

*Curriculum Vitae*

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**RESEARCH INTERESTS**

Advance the fundamental understanding of the structure and dynamics of polymers at surface, interface and under confinement, to lay the foundations for innovations in robust nanomanufacturing, high efficiency polymer-based separation membranes, and responsive materials.

**EDUCATION**

Ph.D. – University of Akron, Akron, Ohio Department of Polymer Science	09/2001 – 05/2005
M.S. – Fudan University, Shanghai, China Department of Macromolecular Chemistry and Physics	09/1998 – 07/2001
B.S. – Fudan University, Shanghai, China Department of Polymer Science and Engineering	09/1994 – 07/1998

**EMPLOYMENT**

07/2017 – present	Director (CU site), Membrane Science, Engineering and Technology (MAST) Center, an NSF Industry and University Collaborative Research Center (IUCRC)
08/2019 – present	Professor, Mechanical Engineering, University of Colorado at Boulder
08/2014 – 07/2019	Associate Professor, Mechanical Engineering, University of Colorado at Boulder
08/2008 – 07/2014	Assistant Professor, Mechanical Engineering, University of Colorado at Boulder
06/2005 – 07/2008	Post-doctoral Researcher, National Institute of Standards & Technology (NIST)
08/2001 – 05/2005	Graduate Assistant, University of Akron, Akron, OH

**AWARDS AND HONORS**

2023 Woodward Outstanding Faculty Award, Mechanical Engineering, CU Boulder  
2022-2025 Board of directors, North American Membrane Society (NAMS)  
2021 Outstanding service award, Department of Mechanical Engineering, CU Boulder  
2021 Co-chair of 30<sup>th</sup> North American Membrane Society (NAMS) annual meeting  
2019-2021 American Chemical Society - Petroleum Research Fund (ACS- PRF) New Direction (ND) award  
2012-2013 Dean's Faculty Fellowship, College of Engineering and Applied Science, CU Boulder  
2010-2011 Outstanding Research Award, Department of Mechanical Engineering, CU Boulder  
2010 American Chemical Society (ACS)-Polymer Materials Science and Engineering (PMSE) Young Investigator  
2010 ACS- PRF New investigator award

2009 Junior Faculty Development Award, CU Boulder

## PATENTS

- Ding, Y.; Maruf, S.; Pellegrino, J.; Greenberg, A. “Filtration Membranes with Nanoscale Patterns”, US patent 10369525. (licensed to Pure Blue Technology).
- Sharstniou, A.; Niazorau, S.; Bruno, A.; Ding, Y.; Markovski, J. “Metal-coated Porous Polymeric Stamp Materials for Electrochemical Imprinting” US patent 11,539,193 B2.
- Ding, X.; Fung, K.; Ding, Y. “Acoustic Enhanced Membrane Separation Technology”, Provisional Patent Application: 63/429,444 (filing date: 12/01/2022).

