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University of California, Santa Barbara
Santa Barbara, CA 93106, U.S.A

EDUCATION

Ph.D., Department of Mechanical Engineering, M.I.T, *Jun. 2013 – Jun. 2017*

Advisor: Prof. [Evelyn Wang](#)

Thesis: Micro and Nanostructures for Two-phase Fluid and Thermal Transport

M.S., Department of Mechanical Engineering, M.I.T, *Jul. 2011 – Jun. 2013*

Advisor: Prof. [Evelyn Wang](#)

Thesis: Magnetic Tunable Microstructured Surfaces for Thermal Management and Microfluidic Applications

B.E., Building Technology, Tsinghua University, Beijing, China, *Aug. 2007 – Jul. 2011*

Advisor: Prof. [Bin Zhao](#)

Thesis: A Particle Resuspension Model in Ventilation Ducts

PROFESSIONAL APPOINTMENT

Jul. 2019 – present

Assistant professor, Department of Mechanical Engineering, University of California, Santa Barbara

Research group: Thermofluid Energy Research Laboratory ([Link](#))

Sept. 2017 – Jun. 2019

Postdoctoral scholar, Department of Materials Science and Engineering, Stanford University

Advisor: Prof. [Yi Cui](#)

SELECTED HONORS AND AWARDS

NASA Early Career Faculty award	Aug 2022
ASME Pi Tau Sigma Gold Medal (link)	Apr 2021
Regents' Junior Faculty Award	Mar 2021
NSF CAREER award	Dec 2020
Meredith Kamm Memorial Award, MIT	May 2017
Outstanding Poster Award in the Thermal Management Track, IThERM	Jun 2016
MIT Graduate Woman of Excellence	Apr 2015
Second prize, The MIT Mechanical Engineering de Florez Award Competition	Apr 2014

RESEARCH INTEREST

Heat and mass transfer, Liquid-vapor phase change, Energy conversion and storage, Thermal management of electronic, energy, and personal systems

JOURNAL PUBLICATIONS**In progress (bold: Zhu group members)**

1. **C. Guan, O. Wander, H. Szeto**, R.J. Clément, **Y. Zhu**, "Internal pre-heating of 4680 lithium-ion batteries for fast charging in cold environments" submitted. Preprint: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4305591
2. **P. Babb, F. Ahmadi**, F. Brent, R. Gans, M.A. Lopez, A. Strom, J. Nolt, J. Song, Q. Wang, B. Zou, T. Susko, K. Fields, **Y. Zhu**, "Continuous passive solar desalination via thin-film condensation in microporous membrane", submitted.
3. **X. Liang, L. Zhao**, S. Seshadri, S. Bailey, Q. Cao, M. Haggmark, M. Helgeson, M. Gordon, P. Luzzatto-Fegiz, J. Read de Alaniz, **Y. Zhu**, "Real-time Manipulation of Liquid Droplets using photo-responsive surfactant", in preparation

Published (bold: Zhu group members)

