

## Cheng-Xian Lin

### **Name and academic rank:**

Cheng-Xian Lin, Associate Professor

### **Research interests:**

Heat and Mass Transfer, Computational Fluid Dynamics, Thermal Management, and Energy Simulation, and their applications in HVAC, Buildings, Data Centers, Electronic Cooling, Aerospace, Power Plants, and Solar and Geothermal Energy technologies.

### **Degrees with fields, institution, and date:**

Ph.D. Mechanical Engineering<sup>1</sup>, Chongqing University, PRC, 1992

M.S. Mechanical Engineering, Southwest Jiaotong University, PRC, 1988

M.S. Mechanical Engineering, Shandong University, PRC, 1985

### **Number of years service of this faculty, date of original appointments, and dates of advancement in rank:**

7 years

Associate Professor, Department of Mechanical and Materials Engineering, Florida International University, Miami, FL, 2011-present

Research Associate Professor, Department of Mechanical and Materials Engineering, Florida International University, Miami, FL, 2004-2006

### **Other related experience:**

Associate Professor, Department of Mechanical, Aerospace, and Biomedical Engineering, the University of Tennessee, Knoxville, TN, 2006-2011

Associate Director, UTK CFD Laboratory, the University of Tennessee, Knoxville, TN, 2007-2011

Summer Faculty Fellow, Air Force Research Laboratory, Wright-Patterson Air Force Base, OH, 2007-2008

Program Manager, Applied Research Center (Previously HCET), Florida International University, Miami, FL, 1996-2006

Research Scientist, Department of Mechanical Engineering, Florida International University, Miami, FL, 1995-1996

Postdoctoral Research Fellow, Institute of Engineering Thermophysics, Chinese Academy of Sciences, 1992-1995

### **Principal publications (Last five years):**

1. Soheil Soleimanikutanaei, Cheng-Xian Lin, Dexin Wang, Numerical Modeling and Analysis of Transport Membrane Condensers for Waste Heat and Water Recovery from Flue Gas, *Int. J. Thermal Sciences*, Vol. 136, pp. 96-106, 2019.
2. Soheil Soleimanikutanaei, C.X. Lin, Dexin Wang, Modeling and Simulation of Cross-Flow Transport Membrane Condenser Heat Exchangers, *Int. Comm. Heat Mass Transfer*, Vol. 95, pp. 92-97, 2018.
3. Soheil Soleimanikutanaei, Esmail Ghasemisahebi, Cheng-Xian Lin, Numerical Study of Heat Transfer Enhancement using Transverse Microchannels in a Heat Sink, *Int. J. Thermal Sciences*, Vol. 125, pp. 89-100, 2018.
4. E. Ghasemi, H. Bararnia, Soheil Soleimanikutanaei, C.X. Lin, Direct Numerical Simulation and Analytical Modeling of Electrically Induced Multiphase Flow, *International Journal of Mechanical Sciences*, Vol. 142-143, pp. 397-406, 2018.
5. Carlos Ulloa, Jose M. Nunez, Chengxian Lin, Guillermo Rey, AHP-based Design Method of a Lightweight, Portable and Flexible Air-Based PV-T module for UAV Shelter Hangars, *Renewable Energy*, Vol. 123, pp. 767-780, 2018.
6. E. Ghasemi, H. Bararnia, S. Soleimanikutanaei, and C.X. Lin, Simulation of Deformation and Fragmentation of a Falling Drop under Electric Field, *Powder Technology*, Vol. 325, pp. 301-308, 2018.
7. Carlos Ulloa, Jose Maria Nunez, Andres Suarez, Chengxian Lin, Design and Development of a PV-T test bench based on Arduino, *Energy Procedia*, Vol. 141, pp. 71-75, 2017. Also presented in 4<sup>th</sup> International Conference on Power and Energy Systems Engineering, CPSE 2017, Sep. 25-29, 2017, Berlin, Germany.

