

Xianming (Simon) Dai, Ph.D. 

Associate Professor of Mechanical Engineering
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PROFESSIONAL APPOINTMENTS

- 2023 - Associate Professor, Mechanical Engineering, University of Texas at Dallas
- 2019 - Affiliated Faculty of Bioengineering, University of Texas at Dallas
- 2016 - 2023 Assistant Professor, Mechanical Engineering, University of Texas at Dallas
- 2013 - 2016 Postdoctoral Researcher, Mechanical Engineering, Pennsylvania State University

EDUCATION

- 2013 Ph.D., Mechanical Engineering, University of South Carolina
- 2009 M.S., Energy and Power Engineering, Huazhong University of Science and Technology
- 2007 B.S., Thermal Energy and Power Engineering, Chongqing University

RESEARCH INTERESTS

Heat transfer, Microfluidics, Electronics Cooling, Decarbonization, and Water Energy Nexus

AWARDS AND HONORS

- 2023 DARPA [Young Faculty Award](#)
- 2022 UT Dallas School of Engineering Research Award for Assistant Professor
- 2021 Outstanding Early Career Award at the 1st μ FIP conference
- 2021 National Science Foundation [CAREER Award](#)
- 2019 Army Research Office [Young Investigator Award](#)
- 2019 Water harvesting work highlighted by *Nature Materials*
- 2016 JALA Top Ten Breakthrough Award of the Year

AWARDS AND HONORS (Students)

- 2023 DoE IBUILD Fellowship for Building Energy
- 2022 1st Place Prize in the STEM Bridge Summer Program
- 2022 Student Travel Award at the microFIP conference
- 2022 “Excellence in Education Fellowship” in the School of Engineering at UT Dallas
- 2021 1st Place Award in the Mechanical Engineering Poster Competition at UT Dallas
- 2019 ASME Best Poster Award in Micro and Nano Technology

STUDENT ADVISING

Current Advising

Post-Doctoral Researcher (Current 1):

1. Shan, L., 2021-present

Ph.D. Students (Current 5; Female 1)

1. Monga, D., 2019-present
2. Boylan, D., 2020-present (Hispanic)
3. Chen, F., 2021-present (Female)
4. Wyke, K., 2023-present (African American)
5. Dosawada, P., 2023-present
6. Ban, M., 2023-present

Master Student (Current 1):

1. Reyna, L., 2020-present

Undergraduate Student (Current 1):

1. Hossain, F., 2022-present

Past Advising

PhD Student (Graduated: 2)

1. Guo, Z., 2017-2021, **Graduated** in 12/2021. Now a postdoc at U Minnesota.
2. Sarma, J., 2018-2023, **Graduated** in 5/2023. Now work in Saksun Texas.

Master Students (Graduated: 6; African American: 1)

1. Ng, T., 2021-2022, MS, “Anti-Bacterial Surfaces”. **Graduated** in May 2020.
2. Vaishampayan, A., 2018-2020, MS, “Condensation and Refrigeration”. **Graduated** in May 2020. Now working at Traulsen Refrigeration.
3. Jegede, S., 2017-2019, MS, “Anti-Icing Surfaces”. **Graduated** in May 2019 (African American). Now working at Motay Consults.
4. Pandey, B., 2017-2019, MS, “Condensation heat transfer”. **Graduated** in May 2019. Now working at Clerio Vision, Inc.
5. Li, Y., 2016-2017, MS, “Micro/nanofabrication”. **Graduated** in December 2017 and continue to work in Spring 2018. Now working at FIT-Foxconn Interconnect Technology, Ltd
6. Sirohia, G., 2016-2018, “Designing air-independent slippery rough surfaces for condensation”. **Graduated** in May 2018. Published one first-author journal paper. Now working at Albany Molecular Research Inc.

Undergraduate Students (Graduated: 13; Female: 3)

1. S. Li, 2021-2022 (female). **Graduated** in May 2022. Now at Purdue U as a master student.
(Li did independent research in our lab as an hourly worker)
2. P. Katterjoh, I. Field, F. Khammash, C. Slattery, S. Amda, J. Watson, “Liquid-Cooled High-Power Electronics”, **Completed**, May 2019.

(Senior design project. Dai met with the team once a week for a year to provide mentorship)

3. J. S. Arrangoiz, T. D. Alba, L. Puente, L. Williamson, A. Boissevain, I. Meneses, “Design and Manufacture Surface Coating to Remove Ice on Wind Turbines”, **Completed**, May 2020.