1. **X. Liang, V. Kumar, F. Ahmadi, Y. Zhu**, "Manipulation of droplets and bubbles for liquid-vapor phase change applications", *Droplet*, 1(2), p. 80-91, 2022. <https://doi.org/10.1002/dro2.21>
2. **L. Zhao**, S. Seshadri, X. Liang, S.J. Bailey, M. Haggmark, M. Gordon, M.E. Helgeson, J. Read de Alaniz, P. Luzzatto-Fegiz, **Y. Zhu**, "Depinning of Multiphase Fluid Using Light and Photo-Responsive Surfactants", *ACS Central Science*, 8(2), p. 235-245, 2022. doi.org/10.1021/acscentsci.1c01127
3. F. Liu, R. Xu, Y. Wu, D.T. Boyle, A. Yang, J. Xu, **Y. Zhu**, Y. Ye, Z. Yu, Z. Zhang, X. Xiao, W. Huang, H. Wang, H. Chen, Y. Cui, "Dynamic spatial progression of isolated lithium during battery operations", *Nature*, 60, p.659-663, 2021. doi.org/10.1038/s41586-021-04168-w
4. Y. Peng, W. Li, B. Liu, J. Tang, G. Zhou, **Y. Zhu**, T. Wu, W. Huang, C. Zhang, S. Fan, Y. Cui, "Integrated Cooling (i-Cool) Textile of Heat Conduction and Sweat Transportation for Personal Perspiration Management". *Nature Communications*, 12, p. 6122, 2021. doi.org/10.1038/s41467-021-26384-8
5. **H. Szeto, Y. Zhu**, "Battery chemical heterogeneity revealed by thermal conductivity measurement", *Trends in Chemistry*, 3(10), p. 797-799, 2021. doi.org/10.1016/j.trechm.2021.08.002.
6. P. Luzzatto-Fegiz, F. Temprano-Coletto, F. J Peaudecerf, J.R. Landel, **Y. Zhu**, J.A. McMurry, "UVB radiation alone may not explain sunlight inactivation of SARS-CoV-2", *The Journal of Infectious Diseases*, 223(8), p. 1500–1502, 2021. doi.org/10.1093/infdis/jiab070
7. H. Wang, S.C. Kim, T. Rojas, **Y. Zhu**, Y. Li, L. Ma, K. Xu, A. Ngo, Y. Cui, "Correlating Li-ion Solvation Structures and Electrode Potential Temperature Coefficients", *Journal of the American Chemical Society*, 143(5), p. 2264-2271, 2021, doi.org/10.1021/jacs.0c10587
8. J. Xu, X. Xiao, Z. Zhang, Y. Wu, D.T. Boyle, H.K. Lee, W. Huang, Y. Li, H. Wang, J. Li, **Y. Zhu**, B. Chen, W. Mitch, Y. Cui, "Designing a Three-phase Electrochemical Pathway to Promote Pt-catalyzed Formaldehyde Oxidation", *Nano Letters*, 20(12), p. 8719-8724, 2020. doi.org/10.1021/acs.nanolett.0c03560
9. H. Wang*, **Y. Zhu***, S.C. Kim, A. Pei, Y. Li, D. Boyle, H. Wang, Z. Zhang, Y. Ye, W. Huang, Y. Liu, J. Xu, J. Li, F. Liu, Yi Cui, "Underpotential Lithium Plating on Graphite Anodes Caused by Temperature

