

Wenzhe Li

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EDUCATION

- *University of Illinois at Urbana-Champaign, IL* Expected graduation: January 2021
Ph.D. in Mechanical Science and Engineering
- *University of Illinois at Urbana-Champaign, IL* August 2017
M.S. in Mechanical Science and Engineering
- *Xi'an Jiaotong University, China* July 2014
B.S. in Energy, Power System and Automation

RESEARCH EXPERIENCES

- Refrigerants distribution in brazed plate heat exchangers April 2015-Present
Research Assistant, Advisor: *Prof. Predrag S. Hrnjak* *Air Conditioning and Refrigeration Center, UIUC*
- Experimentally and numerically explore the refrigerant distribution in brazed plate heat exchangers and the effects of refrigerant maldistribution on the overall performance of heat exchangers
- Heat pump water heater system November 2014- August 2017
Research Assistant, Advisor: *Prof. Predrag S. Hrnjak* *Air Conditioning and Refrigeration Center, UIUC*
- Experimentally and numerically investigated the transient refrigerant and oil distribution in a heat pump water heater
- Developed an EES-CFD linked system model for a heat pump water heater
- Micron-/nanoparticle flow and deposition in the narrow channel March 2014-October 2014
Research Assistant, Advisor: *Prof. Jian Wen* *Dept. Refrigeration and Cryogenic Engineering, XJTU, China*
- Simulated the flow and deposition of fine particles in the narrow channel by CFD tool
- Theoretical and experimental study of the surface tension of refrigerants and their mixture July 2012-March 2014
Research Assistant, Advisor: *Prof. Shengshan Bi* *Dept. Thermal Fluid Science and Engineering, XJTU, China*
- Theoretically predicted the surface tension of refrigerants and their mixtures based on the principle of corresponding states
- Developed a portable surface tensiometer using the maximum bubble pressure method

RESEARCH AREAS

- Air conditioning and refrigeration systems
- Heat transfer processes and devices

SKILLS

- Hand-on experiences in thermal system/components experiments.
- Thermal system/components modeling through MATLAB, EES and C language.
- CFD simulation of single-/multi-phase flow through ANSYS Fluent.
- Language skills: English (skilled), Chinese (native).

PUBLICATIONS

- W. Li, P. Hrnjak, "Experimental investigations of the single-phase flow distribution in brazed plate heat exchangers and its impact on the heat exchanger", *The 25th IIR Int. Congress of Refrigeration ICR*, Paper 1564, Montreal, 2019.
- W. Li, P. Hrnjak, "Theoretical analysis of the end-plate effect on heat transfer in brazed plate heat exchangers", *The 25th IIR Int. Congress of Refrigeration ICR*, Paper 1565, Montreal, 2019.

- W. Li, P. Hrnjak, “An experimentally validated model of single-phase flow distribution in brazed plate heat exchangers”, *International Refrigeration and Air Conditioning Conference at Purdue*, Paper 2282, Purdue University, IN, 2018.
- W. Li, P. Hrnjak, “Transient distribution of refrigerant and oil in a residential heat pump water heater system”, *International Refrigeration and Air Conditioning Conference at Purdue*, Paper 2283, Purdue University, IN, 2018.
- W. Li, P. Hrnjak, “Experimentally validated model of heat pump water heater with a water tank in heating-up transients”, *International Journal of Refrigeration*, 88, 420-431, 2018.