## PUBLICATIONS (\*indicates corresponding author)

- “3D printed Helmholtz microstreaming structures: analysis of bubble dynamics, bulk fluid disturbance, and resiliency in non-quiescent conditions”, K. Fung, S. Fan, T. J. Kolibaba, B. W. Caplins, J. P. Killgore, X. Ding\*, Y. Ding\*, **In revision**.
- “Impact of Interfaces on the CO<sub>2</sub> Permeability of Photopatterned Two-Stage Thiolene Polymer Films”, A. K. Blevins, L. Hu, J. P. Killgore, H. Lin, Y. Ding\*, **In press**.
- “Few-cycle atomic layer deposition to nanoengineer polybenzimidazole for H<sub>2</sub>/CO<sub>2</sub> separation”, L. Hu, W. Lee, A. Subramanian, E. Deng, K. Kisslinger, S. Fan, V. Bui, Y. Ding, C. Nam, H. Lin, *Chemical Engineering Journal*, **2024**, 479, 147401.
- “Understanding Mechanical Response of Porous Polymeric Stamps During Large-Area Metal-Assisted Chemical Imprinting of Silicon”, E. Dasinor, A. Sharstniou, Y. Ding, B. Azeredo, *International Manufacturing Science and Engineering Conference Proceedings*, **2023**, 87240, V002T08A008.
- “IR Spectroscopic Ellipsometry to Characterize Microfiltration Membranes”, H. Kaya, S. Fan, S. Kim, Y. Ding, B. Vogt, *ACS Applied Polymer Materials*, **2023**, 5, 3928.
- “Palladium-percolated networks enabled by low loadings of branched nanorods for enhanced H<sub>2</sub> separations”, L. Hu, K. Chen, W. Lee, K. Kisslinger, C. Rumsey, S. Fan, V. Bui, N. Esmaeili, T. Tran, Y. Ding, M. Trebbin, C. Nam, M. Swihart, H. Lin, *Advanced Materials*, **2023**, 35, 2301007.
- “Capillary Infiltration Kinetics in Highly Asymmetric Porous Membranes and the Resulting Debonding Behaviors”, J. Martinez, S. Fan, S. Rabade, A. K. Blevins, K. Fung, J. P. Killgore, S. Berti Perez, K. Youngbear, C. Carbrello, S. Foley, X. Ding, R. Long, R. Castro, and Y. Ding\*, *Polymer*, **2022**, 263, 125529.
- “Effects of Co-diluent on the pore structure, patterning fidelity, and properties of membranes fabricated by lithographically templated thermally induced phase separation”, S. Fan, A. Blevins, J. Martinez, Y. Ding\*, *J. Membrane Science* **2022**, 662, 121023.
- “Supramolecular polymer networks of ion-coordinated polybenzimidazole with simultaneously improved H<sub>2</sub> permeability and H<sub>2</sub>/CO<sub>2</sub> selectivity”, L. Hu, S. Fan, L. Huang, V. T. Bui, T. Tran, K. Chen, Y. Ding, M. T. Swihart, and H. Lin, *Macromolecules*, **2022**, 55, 6901-6910.
- “In situ synergistic growth of crystalline and polymer-incorporated amorphous ZIF-8 in polybenzimidazole achieving hierarchical nanostructures for H<sub>2</sub>/CO<sub>2</sub> separation”, L. Hu, V.T Bui, S. Pal, W. Guo, A. Subramanian, K. Kisslinger, S. Fan, C.Y. Nam, Y. Ding, H. Lin., *Small*, **2022**, 2201982.
- “Supramolecular Assemblies of Polybenzimidazole and Aromatic Polycarboxylic Acids with Superior Mechanical and H<sub>2</sub>/CO<sub>2</sub> Separation Properties”, L. Hu, V.T. Bui, S. Fan, W. Guo, S. Pal, Y. Ding, H. Lin., *J. Mater. Chem. A*, **2022**, 10, 10872-10879.

- “Photopatterning of Two Stage Reactive Polymer Networks with CO<sub>2</sub>-Philic Thiol-Acrylate Chemistry: Enhanced Mechanical Toughness and CO<sub>2</sub>/N<sub>2</sub> Selectivity”, A. Blevins, M. Wang, M. L. Lehmann, L. Hu, S. Fan, C. M. Stafford, J. P. Killgore, H. Lin, T. Saito, Y. Ding\*, *Polymer Chemistry*, **2022**, 13, 2495-2505.
  - “Particulate ECM Biomaterial Ink is 3D Printed and Naturally Crosslinked to Form Layered and Lubricated Cartilage Tissue Mimics”, J. E. Barthold, K. McCreery, J. Martinez, C. Bellerjeau, Y. Ding, S. J. Bryant, G. L. Whiting, C. P. Neu, *Biofabrication*, **2022**, 14(2), 025021.
  - “Acoustically-excited microstructure for on-demand fouling mitigation in a microfluidic membrane filtration device”, K. Fung, Y. Li, S. Fan, A. K. Fajrial, Y. Ding, \* and X. Ding \*, *Journal of Membrane Science Letters*, **2022**, 1(2), 100012.
  - “Thin-film Composite Membranes Based on Hyperbranched Poly(ethylene oxide) for CO<sub>2</sub>/N<sub>2</sub> Separation”, G. Zhang, T. Tran, L. Huang, E. Deng, A. Blevins, W. Guo, Y. Ding, and H. Lin, *Journal of Membrane Science*, **2022**, 644, 120184.
  - “Tailoring Sub-3.3 Å Ultramicropores in Advanced Carbon Molecular Sieve Membranes for Blue Hydrogen Production”, L. Hu, V. Bui, A. Krishnamurthy, S. Fan, W. Guo, S. Pal, X. Chen, G. Zhang, Y. Ding, R. Singh, M. Lupion, and H. Lin, *Science Advance*, **2022**, 8, eab18160.
  - “Effect of the Branch Length on Structural and Separation Properties of Hyperbranched Poly(1,3-dioxolane)”, L. Huang, W. Guo, H. Mondal, S. Schaefer, T. Tran, S. Fan, Y. Ding, H. Lin, *Macromolecules*, **2022**, 55, 1, 382–389.
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  - “Membrane bonding by capillary filling with viscous polymers: infiltration kinetics and bonding strength”, J. Martinez, M. Aghajani, Y. Lu, A. Blevins, S. Fan, M. Wang, J. Killgore, S. Perez, J. Patel, C. Carbrello, S. Foley, R. Sylvia, R. Long, R. Castro, and Y. Ding, \* *Journal of Membrane Science*, **2022**, 641, 119898.
  - “Scalable polymeric few-nanometer organosilica membranes for pre-combustion CO<sub>2</sub> capture”, Zhu, L.; Huang, L.; Venna, S.; Blevins, A.; Ding, Y.; Hopkinson, D.; Swihart, M.; Lin, H. *ACS Nano*, **2021**, 15, 12119–12128.
  - “Systematic modulation and structure-property relationships in photopolymerizable thermoplastics”, Childress, K.; Alim, M.; Mavila, S.; Martinez, V.; Ding, Y.; Bowman, C.; Stansbury, J. *ACS Applied Polymer Materials*, **2021**, 3, 1171-1181.
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  - “Polymeric membranes: chemistry, physics, and applications”, H. Lin & Y. Ding, *J. Polym. Sci.* (editorial), **2020**, 58, 2433-2434.
  - “Light-activated stress relaxation, toughness improvement, and photoreversible physical aging in glassy polymer networks”, Sowan, N.; Song, H. B.; Cox, L. M.; Patton, J. R.; Fairbanks, B. D.; Ding, Y.; Bowman C. N. *Advanced Materials* **2020**, 200721.
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- [Snakeskin inspires new, friction-reducing material \(phys.org\)](#)