- Heterogeneity", *PNAS*, 117(47), p. 29453-29461, 2020 (* equal contribution)
doi.org/10.1073/pnas.2009221117
10. L. Zhao, Y. Qi, P. Luzzatto-Fegiz, Y. Cui, **Y. Zhu**, "COVID-19: Effects of environmental conditions on the propagation of respiratory droplets", *Nano Letters*, 20(10), p. 7744-7750, 2020. Highlighted in [UCSB news](#). doi: [10.1021/acs.nanolett.0c03331](https://doi.org/10.1021/acs.nanolett.0c03331)
 11. M. Wei, Y. Song, Y. Zhu, D.J. Preston, C.S. Tan, E.N. Wang, "Heat transfer suppression by suspended droplets on microstructured surfaces", *Applied Physics Letters*, 116, p. 233703, 2020. doi: [10.1063/5.0010510](https://doi.org/10.1063/5.0010510)
 12. G. Zhou, A. Yang, Y. Wang, G. Gao, A. Pei, X. Yu, **Y. Zhu**, L. Zong, B. Liu, J. Xu, N. Liu, J. Zhang, Y. Li, L.W. Wang, H. Hwang, M. Brongersma, S. Chu, Y. Cui, "Electrotunable liquid sulphur microdroplets", *Nature Communications*, 11, p. 606, 2020. doi: [10.1038/s41467-020-14438-2](https://doi.org/10.1038/s41467-020-14438-2)
 13. Y. Liu, **Y. Zhu**, Y. Cui, "Challenges and opportunities for fast charging lithium-ion batteries", *Nature Energy*, 4, p. 540-550, 2019. doi: [10.1038/s41560-019-0405-3](https://doi.org/10.1038/s41560-019-0405-3)
 14. **Y. Zhu***, J. Xie*, A. Pei, B. Liu, Y. Wu, D. Lin, J. Li, H. Wang, H. Chen, J. Xu, A. Yang, C.-L. Wu, H. Wang, W. Chen, Y. Cui, "Fast lithium growth and short circuit induced by localized-temperature hotspots in lithium batteries", *Nature Communications*, 10(1), p. 2067, 2019. (* equal contribution) Highlighted in [SLAC news](#). doi: [10.1038/s41467-019-09924-1](https://doi.org/10.1038/s41467-019-09924-1)
 15. H. Wang, Y. Li, Y. Li, Y. Liu, D. Lin, C. Zhu, G. Chen, A. Yang, K. Yan, H. Chen, **Y. Zhu**, J. Li, J. Xie, J. Xu, Z. Zhang, R. Vilá, A. Pei, K. Wang, Y. Cui, "Wrinkled Graphene Cages as Hosts for High-Capacity Li Metal Anodes Shown by Cryogenic Electron Microscopy", *Nano Letters*, 19(2), p. 1326-1335, 2019. doi: [10.1021/acs.nanolett.8b04906](https://doi.org/10.1021/acs.nanolett.8b04906)
 16. H. Wang, D. Lin, J. Xie, Y. Liu, H. Chen, Y. Li, J. Xu, G. Zhou, Z. Zhang, A. Pei, **Y. Zhu**, K. Liu, K. Wang, Y. Cui, "An Interconnected Channel - Like Framework as Host for Lithium Metal Composite Anodes", *Advanced Energy Materials*, 9(7), p. 1802720, 2019. doi: [10.1002/aenm.201802720](https://doi.org/10.1002/aenm.201802720)
 17. J. Li, **Y. Zhu**, W. Chen, Z. Lu, J. Xu, A. Pei, Y. Peng, Z. Zhang, S. Chu, Y. Cui, "Breathing Mimicking Electrocatalysis for Oxygen Evolution and Reduction", *Joule*, 2018. doi: [10.1016/j.joule.2018.11.015](https://doi.org/10.1016/j.joule.2018.11.015)
 18. L. Zhang*, **Y. Zhu***, Z. Lu, L. Zhao, K.R. Bagnall, S.R. Rao, E.N. Wang, "Characterization of thin film evaporation in micropillar wicks using micro-Raman spectroscopy", *Applied Physics Letters*, 113, p. 163701, 2018. doi: [10.1063/1.5048837](https://doi.org/10.1063/1.5048837) (* equal contribution)
 19. J. Li, G. Chen, **Y. Zhu**, Z. Liang, A. Pei, C-L. Wu, H. Wang, H.R. Lee, K. Liu, S. Chu, Y. Cui, "Efficient electrocatalytic CO₂ reduction on three-phase interface", *Nature Catalysis*, 1, p. 592-600, 2018. doi: [10.1038/s41929-018-0108-3](https://doi.org/10.1038/s41929-018-0108-3)
 20. R. Zhang*, B. Liu*, A. Yang*, **Y. Zhu***, C. Liu, G. Zhou, J. Sun, P-C. Hsu, W. Zhao, D. Lin, Y. Liu, A. Pei, J. Xie, W. Chen, J. Xu, Y. Jin, T. Wu, Y. Cui, "In-situ investigation on the nanoscale capture and evolution of aerosols on nanofibers", *Nano Letters*, 18(2), p. 1130-1138, 2018. doi: [10.1021/acs.nanolett.7b04673](https://doi.org/10.1021/acs.nanolett.7b04673) (* equal contribution)
 21. Y. Peng, J. Chen, A. Song, P. Catrysse, P-C Hsu, L. Cai, B. Liu, **Y. Zhu**, G. Zhou, D.S. Wu, H.R. Lee, S. Fan, Y. Cui, "Nanoporous polyethylene microfibre for large scale radiative cooling fabric", *Nature Sustainability*, 1, p. 105-112, 2018. doi: [10.1038/s41893-018-0023-2](https://doi.org/10.1038/s41893-018-0023-2)

