

**Juan Xiao**  
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**Education:**

9/2019~date: Visiting Scholar in ACRC

University of Illinois at Urbana-Champaign

Department of Mechanical Science and Engineering

9/2015~date: Ph.D. Candidate in Power Engineering and Engineering Thermophysics

Xi'an Jiaotong University

School of Chemical Engineering and Technology

9/2011~6/2015: Bachelor in Process equipment and Control Engineering

China University of Mining and Technology

School of Chemical Engineering and Technology

**Research Interests:**

Heat and mass transfer mechanism in heat exchanger

Fluid dynamics and rheology of non-Newtonian fluid

Multi-physics field coupling analysis (Fluid-structure interaction)

Optimization algorithm and parameter-driven modeling

**Research Experience:**

2015~date: Graduate Research

Supervisor: Associate Professor Simin Wang

Projects include:

1. Study on flow and heat transfer performance of non-Newtonian fluid in shell-and-tube heat exchangers with ladder-type fold baffles. (Project leader, the Fundamental Research Funds for the Central Universities, No. xjj2018202)
2. Study on condensation mechanism and heat transfer enhancement of R450A in shell-and-tube heat exchangers with helical baffles. (Main participant, the National Natural Science Foundation of China, No. 51676146)

**Honors and Awards:**

9/2017~6/2018: Outstanding Ph.D. Candidate Award, Xi'an Jiaotong University

9/2016~6/2017: 1994' Alumni Scholarship, Xi'an Jiaotong University

9/2015~6/2016: Excellent Postgraduate Cadre, Xi'an Jiaotong University

8/2016: National Grand Prize, 7<sup>th</sup> Practice and Innovation Competition for Process Equipment

6/2015: Outstanding Graduate Award, China University of Mining and Technology

9/2011~6/2014: First Class Scholarship for 3 straight years, China University of Mining and Technology

**Publications:**

Journal Articles:

- [1] **Xiao J**, Wang SM, Wang S, et al. Numerical study on forced convection heat transfer across a heated circular tube based on Bingham model with thermally dependent viscosity [J]. *Journal of Heat Transfer-transactions of The Asme*. (Accepted)
- [2] **Xiao J**, Wang SM, Ye SP, et al. Thermo-economic optimization of gasification process with coal water slurry preheating technology [J]. *Energy*, 2020, 199: 117354.

- [3] **Xiao J**, Wang SM, Ye SP, et al. Experimental investigation on pre-heating technology of coal water slurry with different concentration in shell-and-tube heat exchangers with ladder-type fold baffles [J]. *International Journal of Heat and Mass Transfer*, 2019, 132: 1116-1125.
- [4] **Xiao J**, Wang SM, Duan XD, et al. Rheological models for temperature and concentration dependencies of coal water slurry [J]. *International Journal of Coal Preparation and Utilization*, 2019: 1-19.
- [5] **Xiao J**, Wang SM, Ye SP, et al. Multiphysics field coupling simulation for shell-and-tube heat exchangers with different baffles [J]. *Numerical Heat Transfer, Part A: Applications*, 2019, 77(3): 266-283.
- [6] Wang SM, **Xiao J**, Ye SP, et al. Numerical investigation on pre-heating of coal water slurry in shell-and-tube heat exchangers with fold helical baffles[J]. *International Journal of Heat and Mass Transfer*, 2018, 126:1347-1355.
- [7] Wang SM, **Xiao J**, Wang JR, et al. Application of response surface method and multi-objective genetic algorithm to configuration optimization of shell-and-tube heat exchanger with fold helical baffles[J]. *Applied Thermal Engineering*, 2018, 129:512-520.
- [8] Wang SM, **Xiao J**, Wang JR, et al. Configuration optimization of shell-and-tube heat exchangers with helical baffles using multi-objective genetic algorithm based on fluid-structure interaction[J]. *International Communications in Heat & Mass Transfer*, 2017, 85:62-69.
- [9] Wang SM, Jian GP, **Xiao J**, et al. Fluid-thermal-structural analysis and structural optimization of spiral-wound heat exchanger[J]. *International Communications in Heat & Mass Transfer*, 2018, 95:42-52.
- [10] Wang SM, Jian GP, **Xiao J**, et al. et al. Optimization investigation on configuration parameters of spiral-wound heat exchanger using Genetic Aggregation response surface and Multi-Objective Genetic Algorithm [J]. *Applied Thermal Engineering*, 2017, 119: 603-609.
- [11] Wang SM, **Xiao J**, Wang JR, et al. Flow and heat transfer performance of shell-and-tube heat exchangers with fold helical baffles[J]. *CIESC Journal*, 2017, 68:4537-4544. (In Chinese; EI)
- [12] Wang SM, **Xiao J**, Wang JR, et al. Structural optimization of shell-tube heat exchanger with helical baffles based on fluid-structure interaction[J]. *Journal of Chemical Engineering of Chinese Universities*, 2017, 31:539-546. (In Chinese; EI)

Conferences:

- [1] Wang SM, **Xiao J**, Jian GP, et al. Design optimization of shell-and-tube heat exchangers with helical baffles based on MOGA[C]. *Academic Conference on Heat and Mass Transfer of Chinese Society of Engineering Thermophysics*, Beijing: 2016.
- [2] **Xiao J**, Wang JR, Jian GP, et al. Jian Wen. Performance investigation on shell-and-tube heat exchangers with different baffles based on fluid-structure interaction[C]. *4<sup>th</sup> International Conference on Building Energy and Environment*, Melbourne: 2018.