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- “Ultrasound assisted hydroxyapatite decorated breath figure polymer derived ceramic coatings for Ti6Al4V substrates”, Murchio, S.; Ding, Y.; Speranza, G.; Soraru, G.; Maniglio, D. *ACS Applied Materials & Interfaces*, **2020**, *12*, 50772-50783.
- “Patterning flat-sheet poly(vinylidene fluoride) membrane using templated thermally induced phase separation”, Fan, S.; Aghajani, M.; Wang, M.; Martinez, J.; Ding, Y. \* *Journal of Membrane Science*, **2020**, *616*, 118627.
- “Thin film composite membranes: Does the porous support truly have negligible resistance?”, Aghajani, M.; Greenberg, A.; Ding, Y. \* *Journal of Membrane Science*, **2020**, *609*, 118207.
- “Nanoimprint lithography: Emergent materials and methods of actuation”, Cox, L.; Martinez, A.; Blevins, A.; Sowan, N.; Ding, Y.; Bowman, C. *Nano Today*, **2020**, 100838.
- “Tunable mechanical anisotropy, crack guiding, and toughness enhancement in two-stage reactive polymer networks”, Cox, L.; Blevins, A.; Drisko, J.; Qi, Y.; Ding, Y.; Fiedler-Higgins, C.; Long, R.; Bowman, C.; Killgore, J. *Advanced Engineering Materials*, **2019**, 1900578.
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- “The impact of the pendant group on the chain conformation and bulk properties of norbornene imide-based polymers”, Boyle, B.; Heinz, O.; Miyake, G. \*; Ding, Y. \* *Macromolecules*, **2019**, *52*, 3426-3434.
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- “Implementation of two distinct wavelengths to induce multistage polymerization in shape memory materials and nanoimprint lithography”, Zhang, X.; Cox, L.; Wen, Z.; Xi, W.; Ding, Y.; Bowman, C., *Polymer*, **2018**, *156*, 162-168.
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- “Remoldable thiol-ene vitrimers for photopatterning and nanoimprint lithography”, Lyon, G.; Cox, L.; Goodrich, J.; Baranek, A.; Ding, Y.; Bowman, C. N. *Macromolecules* **2016**, 49, 8905-8913.
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- “Capillary rupture of suspended polymer concentric rings”, Zhang, Z.; Yang, R.; Hilton, G.; Ding, Y. \* *Soft Matter* **2015**, 11, 7264-7269. (Cover Story)
- “Influence of nanoimprint lithography on the membrane structures and performance”, Maruf, S.; Li, Z.; Yoshimura, J.; Xiao, J.; Greenberg, A.; and Ding, Y. \* *Polymer* **2015**, 69, 129-137.
- “Creating micro-structured hydrogel-forming polymer films by photopolymerization in an evaporating solvent: Compositional and morphological evolutions”, Wang, L.; and Ding, Y. \* *European Polymer Journal* **2015**, 66, 99-107.
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- “Reconfigurable surface patterns on covalent adaptive network polymers using nanoimprint lithography”, Cox, L.; Li, Z.; Sowan, N.; Xiao, J.; Bowman, C. and Ding, Y. \*, *Polymer* **2014**, 55, 5933-5937.