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<sup>1</sup> Thermal Engineering

8. L. Phan, C.X. Lin, Reduced Order Modeling of a Data Center Model with Multi-Parameters, *Energy and Buildings*, Vol. 136, pp. 86-99, 2017.
9. P. Shinde, C.X. Lin, A Heat Transfer and Friction Factor Correlation for Low Air-Side Reynolds Number Applications of Compact Heat Exchangers (1535-RP), *Science and Technology for the Built Environment*, Vol. 23, pp. 192-210, 2017.
10. R. Kiflemariam, C.X. Lin, Experimental Investigation on Heat Driven Self-Cooling Application Based on Thermoelectric System, *International Journal of Thermal Sciences*, Vol. 109, pp.309-322, 2016.
11. M. Bidabadi, M. Mohebbi, A. K. Poorfar, S. Hochgreb, C.X. Lin, S.A. Biouki, M. Hajilou, Modeling Quenching Distance and Flame Propagation Speed through an Iron Dust Cloud with Spatially Random Distribution of Particles, *Journal of Loss Prevention in the Process Industries*, Vol. 43, pp.138-146, 2016.
12. K. S. Lee, E. C. Kang, I. F. DA CUNHA, C.X. Lin, and E. J. Lee, Identifying, Prioritizing, Measuring and Verifying Clean Energy Solutions for Korea's Public Building Renewable Energy Obligation Policy, *Trans. KSME*, Vol. 4, No.1, pp.11-18, 2016.
13. S.R. Reddy, M.A. Ebadian, C.X. Lin, A Review of PV-T Systems: Thermal Management and Efficiency with Single Phase Cooling, *Int. J. Heat Mass Transfer*, Vol. 91, pp. 861-871, 2015.
14. A. Bao, D. Wang, C.X. Lin, Nanoporous Membrane Tube Condensing Heat Transfer Enhancement Study, *Int. J. Heat Mass Transfer*, Vol. 84, pp. 456-462, 2015.
15. R. Kiflemariam, C.X. Lin, Numerical Simulation of Integrated Liquid Cooling and Thermoelectric Generation for Self-Cooling of Electronic Devices, *International Journal of Thermal Sciences*, Vol. 94, pp. 193-203, 2015.
16. R. Kiflemariam, C.X. Lin, Numerical Simulation and Parametric Study of Heat-Driven Self-Cooling of Electronic Devices, *Journal of Thermal Science and Engineering Applications*, Vol. 7, 011008 (8 pages), 2014.
17. H. Saffari, R. Moosavi, N. M. Nouri, C.X. Lin, Prediction of Hydrodynamic Entrance Length for Single and Two-Phase Flow in Helical Coils, *Chemical Engineering and Processing: Process Intensification*, Vol. 86, pp. 9-21, 2014.
18. J. Wagner, M. Schafer, A. Schluter, L. Harsch, J. Hesselbach, C.X. Lin, Reducing Energy Demand in Production Environment Requiring Refrigeration – A Localized Climatisation Approach, *HVAC&R Research*, Vol. 20, No. 6, pp. 628-642, 2014.
19. N. Kocyigit, H. Bulgurcu, C.X. Lin, Fault Diagnosis of a Vapor Compression Refrigeration System with Hermetic Reciprocating Compressor Based on p-h Diagram, *Int. J. Refrigeration*, Vol. 45, pp. 44-54, 2014.
20. L. Phan, C.X. Lin, A Multi-zone Building Energy Simulation of a Data Center Model with Hot and Cold Aisles, *Energy and Buildings*, Vol. 77, pp. 364-376, 2014.
21. E. Ghasemi, S. Soleimani, and C.X. Lin, RANS Simulation of Methane-Air Burner Using Local Extinction Approach within Eddy Dissipation Concept by OpenFOAM, *Int. Comm. Heat Mass Transfer*, Vol. 54, pp. 96-102, 2014.
22. E. Ghasemi, S. Soleimani, and C.X. Lin, Secondary Reactions of Turbulent Reacting Flows over a Film-Cooled Surface, *Int. Comm. Heat Mass Transfer*, Vol. 55, pp. 93-101, 2014.
23. K. Moradi, M.A. Ebadian, and C.X. Lin, A Review of PV/T Technologies: Effects of Control Parameters, *Int. J. Heat Mass Transfer*, vol. 64, pp. 483-500, 2013.
24. M. Schafer, R. Detzer, J. Hesselbach, S. Bohm, P. Shinde, and C.X. Lin, CO<sub>2</sub> and Thermal Gradient Based Demand-driven Stratified Ventilation-Experimental and Simulation Study, *HVAC&R Research*, Vol. 19, No. 6, pp. 676-692, 2013.
25. X. Wang, X. Wang, G. Xing, and C.X. Lin, Maximizing the Detection Probability of Overheating Server Components with Sensor Placement Based on Thermal Dynamics, *Sustainable Computing: Informatics and Systems*, Vol. 3, No. 3, pp. 148-160, 2013.
26. C.X. Lin and L. Phan, A Numerical Study of Both Internal and External Two-Phase Flows of a Rotating Disk Atomizer, *Drying Technology*, Vol. 31, No. 5, pp. 605-613, 2013.
27. C.X. Lin, D. Wang, and A. Bao, Numerical Modeling and Simulation of Condensation Heat Transfer of a Flue Gas in a Bundle of Transport Membrane Tubes, *Int. J. Heat Mass Transfer*, Vol. 60, pp. 41-50, 2013.
28. X. Wang, X. Wang, G. Xing, J. Chen, C.X. Lin, and Y. Chen, Intelligent Sensor Placement for Hot Server Detection in Data Centers, *IEEE Transactions on Parallel and Distributed Systems*, Vol. 24, No. 8, pp. 1577-1588, 2013.

