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Chenxi Sui

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EDUCATION

Ph.D. The University of Chicago, Pritzker School of Molecular Engineering — 2022-present
Advisor: Dr. Po-Chun Hsu

Ph.D. Duke University, Mechanical Engineering and Materials Science — 2019-2022
Advisor: Dr. Po-Chun Hsu

B.S. Wuhan University, Physics — 2015-2019
Advisor: Dr. Xuejiao Hu

RESEARCH EXPERIENCE

University of Chicago
Research Assistant, Advisor: Dr. Po-Chun Hsu — Present-2024

Duke University — 2019-Present
Research Assistant, Advisor: Dr. Po-Chun Hsu

University of California, Santa Barbara — Jun. 2018-Sep. 2018
Research Assistant, Advisor: Dr. Bolin Liao

Wuhan University — 2017-2019
Research Assistant, Advisor: Dr. Qu-Quan Wang & Dr. Xuejiao Hu

RESEARCH INTEREST

Experimental and computational study of heat transfer, photonics, and electrochemistry, with their application in energy and sustainability; thermal radiation and metamaterials; artificial intelligence and deep learning

PUBLICATIONS (*CORRESPONDING AUTHORS, †EQUAL CONTRIBUTION)

- **Chenxi Sui**, P. C. Hsu, "Radiative Electrochromism for Energy-efficient Buildings" *Nature Sustainability* (2023) DOI: 10.1038/s41893-022-01030-3
- **Chenxi Sui,** J. Pu, T.-H. Chen, J. Liang, Y.-T. Lai, R. Wu, Y. Han, K. Wang, X. Li, V. Viswanathan*, P.-C. Hsu*. "Dynamic electrochromism for all-season radiative thermoregulation." (2023). *Nature Sustainability* DOI: 10.1038/s41893-022-01023-2, *Highlighted on* ***Nature Sustainability News***
- B. Dixon, **Chenxi Sui**, A. Briley, P. C. Hsu, & C. Howell* "Continuous, Nondestructive Detection of Microorganism Growth at Buried Interfaces with Vascularized Polymers" ACS Applied Bio Materials (2022) DOI: 10.1021/acsabm.2c00837
- **Sui, Chenxi**†, Yao-Yu Li†, Xiuqiang Li, Genesis Higueros, Keyu Wang, Wanrong Xie, and Po-Chun Hsu*. "Bio-Inspired Computational Design of Vascularized Electrodes for High-Performance Fast-Charging Batteries Optimized by Deep Learning." *Advanced Energy Materials* 12, no. 6 (2022): 2103044.
- Li, Xiuqiang, Boran Ma, Jingyuan Dai, **Chenxi Sui**, Divya Pande, David R. Smith, L. Catherine Brinson*, and Po-Chun Hsu*. "Metalized polyamide heterostructure as a moisture-responsive actuator for multimodal adaptive personal heat management." *Science advances* 7, no. 51 (2021): eabj7906.
- Rao, Yunfei†, Jingyuan Dai†, **Chenxi Sui**†, Yi-Ting Lai†, Zhe Li, Haoming Fang, Xiuqiang Li, Wei Li, and Po-Chun Hsu*. "Ultra-Wideband Transparent Conductive Electrode for Electrochromic Synergistic Solar and Radiative Heat Management." *ACS Energy Letters* 6, no. 11 (2021): 3906-3915.

- Li, Xiuqiang, Bowen Sun, **Chenxi Sui**, Ankita Nandi, Haoming Fang, Yucan Peng, Gang Tan*, and Po-Chun Hsu*. "Integration of daytime radiative cooling and solar heating for year-round energy saving in buildings." *Nature communications* 11, no. 1 (2020): 1-9.
- Li, Xiuqiang, Wanrong Xie, **Chenxi Sui**, and Po-Chun Hsu*. "Multispectral thermal management designs for net-zero energy buildings." *ACS Materials Letters* 2, no. 12 (2020): 1624-1643.
- Chen, Keke, **Chenxi Sui**, Yue Wu, Zheng Ao, Shi-shang Guo*, and Feng Guo*. "A digital acoustofluidic device for on-demand and oil-free droplet generation." *Nanotechnology* 30, no. 8 (2018): 084001.
- **Chenxi Sui**, Hongsheng Wang*, Xiang Liu, and Xuejiao Hu*. "Solar thermochemical water-splitting reaction enhanced by hydrogen permeation membrane." *arXiv preprint arXiv:1808.02175* (2018).
- **Chenxi Sui**, Kai Chen, Liming Zhao, Li Zhou, and Qu-Quan Wang*. "MoS_2-modified porous gas diffusion layer with air–solid–liquid interface for efficient electrocatalytic water splitting." *Nanoscale* 10, no. 32 (2018): 15324-15331.

PATENTS

- P.-C. Hsu, Y. Rao, C. Sui "System for dual-mode solar heating and radiative cooling" US Provisional Patent Application 63/256,136

PRESENTATIONS AND INVITED LECTURES

- (Invited) "Electrochemically dynamic solar and mid-infrared synergistic radiative thermoregulation", Nano Research Energy Gold Award Seminar, Online, 2022.
- "Dynamic solar and mid-infrared synergistic radiative thermoregulation" MRS Boston, 2022.
- "Bio-Inspired Computational Design of Vascularized Electrodes for High-Performance Fast--Charging Batteries Optimized by Deep Learning" MRS Boston, 2022.
- (Invited) "Dynamic solar and mid-infrared synergistic radiative thermoregulation" Duke University Materials Research Society Seminar, Durham, USA, 2022
- "Bio-Inspired Vascularized Electrodes for High-Performance Fast-Charging Batteries Designed by Deep Learning", The 9th Annual Triangle Student Research Competition, 2021
- "A Micro-droplet Ejector by Focused Surface Acoustic Wave", The Second International Conference of Microfluidics, Nanofluidics, and Lab-on-a-Chip, Track 80206, Oral Presentation, 2019

AWARDS

- MRS Graduate Student Award, 2023
- Nano Research Energy Young Star Researcher Gold Award, 2022
- Daoyu Liu Chancellor Fellowship (6 out of 30000), Wuhan University, 2018

ACADEMIC SERVICES

- Young Editorial Board, Nano Research Energy (IF = 17.881), 02/01/2023 – Present

REFERENCES

- Prof. Po-Chun Hsu, Pritzker School of Molecular Engineering, University of Chicago
- Prof. Willie John Padilla, Department of Electrical and Computer Engineering, Duke University
- Prof. Genevieve Lipp, Department of Electrical and Computer Engineering, Duke University
- Prof. Bolin Liao, Department of Mechanical Engineering, UCSB
- Prof. Xuejiao Hu, School of Power and Mechanical Engineering, Wuhan University