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- “Carbon nanopatterns and nanoribbons from directly nanoimprinted polyacrylonitrile: Correlation between crystallite orientation and nanoimprint process”, Zhang, Z.; Piper, D.; Son, S., Kim, S.; Oh, K.; Lee, S.; Ding, Y. \* *Polymer* **2013**, 5936-5941.
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- “Influence of sub-micron surface patterns on the deposition of model proteins during active filtration”, Maruf, S.; Rickman, M.; Mersch, J.; Greenberg, A.; Pellegrino, J.; Ding, Y. \* *Journal of Membrane Science* **2013**, *444*, 420-428.
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- “Fabrication and characterizations of crosslinked porous polymer films with varying chemical compositions”. Wang, L.; Maruf, S.; Maniglio, D.; and Ding, Y. \* *Polymer* **2012**, *53*, 3749-3755.
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- “Influence of molecular weight on fast dynamics and fragility of polymers”, Ding, Y.; Novikov, V.; Sokolov, A.; Alba-Simionesco, C. Frick, B. *Macromolecules*, **2004**, *37*, 9764.
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- Influence of molecular architecture on fast and segmental dynamics and the glass transition in polybutadiene”, Kisliuk, A.; Ding, Y.; Hwang, J.; Lee, J.; Annis, B.; Foster, M.; Sokolov, A. *J. Polym. Sci. Part B: Polym. Phys.* **2002**, 40, 2431.
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- “Effect of polymeric structure on the corrosion protection of epoxy coatings”, Zhang, S.; Ding, Y.; Li, S.; Luo, X.; Zhou, W. *Corrosion Science* **2002**, 44, 861.
- “The effect of water absorption on behavior of dynamic relaxation of epoxy resins”, Ding, Y.; Li, H.; Liu, M.; Wu, X.; Li, S. *Chemical J. Chinese Universities* **2002**, 23, 965.
- “Studies on polyetherimide-modified epoxy resin (5)--phase separation behavior of a quasi-binary system”, Wu, X.; Cui J.; Ding, Y.; Li, S.; Dong, B.; Wang, J. *Macromol. Rapid Commun.* **2001**, 22, 409.
- “Contributions of the side groups to the characteristics of water absorption in cured epoxy resins”, Ding, Y.; Liu, M.; Li, S.; Zhang, S.; Zhou, W.; Wang, B. *Macrom. Chem. Phys.* **2001**, 202, 2681.
- “Comparison of the effects of acetoxy and hydroxy groups on the water uptake into the cured epoxy resin”, Li, S.; Zhang, S.; Luo, X.; Ding, Y.; Zhou, W. *Chemical J. Chinese Universities* **2000**, 21, 813.

## **RESEARCH FUNDING**

### **Active Awards**

- NSF-MAST Center: “Measuring and Understanding of Adhesion of Membranes during Manufacturing and Applications”, PI: Yifu Ding, \$65,000 (no overhead). 1/2024-12/2024.
- US Bureau of Reclamation, “Robust Surface Patterned Membranes for Membrane Distillation of High Salinity Brine with High Efficiency”, \$250,000, 09/2023-08/2025.
- DOE SBIR/STTR Phase II, “Polyolefin upcycling through dynamic covalent crosslinking”, PI: Yinghua Jin (Rocky Tech), \$1,099,996, 08/2022-08/2024.
- NSF-MAST Center: “Measuring and Understanding the “True” Permeation Resistance of Porous Support in Ultrahigh Pressure Reverse Osmosis Membranes”, PI: Yifu Ding, \$54,000 (no overhead). 7/2022-12/2023.
- NSF-MAST Center: “A Fractal-Analysis Based Metrology to Quantify Porous Structures of Membranes”, PI: Yifu Ding, Co-PI: Todd Murray, \$119,000 (no overhead). 7/2022-12/2024.
- NSF-MAST Center: “Acoustofluidics Enhanced Membrane Technology for Separation of Cells and Particles”, PI: Xiaoyun Ding (CU), Co-PI: Yifu Ding, \$165,000 (no overhead). 12/2020-12/2023.
- NSF (IIP-1624602): “Phase II U. of Colorado Boulder Site: Center for Membrane Science, Engineering, and Technology (MAST)”, PI: Yifu Ding, \$500,000, 07/2016-12/2023.