22. S. Somasundaram, **Y. Zhu**, Z. Lu, S. Adera, H. Bin, M. Wei, C.S. Tan, E.N. Wang, "Thermal design optimization of evaporator micropillar wicks", *International Journal of Thermal Sciences*, 134, p.179-187, 2018. doi: [10.1016/j.ijthermalsci.2018.07.036](https://doi.org/10.1016/j.ijthermalsci.2018.07.036)
23. Z. Lu, D.J. Preston, D.S. Antao, **Y. Zhu**, E.N. Wang, "Co-existence of pinning and moving on a contact line", *Langmuir*, 33(36), p. 8970–8975, 2017. doi: [10.1021/acs.langmuir.7b02070](https://doi.org/10.1021/acs.langmuir.7b02070)
24. **Y. Zhu**, D.S. Antao, D.W. Bian, S.R. Rao, J. Sircar, T.J. Zhang, E.N. Wang, "Suppressing High-Frequency Temperature Oscillations in Microchannels with Surface Structures", *Applied Physics Letters*, 110(3), p. 033501, 2017. doi: [10.1063/1.4974048](https://doi.org/10.1063/1.4974048)
25. D.J. Preston, A. Anders, B. Barabadi, E. Tio, **Y. Zhu**, D. Dai, E.N. Wang, "Electrowetting-on-Dielectric Actuation of a Spatial and Angular Manipulation Stage", *Applied Physics Letters*, 109(24), p. 244102, 2016. doi: [10.1063/1.4971777](https://doi.org/10.1063/1.4971777)
26. H.J. Cho, D.J. Preston, **Y. Zhu**, E.N. Wang, "Nanoengineered Materials for Liquid-Vapour Phase-Change Heat Transfer", *Nature Reviews Materials*, 2, p. 16092, 2016. doi: [10.1038/natrevmats.2016.92](https://doi.org/10.1038/natrevmats.2016.92)
27. **Y. Zhu**, D.S. Antao, K.-H. Chu, S. Chen, T.J. Hendricks, T.J. Zhang, E.N. Wang, "Surface Structure Enhanced Microchannel Flow Boiling", *Journal of Heat Transfer*, 138(9), p. 091501, 2016. doi: [10.1115/1.4033497](https://doi.org/10.1115/1.4033497)
28. **Y. Zhu**, D.S. Antao, T. Zhang, E.N. Wang, "Suppressed Dry-out in Two-Phase Microchannels via Surface Structures", *Journal of Heat Transfer*, 138(8), p. 080905, 2016. doi: [10.1115/1.4033818](https://doi.org/10.1115/1.4033818)
29. **Y. Zhu**, D.S. Antao, Z. Lu, S. Somasundaram, T.J. Zhang, E.N. Wang, "Prediction and Characterization of Dry-out Heat Flux in Micropillar Wick Structures", *Langmuir*, 32(7), p. 1920–1927, 2016. doi: [10.1021/acs.langmuir.5b04502](https://doi.org/10.1021/acs.langmuir.5b04502)
30. D.S. Antao, S. Adera, **Y. Zhu**, E. Farias, R. Raj, E.N. Wang, "Dynamic Evolution of the Evaporating Liquid-Vapor Interface in Micropillar Arrays", *Langmuir*, 32 (2), p. 519–526, 2016. doi: [10.1021/acs.langmuir.5b03916](https://doi.org/10.1021/acs.langmuir.5b03916)
31. **Y. Zhu**, D.S. Antao, R. Xiao, E.N. Wang, "Real-Time Manipulation with Magnetically Tunable Structures", *Advanced Materials*, 26(37), p. 6442–6446, 2014. doi: [10.1002/adma.201401515](https://doi.org/10.1002/adma.201401515)
 - Featured on the front cover of *Advanced Materials*, and highlighted in [MIT news](#), MIT home page.
 - Video news: <https://www.youtube.com/watch?v=gq6SYIrbcrk>
32. R. Raj, R. Enright, **Y. Zhu**, S. Adera, E.N. Wang, "Unified Model for Contact Angle Hysteresis on Heterogeneous and Superhydrophobic Surfaces", *Langmuir*, 28(45), p. 15777-15788, 2012. doi: [10.1021/la303070s](https://doi.org/10.1021/la303070s)
33. **Y. Zhu**, B. Zhao, B. Zhou, Z. Tan, "A Particle Resuspension Model in Ventilation Ducts," *Aerosol Science and Technology*, 46(2), p. 222-235, 2012. doi: [10.1080/02786826.2011.618471](https://doi.org/10.1080/02786826.2011.618471)

BOOK CHAPTERS

1. **Y. Zhu**, H.K. Mutha, Y. Zhao, E.N. Wang, "Manipulating Water and Heat with Nanoengineered surfaces", in P. Norris and L. Friedersdorf (ed.), *Women in Nanotechnology*, Springer, 2019.
2. **Y. Zhu**, D.S. Antao, E.N. Wang, "Bio-Inspired Surfaces for Enhanced Boiling", in T. Deng (ed.), *Bio-inspired Engineering of Thermal Materials*, Wiley, 2018.
3. D.S. Antao, **Y. Zhu**, E.N. Wang, "Boiling on Enhanced Surfaces", in F. Kulacki, *Handbook of Thermal Science and Engineering*, Springer, 2017.