(Dai sponsored the senior design project and met with the team once a week for a year. Dai’s PhD student Sarma met with the team once a week to provide mentorship)

Post-Doctoral Researchers (Completed: 2)

1. Zhang, L., 2018-2020, Ph.D. from Sichuan University, **Completed**.
2. Shi, Z., 2019-2020, Ph.D. from Sichuan University, **Completed**.

Visiting Graduate Students (Completed: 2)

1. Xiang, T., (PhD) 2017, home institution: Nanjing University of Aeronautics and Astronautics, home advisor: C. Li. **Completed**.
2. Xie, F., (PhD) 2020-2021, home institution: North China Electric Power University, home advisor: X. Wang. **Completed**.

Hosted Visitors (Completed: 1)

1. Arogeti, M., 2019 April-August, Assistant Professor, Shmoon College of Engineering, Israel. **Completed**.

COURSE TEACHING

Undergraduate Course

Heat Transfer. Latest course evaluation: 4.46/5.00

Graduate Courses

(1) *Phase Change Heat Transfer*. Latest course evaluation: 4.82/5.00

My contribution: This course was upgraded from a prior course “Boiling Heat Transfer and Two-Phase Flow” by adding the condensation section.

(2) *Thermal Management of Microelectronics*. Latest course evaluation: 4.78/5.00

My contribution: This course was not available when I joined UT Dallas.

PROFESSIONAL MEMBERSHIPS

American Society of Mechanical Engineers (ASME); Materials Research Society (MRS)

American Chemical Society (ACS); American Physical Society (APS)

International Society of Bionic Engineering (ISBE)

PROFESSIONAL SERVICES

➤ Internal Services

- Mechanical Engineering Graduate Student Committee 2018-2020, 2022-now
- Mechanical Engineering Faculty Search Committee 2021-2022
- Mechanical Engineering Awards and Honors Committee 2021-2022

- Mechanical Engineering Thermal Fluid Science Committee 2016-2020

➤ **External Services**

- NSF review panel 2016, 2017, 2018, 2019, 2021, 2022
- NIH study section (Kidney and Urological Systems Function and Dysfunction) 2021
- Proposal review: ACS Petroleum Research Funds, 2017, 2019, 2021
- Keynote speaker: Micro Flow and Interfacial Phenomena Conference, June 20-23, 2022
- Keynote speaker: ASME International Conference on Nanochannels, Microchannels, and Minichannels (ICNMM), July 12, 2020
- Plenary speaker: International Conference on Boilers and Heat Exchangers, Nov 1-4, 2019
- Track chair: Micro Flow and Interfacial Phenomena Conference, June 20-23, 2022
- Track chair: ASME Micro/Nanoscale Heat and Mass Transfer, July 8-10, 2019
- Session chair: ASME IMECE 2021; APS DFD 2018; ASME ICNMM 2018; ASME IMICE 2016; ASME Summer Heat Transfer Conference 2016; InterPACK&ICNMM 2015.
- Session co-chair: ASME IMICE 2017; ASME Summer Heat Transfer Conference 2017; 29th SEMI-THERM conference;
- Journal Reviewer:

Joule	Small	Sci. Rep.
Droplet	Nanoscale	Langmuir
Sci. Adv.	Angew. Chem.	Soft Matter
Adv. Sci.	Advanced Science	J. Mol. Liq.
Nano Lett.	Chem. Eng. Sci.	ACS Omega
ACS Nano	New J. Chem.	J. Appl. Phys.
Nat. Commun.	Acc. Chem. Res.	RSC Advances
Natl. Sci. Rev.	J. Alloys Compd.	J. Heat Transfer
Mater. Horiz.	J. R. Soc. Interface	Heat Transf. Eng.
Nano Energy	Adv. Sustain. Syst.	Appl. Phys. Lett.
Chemical Science	Microsyst. Nanoeng.	J. Phys. Chem. B
Adv. Funct. Mater.	Chem. Eng. Technol.	Int. J. Therm. Sci.
Adv. Energy Mater.	Compos. Sci. Technol.	Appl. Therm. Eng.
Cell Rep. Phys. Sci.	ACS Appl. Bio Mater.	Adv. Mater. Interfaces
J. Phys. Chem. Lett.	ACS Appl. Nano Mater.	Exp. Therm. Fluid Sci.
Renew. Sust. Energ. Rev.	ACS Sustain. Chem. Eng.	J. Therm. Sci. Eng. Appl.
Int. J. Heat Mass Transf.	ACS Appl. Mater. Interfaces	Nanosc. Microsc. Therm. Eng.