### **Completed Grants**

- NSF-MAST Center: “A New Metrology to Assess Pore Size and Gradients in Membranes using IR Ellipsometry”, PI: Bryan Vogt (Penn State University), Co-PI: Yifu Ding, \$75,000 (no overhead). 12/2020-12/2021.
- University of Colorado, Innovative Seed Grant, “Artificial Snakeskin via Solid Liquid Interfacial Polymerization (SLIP) Process”, PI: Ding, \$45,000, 06/2020-10/2022. (no overhead).

- NSF-MAST Center: “Fabrication, Characterization and Performance Studies of Novel Robust Microporous Membranes for Treatment of High Salinity Water”, PI: Yifu Ding (CU), Co-PI: Kamalesh Sirkar (New Jersey Institute of Technology), \$162,500 (no overhead). 07/2019-12/2021.
- NSF-CMMI (Advanced Manufacturing Program): “Travel Support for Students, Post-Docs, and Young Faculty to Attend the Symposium on “Polymer Processing: Nanomanufacturing and Nanofabrication” at ACS meeting, Philadelphia, PA, March 22-26, 2019”. PI: Yifu Ding, \$15,000. 03/01/2020-12/31/2022 (the in-person symposium was postponed and held in 2022 March meeting in San Diego).
- NSF-CBET: “Support to Broaden Student Participation in the 2021 Meeting of the North American Membrane Society (NAMS)”, PI: Yifu Ding, \$15,990. 03/01/2021-2/28/2022.
- NSF-MAST Center: “Phase Inversion Process on Micro-patterned Substrates: Membrane Formation and Particle Filtration Study (Donaldson)”, PI: Yifu Ding, \$55,000 (no overhead), 07/2019-06/2020.
- ACS-PRF (ND), “Probing and Controlling Active Dissipation Zone during Fracture using Photoplastic Polymers”, PI: Yifu Ding, Co-PI, Rong Long, \$110,000 (no overhead), 07/2019-06/2021.
- University of Colorado, College of Engineering and Applied Science, Water-Energy-Nexus (WEN) Interdisciplinary Research Theme (IRT), Seed Grant (Phase I), “Robust Membrane for Treatment of Flue-Gas Desulfurization (FGD) Wastewater”, PI: Ding, \$17,500, 3/2018-12/2018.
- University of Colorado, College of Engineering and Applied Science, Multifunctional Materials (MFM) Interdisciplinary Research Theme (IRT), Seed Grant (Phase I), “Smart Particle Adhesives”, PI: Ding, \$5,000, 3/2018-9/2018.
- University of Colorado, Innovative Seed Grant, “Sequential Laser Ablation and AFM (SLAA) for Imaging 3D Porous Structures”, PI: Ding, \$50,000, 07/2017-06/2018. (no overhead).
- Sandia National Lab, “Characterization of Micro Glass Balloons”, PI: Rong Long, Co-PIs: Yifu Ding, Jianliang Xiao, \$60,000, 2016-2017.
- NSF (IIP-1432952): “Nano-patterned Thin Film Composite Membranes for Scaling Mitigation during Desalination”, PI: Yifu Ding, Co-PIs: Alan Greenberg, John Pellegrino, \$199,954, 08/2014-12/2017.
- NSF-PFI (IIP-1414317): AIR-TT: “Scalable NIL-membranes”, PI: John Pellegrino, Co-PIs: Yifu Ding, \$249,007, 04/2014-09/2017.
- NSF-MAST Center: “Direct Nanoimprinting of Surface Patterns on Membranes for Protein Fouling Mitigation”, PI: Yifu Ding, Co-PIs: Alan Greenberg, John Pellegrino, \$135,000 (no overhead). 01/2014-12/2017.
- NSF (CBET- 1264276): “Nanoimprinting Ultrafiltration Membranes for Non-Chemical Fouling Mitigation” PI: Yifu Ding, Co-PIs: Alan Greenberg, John Pellegrino, \$320,000, 08/2013-07/2018.
- NSF (CMMI-1233626): “Scalable Fabrication of Smart Polymer Surfaces Using Nanoimprint Lithography”, PI: Yifu Ding, \$279,056, 09/2012-08/2015.
- University of Colorado, Innovative Seed Grant, “Enhancing separation performance of membranes by nanotexturing”, PI: John Pellegrino, Co-PI: Ding. \$46,000, 07/2012-06/2013. (no overhead)
- University of Colorado, Innovative Seed Grant, “Creating Novel Hybrid Materials through Guided Growth of 3-D Inorganic Networks in Polymeric Matrices”, Sole PI, \$46,000, 07/2012-06/2013. (no overhead)
- NSF (CMMI-092867): Mechanics of Cell Alignment due to Contact Guidance by Substrate Surface Patterns (PI Qi, Co-PI: Yifu Ding and Martin Dunn, \$320,000, 09/01/2009-08/31/2012).
- NSF (CMMI-1031785): Instabilities of Patterned Polymer Surface (PI: Ding, Co-PI Jerry H. Qi, \$309,000, 08/01/2010-07/31/2013).