CONFERENCE PAPERS AND PRESENTATIONS

Peer reviewed conference papers:

1. **X. Liang, L. Zhao**, S. Seshadri, S. Bailey, M. Haggmark, M.E. Helgeson, M. Gordon, P. Luzzatto-Fegiz, J. Read de Alaniz, **Y. Zhu**, "Real-time manipulation of liquid droplets on slips using photo-responsive surfactant", Proceedings of the Micro Flow and Interfacial Phenomena μ FIP 2022 Conference, June 20 - 23, 2022, Irvine, CA, USA
2. **Y. Zhu**, J. Xie, A. Pei, Y. Cui, "Localized temperature hotspot induced fast lithium growth and short circuit in lithium batteries", Proceedings of the 2nd Pacific Rim Thermal Engineering Conference, Hawaii, Dec 13-17, 2019
3. J. Sircar, **Y. Zhu**, S.R. Rao, D.S. Antao, T.J. Zhang, E.N. Wang, "Height-dependent, Surface structure enhanced, Intrachip Flow Boiling of Methanol", Proceedings of the 2nd Pacific Rim Thermal Engineering Conference, Hawaii, Dec 13-17, 2019
4. L. Zhang*, **Y. Zhu***, S.R. Rao, K.R. Bagnall, D.S. Antao, A. Leroy, L. Zhao, B. Bhatia, C.C., Kelsall, E.N. Wang, "In situ temperature measurement of evaporation in micropillar wick structures using micro-Raman spectroscopy", Proceedings of the 16th International Heat Transfer Conference, IHTC-16, Beijing, China, Aug 10-15, 2018. (* equal contribution) doi: [10.1615/IHTC16.bae.023152](https://doi.org/10.1615/IHTC16.bae.023152)
5. Y. Song, **Y. Zhu**, D.J. Preston, H.J. Cho, Z. Lu, E.N. Wang, "Investigating the relationship between surface wickability and CHF during pool boiling", Proceedings of the 16th International Heat Transfer Conference, IHTC-16, Beijing, China, Aug 10-15, 2018. doi: [10.1615/IHTC16.bae.023315](https://doi.org/10.1615/IHTC16.bae.023315)
6. K.L. Wilke*, K.B. Kalinina*, **Y. Zhu**, D.J. Preston, D.S. Antao, E.N. Wang, "Enhancement of dry-out heat flux in non-uniform variable permeability wicking structures", Proceedings of the 16th International Heat Transfer Conference, IHTC-16, Beijing, China, Aug 10-15, 2018. doi: [10.1615/IHTC16.bae.024136](https://doi.org/10.1615/IHTC16.bae.024136)
7. **Y. Zhu**, Z. Lu, D.S. Antao, H. Li, T.J. Zhang, E.N. Wang, "Model optimization of dry-out heat flux from micropillar wick structures," ITherm, Las Vegas, NV, May 31-Jun 3, 2016. doi: [10.1109/ITHERM.2016.7517573](https://doi.org/10.1109/ITHERM.2016.7517573) (**Outstanding Poster Award**)
8. **Y. Zhu**, D.S. Antao, D.W. Bian, T. Zhang, E.N. Wang, "Reducing instability and enhancing critical heat flux using integrated micropillars in two-phase microchannel heat sinks," 18th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS), Anchorage, AK, June 21-25, 2015. doi: [10.1109/TRANSDUCERS.2015.7180931](https://doi.org/10.1109/TRANSDUCERS.2015.7180931)
9. **Y. Zhu**, D.S. Antao, K.-H. Chu, T.J. Hendricks, E.N. Wang, "Enhancing flow boiling heat transfer in microchannels with structured surfaces," International Heat Transfer Conference, Kyoto, Japan, August 10-15, 2014. doi: [10.1615/IHTC15.nms.009508](https://doi.org/10.1615/IHTC15.nms.009508)
10. **Y. Zhu**, R. Xiao, E.N. Wang, "Design and fabrication of magnetically tunable microstructured surfaces," 17th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS), Barcelona, Spain, June 16-20, 2013. doi: [10.1109/Transducers.2013.6627079](https://doi.org/10.1109/Transducers.2013.6627079)
11. K.-H. Chu, **Y. Zhu**, N. Miljkovic, Y. Nam, R. Enright, E.N. Wang, "Enhanced boiling heat transfer with copper oxide hierarchical surfaces," 17th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS), Barcelona, Spain, June 16-20, 2013. doi: [10.1109/Transducers.2013.6627258](https://doi.org/10.1109/Transducers.2013.6627258)