**Memberships in scientific and professional societies:**

Senior Member, the American Institute of Aeronautics and Astronautics (AIAA), 1996-present.

Member, the American Society of Mechanical Engineers (ASME), 1996-present.

Member, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), 2006-present.

Member, the International Ground Source Heat Pump Association (IGSHPA), 2011-present.

Member, the American Society for Engineering Education (ASEE), 2006-present.

Member, the American Nuclear Society (ANS), 1996-present.

**Honors and awards:**

Outstanding Reviewer Award, HTD, ASME, 2011.

ASEE-Air Force Summer Faculty Fellowship, Air Force Research Laboratory, Wright-Patterson Air Force Base, OH, 2007 and 2008.

Program Development Award, Hemispheric Center for Environmental Technology (HCET), Florida International University, Miami, FL, 2000.

Certificate of Recognition, Florida Georgia Louis Stokes Alliance for Minority Participation (FGLSAMP), 1999.

Listed in Who's Who in Science and Engineering, 1998-present; Who's Who in America, 2007-present; Who's Who in the World, 2008-present.

Award of Excellent Academic Paper for Young Scientists (AEAP), Institute of Engineering Thermophysics, Chinese Academy of Sciences, 1993.

**Institutional and professional services (Last five years):**

Committee Member, University Undergraduate Council, Florida International University, 2015-present

Committee Member, University Graduate Council, Florida International University, 2013-2015.

Committee Member, ABET Committee, Department of Mechanical and Material Engineering, Florida International University, 2012-present.

Committee Member, Strategic Planning Committee, Department of Mechanical and Material Engineering, Florida International University, 2011-present.

Faculty Advisor, ASHRAE FIU Student Branch, 2012-present.

Chair, K-19 Environmental Heat Transfer, HTD, ASME, 2013-2016.

Chair, Research Subcommittee, TC 4.10 Indoor Environmental Modeling, ASHRAE, 2015 – present.

Chair, Membership Subcommittee, TC 4.10 Indoor Environmental Modeling, ASHRAE, 2013 – 2015.

Associate Editor, Heat Transfer Research, 2003 – present.

Guest/Associate Editor, ASME Journal of Thermal Science and Engineering Applications, 2018-present.

Associate Editor, International Journal of Engineering, 2009-present.

Editorial Board Member, International Journal on Heat and Mass Transfer – Theory and Applications, 2003 – present.

Editorial Board Member, Advances in Mechanical Engineering, 2008-present.

Editorial Board Member, Journal of Combustion, 2012-present.

Editorial Board Member, Journal of Renewable Energy, 2012-present.

Honorary Editorial Board Member, Advances in Theoretical and Applied Mechanics, 2013-2016.