- NSF (EFRI-SEED-1038305), PI: John Zhai, Co-PI Jerry H. Qi, Kurt Maute, Yifu Ding, Fred Andreas, Living Wall Systems, \$1,957,446, 09/01/2010-08/31/2014.
- ACS-PRF (DNI), Demixing of Polymer Blends during Nanoimprinting Lithography Process, PI: Yifu Ding, \$100,000 (no overhead).
- NSF-MAST Center (09-05): Characterization of Polymeric Barrier Layer on Thin Film Composite Reverse Osmosis Membranes via Nanoscale Thermal Mechanical Analysis. PI: Yifu Ding, Co-PI: Alan Greenberg, Virginia Ferguson, and Richard Noble. \$80,000 (no overhead).
- Junior Faculty Development Award, University of Colorado at Boulder, \$6,000.

### **STUDENT (Mentee) FELLOWSHIPS & AWARDS**

- Kieran Fung (2023), National Water Research Institute (NWRI)-American Membrane Technology Association (AMTA) Fellowship
- Jaylene Martinez (2022), ACS Spring meeting, Best poster award in PMSE program.
- Adrienne Blevins (2021), NSF travel Award for NAMS 2021 Conference
- Jaylene Martinez (2021), NSF travel Award for NAMS 2021 Conference
- Riccardo Lovison (2021), Colorado-EU Mobility Program Fellowship
- Adrienne Blevins (2021), GAANN Fellowship
- Adrienne Blevins (2019-2020), ARCS Foundation award
- Adrienne Blevins (2019-2020), GAANN Fellowship
- Adrienne Blevins (2019), NIST-CU PREP Fellowship
- Masoud Aghajani (2018), Research Innovation Fellowship, Department of Mechanical Engineering, CU Boulder
- Masoud Aghajani (2018), David LaMonica Award for Excellence, student poster award, NAMS annual meeting
- Jaylene Martinez (2018), NSF Graduate Research Fellowship
- Mengyuan Wang (2018), AMTA/Reclamation Fellowship for Membrane Technology
- Masoud Aghajani, Elias Klein Travel Award (2017 & 2018)
- Masoud Aghajani (2016), AMTA Fellowship
- Lewis Cox (2016-2018), National Research Council (NRC) postdoctoral fellowship
- Lewis Cox (2011-2012), NIST Materials Science Engineering Fellowship
- Zhen Wang (2010), Teets Family Fellowship (1 per year in engineering college)

### **COURSE TEACHING**

- MCEN 2024, “*Materials Science*”, Fall 2012, Fall 2013, Spring 2015, Fall 2019, Fall 2020, Spring 2022, Fall 2022, Spring 2023.
- MCEN 1024, “*Chemistry for Engineers*”, Fall 2016, Spring 2018, Fall 2018
- MCEN 4228/5228 (MCEN5298) “*Intro to Polymers*”, Spring 2009, Spring 2010, Fall 2011, Spring 2014, Spring 2015, Spring 2020, Spring 2023,
- MCEN 4037, “*Measurements Lab*”, Fall 2009, Fall 2010, Fall 2011, Spring 2012, Spring 2014
- MCEN 5027, “*Graduate Seminar Series*”, Spring 2011, Fall 2011
- MCEN 5024, “*Chemistry and Structure of Materials*”, Spring 2022
- MCEN 6228, “*Structure and Dynamics of Polymer*”, Fall 2010, Fall 2016, Spring 2017

