Hongfang Gu, Ph.D.

State Key Laboratory of Multiphase Flow in Power Engineering School of Energy and Power Engineering
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EDUCATION

09/1996 – 05/2000 Ph.D., Energy and Power Engineering – Xi'an Jiaotong University, P. R. China.
Thesis Topic: Investigation on the characteristics of heat transfer and pressure drop of kerosene-air mixture two-phase flow with and without phase change.

09/1990 – 03/1993 M.S., Energy and Power Engineering – Xi'an Jiaotong University, P. R. China.
Thesis Topic: Investigation on the enhanced condensation of outside horizontal coil tubes.

09/1982 – 07/1986 B.S., Energy and Power Engineering – Xi'an Jiaotong University, P. R. China.

PROFESSIONAL EXPERIENCE

2002 – present Associate Professor, State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, P. R. China

2000 – 2002 Lecture, State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, P. R. China

1993 – 1996 Engineer, China New Era International Engineering Corporation

1988 – 1990 Associate Engineer， Shaanxi Construction Engineering Corporation

1986 – 1988 Associate Engineer, Nanjing Boilers Company

RESEARCH EXPERIENCE

2003 – present Conducting research projects include:

(1) The study of air cooled condensers (ACC) used in power generation plants for water conservation. The results include a number of key findings, such as
- Effect of direct and indirect air cooling at the wide range of environmental operation conditions
- Analysis and evaluation of air-cooled condensers' operation performance
- Design method improvement

(2) Study of optimization of heat transfer element design in direct and indirect air-cooled condensers

(3) Investigation on heat transfer and flow characteristics in evaporators, condensers and pre-heaters using seven different enhanced tubes

(4) Study on the flow characteristics and the stress analysis of exhaust steam main pipes in air-cooled condensers
(5) Investigation on the flow characteristics in feed-water pipes, super-heated steam pipes, and re-heated pipe channels at high and low waste flue gas heating temperatures
(6) Study on the flow characteristics of cooling systems in steam electric power plant.

2002 – 2003 Investigation on flow instability of fluids under supercritical pressures. Supported by NSF of China, Grant No.10975111. PI.

2002 – 2004 Conducted two of national key research projects:
(1) Investigation of the model selection on the first one million kW supercritical pressure steam boiler in china;
(2) Investigation of heat transfer and hydrodynamic characteristics of water-cooling-wall in ultra-supercritical boilers.

2000 – 2002 Conducted research projects:
(1) Investigation of two-phase flow and heat transfer in steam-water flow system under high pressure, high temperature, and high heat flux. Supported by NSF of China, Grant No.: 59995460-3, PI.
(2) Study on steam spray in heat exchangers under high pressure and high temperature steam.

RESEARCH AREA:

1. Multiphase flow and heat transfer
2. Two-phase flow heat transfer under supercritical pressure
3. Heat transfer enhancement
4. Key technology of air-cooled condensers
5. Stress analysis in pipe or vessels under of high pressure and temperature

TEACHING EXPERIENCE

I taught the following classes for graduate and undergraduate level:
1. Principals of boiler design
2. Experimental method and data Processing for fluid flow and heat transfer
3. Principal of multiphase flow and modeling
4. Heat transfer enhancement
5. Computation fluid flow and hat transfer

PROFESSIONAL SOCIETIES

Member of Chinese Association of Power Engineering
Member of Chinese Association of Air-cooled Heat Exchangers

PUBLICATIONS

1. **Hongfang Gu** , Hongzhi Li , Haijun Wang and Yushan Luo, Experimental investigation on convective heat transfer from a horizontal miniature tube to methane at supercritical pressures, *J. of Thermal Engineering*, **58** (2013), pp 490 – 498.