PUBLICATIONS

My community likes peer-reviewed journal papers more than conference papers.

A. Peer-Reviewed Journal Publications ([Google Scholar](#))

(____ Graduate student; ⁺Postdoc; [§]Visiting student; *Corresponding authors)

33. L. Shan⁺, Z. Guo, D. Monga, D. Boylan, and X. Dai*, "Microchannels-Elevated Micromembranes for Sustainable Phase-Separation Condensation", *Joule*, 7, 168-182 (2023).

32. D. Boylan, D. Monga, L. Shan⁺, and Z. Guo^{*}, **X. Dai**^{*}, "Pushing the Limit of Beetle-Inspired Condensation on Biphilic Quasi-Liquid Surfaces", *Advanced Functional Materials*, 33, 2211113 (2023).
31. J. Sarma, D. Monga, Z. Guo, F. Chen, **X. Dai**^{*}, "Coarsening Droplets for Frosting Delay on Hydrophilic SLIPS", *Droplet*, Accepted (2023).
30. Z. Guo, D. Boylan, L. Shan⁺, and **X. Dai**^{*}, "Hydrophilic Reentrant SLIPS Enabled Phase Separation for Rapid Water Harvesting", *Proceedings of the National Academy of Sciences of the United States of America*, 119 (36) e2209662119 (2022).
29. Z. Guo, D. Monga, L. Shan⁺, D. Boylan, and **X. Dai**^{*}, "Climbing-induced disappearing droplets contribute to condensation", *Droplet*, 1 (2) 170-181 (2022).
28. D. Monga, Z. Guo, L. Shan⁺, S. A. Taba, J. Sarma, **X. Dai**^{*}, "Quasi-Liquid Surfaces for Sustainable High-Performance Steam Condensation", *ACS Applied Materials & Interfaces*, 14, 13932–13941 (2022).
27. J. Sarma, L. Zhang⁺, Z. Guo, **X. Dai**^{*}, "Sustainable Icephobicity on Durable Quasi-Liquid Surface", *Chemical Engineering Journal*, 431, 133475 (2022).
26. Z. Guo, L. Zhang⁺, D. Monga, H. A. Stone, **X. Dai**^{*}, "Hydrophilic Slippery Surface Enabled Coarsening Effect for Rapid Water Harvesting", *Cell Reports Physical Science*, 2, 100387 (2021).
25. L. Zhang⁺, Z. Guo, J. Sarma, W. Zhao, **X. Dai**^{*}, "Gradient Quasi-Liquid Surface Enabled Self-Propulsion of Highly Wetting Liquids", *Advanced Functional Materials*, 31(13), 2008614 (2021).
24. J. Sarma, Z. Guo, **X. Dai**^{*}, "Bioinspired photocatalytic hedgehog coating with liquid repellency towards highly wetting fluids", *Materials Chemistry Frontiers*, 5, 4174-4181 (2021).
23. L. Zhang⁺, Z. Guo, J. Sarma, **X. Dai**^{*}, "Passive removal of highly wetting liquids and ice on quasi-liquid surfaces", *ACS Applied Materials & Interfaces*, 12, 20084-20095 (2020).
22. D.T.S. Ranathunga, A. Shamir, **X. Dai**, S.O. Nielsen, "Molecular Dynamics Simulation of Water Condensation on Surfaces with Tunable Wettability", *Langmuir*, 36, 7383-7391 (2020).
21. K. Egab, M. Alwazzan, B. Peng, S.K. Oudah, Z. Guo, **X. Dai**, J. Khan, C. Li, "Enhancing filmwise and dropwise condensation using a hybrid wettability contrast mechanism: Circular patterns", *International Journal of Heat and Mass Transfer*, 154, 119640 (2020).
20. G.K. Sirohia, **X. Dai**^{*}, "Designing air-independent slippery rough surfaces for condensation". *International Journal of Heat Mass Transfer* 140, 777-785 (2019).
19. T. Xiang[§], Y. Han, Z. Guo, R. Wang, S. Zheng, S. Li, C. Li, **X. Dai**^{*}, "Fabrication of Inherent Anticorrosion Superhydrophobic Surfaces on Metals". *ACS Sustainable Chemistry & Engineering* 6, 5598-5606 (2018).
18. **X. Dai**^{*}, N. Sun, S. O. Nielsen, B. B. Stogin, J. Wang, S. Yang, T.-S. Wong^{*}, "Hydrophilic directional slippery rough surfaces for water harvesting". *Science Advances* 4, eaaq0919 (2018).
 - ESI Highly Cited Paper.
 - *Nature Materials* wrote a single article to highlight this work in 2019.
 - Highlighted by National Science Foundation Science360 as top story of the day.