Conference presentations:

1. **X. Liang, L. Zhao**, S. Seshadri, S. Bailey, M. Haggmark, M. Helgeson, M. Gordon, J. Read de Alaniz, P. Luzzatto-Fegiz, **Y. Zhu**, "Real-time Manipulation of Liquid Droplets Migration on SLIPS Using Photo-Responsive Surfactants ", MRS Fall Meeting, Dec 2-4, 2021

2. **F. Ahmadi, Y. Zhu**, "Passive Solar Desalination Systems using Membranes", MRS Fall Meeting, Dec 2-4, 2021
3. **Y. Zhu**, "The Effect of Heterogeneous Temperature on Lithium-Based Batteries", ASME InterPACK, Oct 26-28, 2021
4. **L. Zhao, Y. Qi**, P. Luzzatto-Fegiz, Y. Cui, **Y. Zhu**, "COVID-19: Effects of environmental conditions on the propagation of respiratory droplets", NSF Workshop New Frontiers of Thermal Transport, Dec 14-16, 2020
5. **L. Zhao**, S. Seshadri, J. Read de Alaniz, P. Luzzatto-Fegiz., **Y. Zhu**, "Manipulating Bubble Dynamics via Photo-Responsive Surfactants and Light for Microgravity Boiling", ASME 2020 Summer Heat Transfer Conference, July 13-15, 2020.
6. **Y. Zhu**, D.S. Antao, E.N. Wang, "Suppressed dry-out in two-phase microchannels via surface structures," ASME International Mechanical Engineering Congress & Exposition, Houston, TX, November 13-19, 2015.
7. **Y. Zhu**, D.S. Antao, D.W. Bian, E.N. Wang, "The role of microstructured surfaces in microchannel flow boiling," Gordon Research Conference on Micro & Nanoscale Phase Change Heat Transfer, Galveston, TX, January 11-16, 2015.
8. **Y. Zhu**, R. Xiao, E.N. Wang, "Tunable magnetic microstructured surfaces for microfluidic and thermal management applications," ASME 2013 Summer Heat Transfer Conference, Minneapolis, MN, July 14-19, 2013.
9. K.-H. Chu, **Y. Zhu**, N. Miljkovic, Y. Nam, R. Enright, E.N. Wang, "Copper oxide hierarchical surfaces for enhanced pool boiling heat transfer," ASME 2013 Summer Heat Transfer Conference, Minneapolis, July 14-19, 2013.
10. R. Raj, R. Enright, **Y. Zhu**, S. Adera, E.N. Wang, "Thermodynamic model for contact angle hysteresis on heterogeneous and superhydrophobic surfaces," ASME 2013 Summer Heat Transfer Conference, Minneapolis, MN, July 14-19, 2013.

US PATENTS

1. E.N. Wang, **Y. Zhu**, R. Xiao, "Magnetically tunable microstructured surfaces, " Application No.: 14/294,829, Publication Date: 12/04/2014
2. E.N. Wang, **Y. Zhu**, D.S. Antao, K.-H. Chu, "Enhanced flow boiling heat transfer in microchannels with structured surfaces," Application No.: 14/811,811, Publication Date: 02/04/2016

INVITED TALKS

1. Y. Zhu, "Microscale Thermal-Fluids Engineering for Energy Applications", invited seminar at the Thermal Transport Café-Virtual Seminar@MIT, sponsored by NSF, 07/27/2021
2. Y. Zhu, "Microscale Thermal-Fluids Engineering for Next Generation Energy and Electronics Systems", invited IEEE Central Coast seminar, 10/21/2020
3. Y. Zhu, "Microscopic Thermal-Fluids Engineering for Next-generation Energy and Electronic Systems", invited seminar at the Institute of Energy Efficiency, UCSB, 11/14/2019
4. Y. Zhu, "Microscopic Thermal-Fluids Engineering for Next-generation Energy and Electronic Systems", invited seminar at Texas A&M University, 11/07/2019
5. Y. Zhu, "Microscopic Thermal-Fluids Engineering for Next-generation Energy and Electronic Systems", invited ACRC seminar at University of Illinois, Urbana-Champaign, 09/12/2019