2. Guoyong Chen, **Hongfang Gu,** Haijun Wang and Yongbo Qin, Optimization research on the structure of horizontally-arranged indirect air-cooling tower under strong wind condition. *The 7th International Symposium on Multiphase Flow, Heat Mass Transfer and Energy Conversion*, AIP Conference Proceedings,**1547** (2013), pp 454 – 462.
3. Yongbo Qin, **Hongfang Gu,** Haijun Wang and Guoyong Chen, Investigation on the impact of the environment wind velocity on the indirect air-cooling tower performance, *The 7th International Symposium on Multiphase Flow, Heat Mass Transfer and Energy Conversion*, AIP Conference Proceedings,1547, pp 469 – 476 (2013).
4. Qiao Shouxu,Wang Haijun, **Gu Hongfang,** et al., Analysis of Pipe on Surge Line Thermal Stratification, *J. of Atomical Energy Science and Technology*, Vol. 47, No. 10, (2013), pp 1760 – 1765.
5. **Hongfang Gu** , Fengqing Qiu and Haijun Wang, Structure Optimization of an Air-Cooling System Platform at a Large Power Plant, *J. of Heat Transfer Engineering*, **32** (11-12), 2011, pp 1069 – 1074.
6. Wang Wei-shu, Xu Wei-hui, Li Shuai-shuai, **Gu Hongfang,** Temperature study on vertical membrane water-wall of 1000 MW ultra-supercritical pressure boilers in high heat flux area. *J. of Chemical Engineering*, No.6, 2011, pp 9 – 12.
7. **Gu Hongfang**,Sun Dan,Zhang Yanmou,Chen Tingkuan,Research on Enhanced Condensation outside the Horizontal Coil Tube with V Grooves, *J. of Power System Engineering* Vol. 28, No. 5, 2000, pp18 – 21.
8. **Gu Hongfang**,Wamg Haijun and Weng Yu, Subatmospheric condensation resistance characteristics in a flat tube. *J. of Engineering Thermophysics*, Vol. 32, No.1, 2010, pp 80 – 83.
9. Wang Weishu, Zhao Pengfei, Bi Qingcheng, and **Gu Hongfang**, Hydrodynamics characteristics of vertical water-wall in ultra-supercritical pressure boiler. *J. of Power System Engineering*, Vol. 64, No.9, 2013, pp 3213– 3218.
10. Wang Wei-shu, Xu Wei-hui, **Gu Hong-fang**, et al., Numerical Calculation on Temperature Fields of Vertical Waterwall in Ultra-supercritical Boilers. *J. of Power Engineering*, Vol. 29, No.8, 2009, pp 717 – 722.
11. Wang Wei-shu, ChenTing-kuan, Luo Yu-shan, Li Hui-xiong, **Gu Hong-fang**, et al., Experimental Research on Wall Temperature Distribution and Heat Transfer Characteristics of the Tilted Smooth Riser Tubes in the Supercritical Pressure Region, *J. of Power Engineering*, Vol. 25, No.5, 2005, pp 623 – 627.
12. Wang Wei-shu, ChenTing-kuan, Luo Yu-shan, Yin Fei and **Gu Hong-fang**, Experimental Study of Heat Transfer Characteristics Under Supercritical Pressure of Upwards Inclined Rifled Tubes, *J. of Power Engineering*, Vol. 25, No.5, 2005, pp 790 – 793.
13. Wang Wei-shu, Luo Yu-shan, Chen Ting-kuan and **Gu Hong-fang**, Investigation on Heat Transfer Characteristics of Ultra-Supercritical Water in a Vertical Upward Internally Ribbed Tube, *J. of Nuclear Power Engineering*, Vol. 28, No. 3, 2007, pp 43 – 46.
14. **Gu Hong-Fang** and Chen Ting-Kuan, Investigation of condensation heat transfer of kerosene-air mixtures outer horizontal tube bundle, *J. of Engineering Thermophysics*, Vol. 24, No. 3, 2003, pp 976 – 979.
15. **Gu Hong-Fang**, Sun Dan and Chen Ting-Kuan, The Experimental Investigation of Boiling Heat Transfer of Kerosene-air mixtures in a Horizontal Tube, *J. of Engineering Thermophysics*, Vol. 22, No.5, 2001, pp 621 – 324.
16. **Gu Hong-Fang**, Sun Dan, and Chen Ting-Kuan, Investigation of Condensation Heat Transfer of Kerosene-Air Mixtures in a Horizontal Tube, *J. of Chemical Industry and Engineering*, Vol. 53, No. 3, 2002, pp 313 – 316.
17. Wang Wei-shu, Hu Jian-lan, Xu Wei-hui and **Gu Hong-fang**, Frictional Pressure Drop of Two-phase Flow in Rifled Water Wall Tubes, *J. of Power Engineering*, Vol. 27, No. 5, 2007, pp 757 – 761.

18. **Gu Hongfang**, Sun Dan and Chen Tingkuan, Heat Transfer Characteristics of Kerosene-Air Mixture Flowing in a Horizontal Tube, *J. of Xi'an Jiaotong University*, Vol. 34, No.11, 2000, pp 13 – 16.
19. **Gu Hongfang**, Sun Dan, Zhang Yanmou and Chen Tingkuan, Theoretical Investigation of Enhanced Condensation on Outside Horizontal Coil Tube with V-Grooves, *J. of Xi'an Jiaotong University*, Vol. 33, No.7, 1999, pp 57 – 61.
20. **Gu Hongfang,** Sun Dan, Zhang Yanmou and Chen Tingkuan, Experimental Investigation of Enhanced Condensation Outside Horizontal Coil Tube with V-Grooves, *J. of Xi'an Jiaotong University*, Vol. 33, No.7, 1999, pp 62 – 65.

PERSONAL INFORMATION

Name:	**Hongfang Gu**
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Date of Birth:	Feb.17, 1965
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