17. **X. Dai**, P. Wang, F. Yang, X. Li, C. Li, "Decoupling the influence of surface structure and intrinsic wettability on boiling heat transfer". *Applied Physics Letters* 112, 253901 (2018).
16. S. Yang, **X. Dai**, B. B. Stogin, T.-S. Wong, "Ultrasensitive surface-enhanced Raman scattering detection in common fluids". *Proceedings of the National Academy of Sciences of the United States of America* 113, 268-273 (2016).
 - This was a direct submission to PNAS.
 - ESI Highly Cited Paper.
15. **X. Dai**, B. B. Stogin, S. Yang, T.-S. Wong, "Slippery Wenzel State". *ACS Nano* 9, 9260-9267 (2015).
 - Rank NO. 1 most read article in ACS Nano from October 2015 to September 2016.
 - Selected as one of the JALA Top Ten Breakthrough 2016.
 - Featured in NSF Science360 as the top story of the day.
14. F. Yang, W. Li, **X. Dai**, C. Li, "Flow boiling heat transfer of HFE-7000 in nanowire-coated microchannels". *Applied Thermal Engineering* 93, 260-268 (2016).
13. **X. Dai**, F. Yang, R. Yang, X. Huang, W. A. Rigdon, X. Li, C. Li, "Biphilic nanoporous surfaces enabled exceptional drag reduction and capillary evaporation enhancement". *Applied Physics Letters* 105, 191611 (2014).
12. F. Yang, **X. Dai**, Y. Peles, P. Cheng, J. Khan, C. Li, "Flow boiling phenomena in a single annular flow regime in microchannels (I): Characterization of flow boiling heat transfer". *International Journal of Heat and Mass Transfer* 68, 703-715 (2014).
11. F. Yang, **X. Dai**, Y. Peles, P. Cheng, J. Khan, C. Li, "Flow boiling phenomena in a single annular flow regime in microchannels (II): Reduced pressure drop and enhanced critical heat flux". *International Journal of Heat and Mass Transfer* 68, 716-724 (2014).
 - ESI Highly Cited Paper in 2015.
10. **X. Dai**, M. Famouri, A. I. Abdulagatov, R. Yang, Y.-C. Lee, S. M. George, C. Li, "Capillary evaporation on micromembrane-enhanced microchannel wicks with atomic layer deposited silica". *Applied Physics Letters* 103, 151602 (2013).
 - Editor's picks in November and December 2013, respectively.
9. **X. Dai**, X. Huang, F. Yang, X. Li, J. Sightler, Y. Yang, C. Li, "Enhanced nucleate boiling on horizontal hydrophobic-hydrophilic carbon nanotube coatings". *Applied Physics Letters* 102, 161605 (2013).
8. **X. Dai**, F. Yang, R. Fang, T. Yemame, J. A. Khan, C. Li, "Enhanced single-and two-phase transport phenomena using flow separation in a microgap with copper woven mesh coatings". *Applied Thermal Engineering* 54, 281-288 (2013).
7. **X. Dai**, F. Yang, R. Yang, Y.-C. Lee, C. Li, "Micromembrane-enhanced capillary evaporation". *International Journal of Heat and Mass Transfer* 64, 1101-1108 (2013).
6. F. Yang, **X. Dai**, C.-J. Kuo, Y. Peles, J. Khan, C. Li, "Enhanced flow boiling in microchannels by self-sustained high frequency two-phase oscillations". *International Journal of Heat and Mass Transfer* 58, 402-412 (2013).
5. F. Yang, **X. Dai**, Y. Peles, P. Cheng, C. Li, "Can multiple flow boiling regimes be reduced into a single one in microchannels?". *Applied Physics Letters* 103, 043122 (2013).