6. Y. Zhu, "Temperature Hotspots Induced Lithium Growth and Short Circuit in Lithium Batteries", invited talk at the 5th International Conference on Energy Conversion and Storage, Beijing, August 14-16, 2019.
7. Y. Zhu, "Microscopic Thermal-Fluids Engineering for Next-generation Energy and Electronic Systems", invited seminar at
 - Department of Mechanical Engineering, University of California, Berkeley, 04/02/2019
 - Department of Mechanical Engineering, Carnegie Mellon University, 01/30/2019
 - Department of Mechanical Engineering and Materials Science, Yale University, 01/23/2019
 - Department of Mechanical Engineering, University of California, Santa Barbara, 01/16/2019
 - Department of Mechanical Engineering, University of Houston, 11/17/2019
8. Y. Zhu, "Micro/Nanostructures for Enhanced Thermo-fluidic Transport", invited seminar at Western Digital, Milpitas, CA, 09/28/2018
9. Y. Zhu, "Micro/Nanostructures for Enhanced Thermo-fluidic Transport", invited seminar at Department of Mechanical Science and Engineering, University of Illinois, Urbana-Champaign, 02/14/2017

MENTORING AND OUTREACH

1. Sponsored a Capstone project "A passive solar thermal desalination device" at UCSB (Sept 21-Jun 22).
2. Developed courses "Interfacial Phenomena" and "Energy Storage Technologies" at UCSB.
3. Present lectures on thermal fluids engineering at Laguna Blanca high school, Santa Barbara (Dec 2019).
4. Mentored high school summer intern and undergraduate summer intern on hydrogen thermal battery (Jun – Sept 2018).
5. Completed postdoc workshop "Mentoring in Research" offered by Stanford University (Dec 2017).
6. Supervised MIT undergraduate research [thesis](#), "Enhanced Flow Boiling Heat Transfer in Micro-channels with Structured Surfaces at Varied Mass Flow Rates" (Sept 2014 – May 2015).
7. Completed the *Kaufman Teaching Certificate Program* (Spring 2016, [link](#)) offered by MIT.
8. Teaching Assistant for class *2.51 Intermediate Heat and Mass Transfer* at MIT (Sept – Dec 2013).
9. Mentored high school summer interns from Thayer Academy on nanotechnology (July – Aug 2012).

ACADEMIC ACTIVITIES

Referee for journals:

Nano Letters	Nanoscale and Microscale Thermophysical Engineering
Advanced Functional Materials	Soft Matter
ACS Energy Letters	International Journal of Heat and Mass Transfer
Journal of Heat Transfer	International Journal of Multiphase Flow
Applied Thermal Engineering	Transactions on Components, Packaging and Manufacturing Technology
Scientific Reports	Joule
Matter	Nature Nanotechnology

SELECTED MEDIA COVERAGE

1. "Recognizing Innovation", A. Masuda, **The Current**, Jan 06, 2021
<https://www.news.ucsb.edu/2021/020139/recognizing-innovation>
2. "Aerosols vs. Droplets", S. Fernandez, **The Current**, Oct 14, 2020
<https://www.news.ucsb.edu/2020/020063/aerosols-vs-droplets>
3. "Probing battery hotspots for safer energy storage", E. Carlson, **SLAC News**, May 8, 2019

<https://www6.slac.stanford.edu/news/2019-05-08-brief-probing-battery-hotspots-safer-energy-storage.aspx?from=timeline&isappinstalled=0>

4. "New Material Structures Bend Like Microscopic Hair", J. Chu, **MIT News**, Aug. 6, 2014
<http://news.mit.edu/2014/magnetic-hair-directs-water-flow-0806>
5. "Magnetically Activated Hairs Direct Fluid Flow", **Materials Today**, Aug. 6, 2014
<http://www.materialstoday.com/metals-alloys/news/magnetically-activated-hairs-direct-fluid-flow/>
6. "A Helping Hair", J. Chu, **MIT Technological Review**, Oct. 21, 2014
<http://www.technologyreview.com/article/531581/a-helping-hair/>