- MCEN 6228, “Wetting, Adhesion and Friction”, Fall 2022
- MCEN 6184, “*Structure and Properties of Polymer*”, Spring 2013, Spring 2018, Fall 2019

## **SERVICES**

- Director for CU Boulder site of the MAST center (2017-). Responsible for sponsor recruiting, collaboration/communications with the two other university sites (New Jersey Institute of Technology and University of Arkansas) and with Industrial Advisory Board (IAB) members. Reporting to NSF annually and to the IABs every 6 months.
- Services to the College of Engineering and Applied Science (CEAS)
  - First Level Review Committee (FLRC, 2021-2022)
- Services to the Mechanical Engineering Department:
  - Executive Committee (2019-2021)
  - Personnel Committee (2019-2021): Chair of the committee.
  - External Relations Committee (2019)
  - Personnel Committee (2016-2018)
  - Graduate committee from (2009-2012, 2014-2016): Besides other regular committee duty, I served as seminar organizer for the department from 2009-2011, served as faculty advisor for the GEAR<sup>2</sup>S in 2012, and representing ME department on the college’s outstanding thesis committee.
  - Industrial relations committee (2012-2014)
  - Search committee for financial manager (2012)
  - Search committees for tenure-track faculty position (fall 2013-spring 2014, fall 2014-spring 2015)
  - Undergraduate committee (2008-2009, 2022-2023)
- Services to Materials Science and Engineering (MSE) program:
  - MSE executive committee (2023- present)
  - MSE graduate program committee (2021-2022)
  - MSE task force committee (2009-2010), where I helped the development of MSE curriculum
  - Search committee for two tenure-track faculty positions (2010-2011)
  - Represented ME department in college’s effort (led by Prof. Zoya Popovic, ECEE at CU Boulder) in successful application of NIST-MSE fellowship.
- Services to Professional Societies:
  - Board of Directors for North American Membrane Society (NAMS), 2022-2025.
    - chair of workshop committee
    - award and fellowship committee
  - Conference co-chair (with John Pellegrino, Uwe Beuscher) of North America Membrane Society (NAMS) 2021 annual meeting (Estes Park, CO).
  - Guest editor (with Prof. Haiqing Lin, University of Buffalo) for *Journal of Polymer Science*, on a special issue of Advanced Polymer Materials for Separation and Energy Harvesting (Sep 2020).
  - Organizer for ACS symposium “Polymer processing: nanomanufacturing and nanofabrication” at 2022 Spring ACS meeting (Atlanta, GA).
  - Organizer for ACS-NAMS joint symposium “Novel Polymeric Materials & Polymer-Based Processes for Energy-Efficient Treatment of Water & Resource Recovery” (2019 ACS annual meeting, San Diego, CA).

- Organizer for MRS symposium “Advanced Membranes for Energy-efficient Molecular Separation and Ion Conduction” (Fall 2019 MRS annual meeting, Boston, MA)
  - Organizer for the polymer session for the 19<sup>th</sup> Thermo-physical Properties, ASME/AICHE joint symposium every 3 years.
  - Symposium organizer for “Dynamics of Nanostructured Polymers”, 2011 fall ACS annual meeting.
  - Served as panelist and reviewer for NSF, EPA, ACS- PRF proposals, and OSC (Ohio Super Computing) proposals.
  - Served as reviewer for President Technology Award, Singapore (2014).
  - Served as journal reviewer for: Science, Macromolecules, J. Polymer Science, J. Applied Polymer Science, Nanotechnology, J. Physical Chemistry, Macromolecular theory and simulations, ACS Applied Materials & Interfaces, ACS Nano, Nano Letters, Accounts of Chemical Research, Soft Matter, PNAS, Langmuir, Chemistry of Materials, Small, Advanced Materials, Applied Physics Letters, J. Applied Physics, J. Membrane Science, European Physics Journal, Proceedings of National Academy of Science.
  - Membership: American Chemical Society, American Physical Society, Materials Research Society, North American Membrane Society.
- Outreach (Since 2008): advised 12 undergraduate (two has coauthored publications) and 7 high school students (one first prize of Boulder Valley Science Fair).