4. F. Yang, X. Dai, C. Li, "High frequency microbubble-switched oscillations modulated by microfluidic transistors". *Applied Physics Letters* 101, 073509 (2012).
3. H. Chen, H. Sui, X. Wang, X. Dai, H. Yang, "Effects of temperature on the product property during multi-cogeneration based on waste tyre pyrolysis", *Proceedings of the Chinese Society of Electrical Engineering* 32, 119 (2012).
2. X. Dai, H. Chen, H. Yang, X. Wang, G. He, "Characteristic and combustion application of waste tyre pyrolysis oil", *Renewable Energy* 27, 16-19 (2009).
1. J. Shao, H. Chen, X. Dai, H. Yang, "Research on the pyrolytic characteristics of sewage sludge from Hong Kong", *Journal of Huazhong University of Science and Technology* 37, 120-124 (2009).

B. Peer-Reviewed Conference Proceedings

5. C. Oshman, Q. Li, W. Wang, C.-Y. Lin, L.-A. Liew, A. Adbulagatov, M. Kong, S. Song, X. Dai, R. Yang, "Flexible and conformal thermal ground planes", Proc. 37th Annual Government Microcircuit Applications and Critical Technology Conference (GOMACTech), March 19-22, 2012, Las Vegas, NV.
4. X. Dai, L. Tran, F. Yang, B. Shi, R. Yang, Y.C. Lee, C. Li, "Characterization of hybrid-wicked copper acetone heat pipes", Proceedings of the ASME/JSME 2011 8th Thermal Engineering Joint Conference (AJTEC2011), March 13-17, 2011, Honolulu, Hawaii, USA.
3. X. Wang, H. Chen, H. Yang, X. Dai, S. Zhang, "Fast pyrolysis of agricultural wastes in a fluidized bed reactor", Proceedings of the 20th International Conference on Fluidized Bed Combustion, Xi'an, China, 2009, 719-725;
2. H. Chen, Y. Shen, X. Wang, X. Dai, H. Xue, D. Liu, "Advanced refractory and anti-wearing technology of cyclone separator in CFB boiler", Proceedings of the 20th International Conference on Fluidized Bed Combustion, Xi'an, China, 2009, 247-249.
1. X. Dai, H. Chen, D. Wang, "Economical research on biomass energy resource supply system", International Conference on Biomass Energy Technology, Guangzhou, China, 2008, 2:510-515;

C. Book chapter

X. Dai, M. Famouri, C. Li, "Multiscale Thermal Transport in Energy Systems", edited by Yuwen Zhang and Ya-Ling He, Nava Science Publishers, Inc. NY, USA, 2016 (Invited).

PATENTS

6. L. Shan, X. Dai, "Ultrafast Thermal Switch", US PCT/US23/73221, 2023.
5. L. Zhang, J. Sarma, Z. Guo, X. Dai, "A semiliquid surface with liquid and solid repellence", US Patent 17/615,393, 2022.
4. X. Dai, B.M. Boschitsch, J. Wang, T.-S. Wong, N. Sun, "Slippery rough surfaces", US Patent 10,434,542, 2019.
3. C. Li, F. Yang, X. Dai, Y. Tong, "Microfluidic devices for the generation of nano-vapor bubbles and their methods of manufacture and use", US Patent 9,833,780, 2017.
2. C. Li, F. Yang, X. Dai, Y. Tong, "Enhanced flow boiling in microchannels by high frequency microbubble-excited and-modulated oscillations", US Patent 9,103,468, 2015.
1. C. Li, X. Huang, X. Dai, F. Yang, "Carbon nanotube enabled hydrophobic- hydrophilic composite

interfaces and methods of their formation”, US Patent 13,954,214, 2014.

