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Chenxi Sui

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EDUCATION

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

B.S. Wuhan University, Physics — 2015-2019
Advisor: Dr. Qu-Quan Wang

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)

[1] **Sui, Chenxi**, et al. "Aqueous mid-infrared electrically switchable opaque building envelopes for all-season radiative thermoregulation." (2022). *ChemRxiv*

[2] **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.

[3] 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.

[4] 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.

[5] 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.

[6] 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.

[7] 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.

[8] **Sui, Chenxi**, Hongsheng Wang*, Xiang Liu, and Xuejiao Hu*. "Solar thermochemical water-splitting reaction enhanced by hydrogen permeation membrane." *arXiv preprint arXiv:1808.02175* (2018).

[9] **Sui, Chenxi**, 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

[1] 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

[1] (Invited) "Dynamic solar and mid-infrared synergistic radiative thermoregulation" Duke University Materials Research Society Seminar, Durham, USA, 2022

[2] "Bio-Inspired Vascularized Electrodes for High-Performance Fast-Charging Batteries Designed by Deep Learning", The 9th Annual Triangle Student Research Competition, 2021

[3] "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