investigator Conference, Boston, MA, August 27, 2015
23. H. Lin, M. Yavari and L. Zhu, "Integrated Membrane Materials and Process Development for Gas Separation," Conference of American Institute of Chemical Engineering (AIChE), Atlanta, GA, November 17, 2014
23. H. Lin, "Advances in Membrane Technology for Water Treatment," Department Seminar, Department of Civil, Structure and Environmental Engineering, University at Buffalo, December 4, 2014
24. H. Lin, " Development of Membranes for H_2 Purification and CO_2 Capture: From Material Molecular Engineering to Technology Commercialization," Department Seminar, Department of Chemical and Biomolecular Engineering, Ohio State University, September 25, 2014
25. H. Lin, "Membrane Processes and Economics for Industrial Gas Separation," Praxair Inc., Buffalo, NY, March 19, 2014
26. H. Lin, R. Daniels, T. Merkel and J. Wijmans, “Dilute Methane Utilization Using A Membrane Gas Exchanger,” AIChE Conference, San Francisco, CA, November 4, 2013
27. H. Lin, "Understanding the Practical Upper Bound for CO_2/CH_4 Separation Using Polymeric Membranes," The 7th Sino-US Chemical Engineering Conference, Beijing, China, October 15, 2013
28. H. Lin, “Understanding the Practical Upper bound for CO_2/CH_4 Separation,” *The 7th Sino-US Joint Chemical Engineering Conference*, Beijing, China, October 15, 2013.
29. H. Lin, " Development of Membranes for H_2 Purification and CO_2 Capture: From Material Molecular Engineering to Technology Commercialization," Department Seminar, Department of Chemical and Biomolecular Engineering, Xiamen University, July 31, 2014
30. H. Lin, "Membrane Development for Precombustion CO_2 Capture: From Molecular Engineering to Product Demonstration," Department Seminar, North China Electric Power University, China, October 17, 2013
31. H. Lin, "Development of Membranes for H_2 Purification and CO_2 Capture: From Material Molecular Engineering to Technology Commercialization," Department Seminar, Tianjin University, China, October 14, 2013
32. H. Lin, “Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture,” Auburn University, April 1, 2013 (*Interview*)
33. H. Lin, “Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture,” University of Houston, March 1, 2013 (*Interview*)
34. H. Lin, “Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture,” Clemson University, February 19, 2013 (*Interview*)
35. H. Lin, “Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture,” University at Buffalo, SUNY, February 14, 2013 (*Interview*)

36. H. Lin, "Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture," North Carolina State University, February 12, 2013 (*Interview*)
37. H. Lin, "Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture," Pennsylvania State University, February 5, 2013 (*Interview*)
38. H. Lin, "Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture," Texas Tech University, January 28, 2013 (*Interview*)
39. H. Lin, "Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture," Drexel University, January 24, 2013 (*Interview*)
40. H. Lin, "Molecular Engineering of Polymeric Membrane Materials for H_2 Purification and CO_2 Capture," University of Texas at Austin, January 17, 2013
41. H. Lin, A. Serbanescu-Martin, M. Zhou, and T.C. Merkel, "Oxygen Enrichment Using Membranes," *The 244th ACS National Conference*, Philadelphia, August 19, 2012.
42. H. Lin, T.C. Merkel, J. He, J. Kaschemekat, A. Ng, S. Pande, A. Serbanescu-Martin, S. Thomas-Droz, J. Vu, L.S. White, and M. Zhou, "Field Demonstration of CO_2 Capture from Coal-Derived Syngas," *The DOE Project Review Meeting at National Carbon Capture Center*, Wilsonville, AL, December 7, 2011.
43. H. Lin, A. Serbanescu-Martin, M. Zhou, and T.C. Merkel, "Understanding the Practical Upperbound for CO_2/CH_4 Separation," *The 240th ACS National Conference*, Boston, August 25, 2010.
44. H. Lin, "Hydrogen Purification and CO_2 Sequestration Using Polymeric Membranes," *Golden Gate Polymer Forum Dinner Meeting*, Mountain View, CA, May 18, 2009.