PRESENTATIONS

A. Invited Presentations

17. X. Dai, “Designing Flow-Separation Evaporative Cooling for 3D Heterogeneous Microsystems”, DARPA Minitherms3D Kickoff meeting, Washington DC, November 13, 2023.
16. X. Dai, “Ultrafast Evaporative Thermal Switch for Energy-Efficient Dynamic Thermal Management”, DARPA Dynamic Thermal Management Workshop, Washington DC, September 20, 2023.
15. X. Dai, “Microchannels-Elevated Micromembrane for Sustainable Phase-Separation Condensation”, Wetting and Adhesion, CSC Spring, Vancouver, Canada, June 7, 2023.
14. X. Dai, “Bioinspired surfaces for water and energy sustainability”, Sustainable Energy and Water for the Operational Environment Session, ACS Spring, Indianapolis, Indiana, March 27, 2023.
13. X. Dai, “Vapor-Liquid Separation for Exceptional Phase Change Heat Transfer”, 2nd Micro Flow and Interfacial Phenomena Conference, Irvine, California, June 21, 2022 (**Keynote Presentation**).
12. X. Dai, “Phase Change Heat Transfer for Water and Energy Sustainability”, Mechanical and Aerospace Engineering, North Carolina State University, April 27, 2022.
11. X. Dai, “Bioinspired Materials for Water, Energy and Health”, Woodruff School of Mechanical Engineering, Georgia Institute of Technology, November 9, 2021.
10. X. Dai, “Bioinspired Materials for Water, Energy and Health”, Materials Science and Engineering, University of North Texas, September 17, 2021.
9. X. Dai, “Bioinspired Materials for Water, Energy and Biomedical Applications”, Virginia Tech Mechanical Engineering, November 12, 2020.
8. X. Dai, “Bioinspired Surfaces for Multiphase Flow and Thermal Transport”, Cornell Fluids Seminar, Cornell University, November 10, 2020.
7. X. Dai, “Bioinspired Surfaces for Sustainable Water Harvesting”, International Conference on Nanochannels, Microchannels, and Minichannels (ICNMM), July 14, 2020 (**Keynote Presentation**).
6. X. Dai, “Bioinspired Nanomaterials for Thermal Energy Transport”, International Conference on Boilers and Heat Exchangers, Hangzhou, China, November 2, 2019 (**Plenary Presentation**).
5. X. Dai, “Bioinspired Thermal Fluids”, Chongqing University, Chongqing, China, August 2, 2018.
4. X. Dai, “Enhanced Phase-Change Heat Transfer on Bioinspired Surfaces”, Carnegie Mellon University, August 10, 2015.
3. X. Dai, “Enhanced Phase-Change Heat Transfer on Advanced Surfaces”, Advanced Cooling Technologies, June 22, 2015.
2. X. Dai, “Advanced materials interfaces for future thermal-fluid engineering”, Oak Ridge National Lab, April 27, 2015.
1. X. Dai, “Micro/nano-engineered surfaces for enhanced boiling and evaporation”, Massachusetts Institute of Technology, April 24, 2013.

B. Conference/Workshop Presentations

23. J. Sarma, D. Monga, Z. Guo, F. Chen, X. Dai, “Coarsening Droplets Delay Frost Formation”, ASME IMECE Conference, New Orleans, LA, October 31, 2023.
22. L. Shan, X. Dai, “Adaptive Evaporative Cooling for Energy-Efficient Transient Thermal Control”, ASME InterPACK Conference, San Diego, CA, October 25, 2023.
21. D. Monga, J. Sarma, F. Chen, D. Boylan, X. Dai, “Scalable and Sustainable High-Performance Condensation for Waste Heat Recovery”, 17th International Conference on Energy Sustainability, Washington DC, July 10, 2023.
20. “Z. Guo, D. Boylan, L. Shan, X. Dai, "Hydrophilic Reentrant SLIPS Enabled Flow Separation for Rapid Water Harvesting”, ASME Summer Heat Transfer Conference, Washington, DC, July 10, 2023.
19. D. Monga, D. Boylan, D. B. Suresh, J. Sarma, Z. Guo, Y. Jin, X. Dai, “Rolling Droplet Propelled Rapid Departure Promotes Dropwise Condensation”, ASME Summer Heat Transfer Conference, Washington DC, July 10, 2023.
18. L. Shan, Z. Guo, D. Monga, D. Boylan, X. Dai, “Microchannels-Elevated Micromembrane for Sustainable Phase-Separation Condensation”, International Mechanical Engineering Congress and Exposition, Columbus, Ohio, November 3, 2022.
17. D. Boylan, D. Monga, L. Shan, Z. Guo, X. Dai, “Pushing the Limit of Beetle-Inspired Condensation on Biphilic Quasi-Liquid Surfaces”, International Mechanical Engineering Congress and Exposition, Columbus, Ohio, November 3, 2022.
16. J. Sarma, L. Zhang, Z. Guo, X. Dai, “Sustainable Anti-Icing on Quasi-Liquid Surfaces”, 2nd Micro Flow and Interfacial Phenomena Conference, Irvine, California, June 21, 2022
15. D. Monga, Z. Guo, L. Shan, S.A. Taba, J. Sarma, X. Dai, “Sustainable High-Performance Steam Condensation on Quasi-Liquid Surface”, 2nd Micro Flow and Interfacial Phenomena Conference, Irvine, California, June 21, 2022
14. Z. Guo, L. Zhang, D. Monga, H. Stone, X. Dai, “Coarsening droplet: hydrophilic slippery surface enabled coarsening effect for rapid water harvesting”, Droplet 2021 (5th International Conference on Droplets), Darmstadt, Germany, August 18, 2021.
13. L. Zhang, Z. Guo, J. Sarma, X. Dai, “Multifunctional Semi-Liquid Surfaces with Durable Liquid Repellency”, MRS Fall Meeting, Boston, MA, December 5, 2019.
12. L. Zhang, Z. Guo, J. Sarma, X. Dai, “Nanoscale Quasi-Liquid Coating with Durable Liquid Repellency Even to Highly Wetting Fluids”, International Mechanical Engineering Congress and Exposition, Salt Lake City, Utah, November 13, 2019.
11. Z. Guo, L. Zhang, H.A. Stone, X. Dai, “Meniscus-Mediated Spontaneous Droplet Coalescence for Exceptional Water Harvesting”, International Mechanical Engineering Congress and Exposition, Salt Lake City, Utah, November 13, 2019.
10. J. Sarma, L. Zhang, X. Dai, “Bioinspired Hedgehog Coating with Superomniphobicity”, 1st International Conference on Nature Inspired Surface Engineering, Hoboken, New Jersey, June 14, 2019.
9. Z. Guo, G. K. Sirohia, L. Zhang, X. Dai, “Spontaneous Droplet Movement on Homogeneous Surfaces for Super Condensation”, 6th ASME International Conference of Micro/Nanoscale Heat and Mass Transfer, Dalian, China, July 9, 2019 (Invited Presentation).

8. Z. Guo, G. K. Sirohia, X. Dai, “Ripening droplet: spontaneous movement of non-contact micro/nano droplets”, 71st Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, Georgia, November 19, 2018.
7. G. Sirohia, Z. Guo, X. Dai, “Enhanced Condensation on Air Independent Rough Surfaces”, 92nd American Chemical Society (ACS) Colloid & Surface Science Symposium, State College, PA, June 11, 2018.
6. X. Dai, N. Sun, S. Nielsen, B. Stogin, J. Wang, S. Yang, T.-S. Wong, “Condensation on Hydrophilic Directional Slippery Rough Surfaces”, MRS Fall Meeting, Boston, MA, November 28, 2017.
5. X. Dai, B. B. Stogin, S. Yang, T.-S. Wong, “Condensation Heat Transfer on Bioinspired Slippery Surfaces”, ASME IMECE, Houston, Texas, November 17, 2015.
4. X. Dai, B. B. Stogin, J. Wang, T.-S. Wong, “Slippery Rough Surfaces for Drag reduction”, Princeton University, September 29, 2015 (ONR MURI meeting).
3. X. Dai, A. I. Abdulagatov, F. Yang, Y.-C. Lee, S. M. George, R. Yang, L.-A. Liew, C. Li, “Enhanced capillary evaporation on biporous wicks using atomic layer deposition of silica”, The ASME 2012 Summer Heat Transfer Conference, July 8-12, 2012, Puerto Rico, USA.
2. X. Dai, F. Yang, Y.-C. Lee, R. Yang, C. Li, “Oscillating evaporation induced by microscale biporous structures”, The ASME 2012 Micro/Nanoscale Heat & Mass Transfer International Conference, March 3-6, 2012, Atlanta, GA, USA.
1. X. Dai, L. T. Tran, F. Yang, B. Shi, R. Yang, Y.-C. Lee, C. Li, “Characterization of hybrid-wicked copper heat pipes”, The ASME/JSME 2011 8th Thermal Engineering Joint Conference (AJTEC2011), March 13-17, 2011, Honolulu, Hawaii, USA.