姓名 柯道友

技术职务 教授

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教育背景

Education:

Ph.D., Mechanical Engineering, “Convective Heat Transfer in Louvered Solar Collectors,” Purdue University, West Lafayette, Indiana, 1982

MS, Nuclear Engineering, “Transient Development of a Two-Phase Jet,” Purdue University, West Lafayette, Indiana, 1977

BS, Mechanical Engineering, Magna Cum Laude, Bucknell University, Lewisburg, Pennsylvania, 1975

工作履历

Work Experience:

Professor, Tsinghua University, 2004 - present

Associate Professor, Tsinghua University, 1996 - 2004

Visiting Professor, Tsinghua University, 1993 - 1996

Editor, Tsinghua Science and Technology 1996 - present

Post-Doctorate Research, Tsinghua Univ., 1991 - 1993

Assistant Professor, Lafayette College, Easton,

Pennsylvania 1983 - 1988

Foreign Student Advisor, Lafayette College 1984 - 1988

Engineering Consultant 1981 - 1983

研究领域

微尺度对流与换热

研究概况

Reaserch Interests:

Computational and experimental convective heat transfer and fluid dynamics

Research Projects:

Microscopic Understanding of Nucleation and Bubble Dynamics During Nucleate Boiling, National Natural Science Foundation, 2005-2007.

Characteristics of Bubble-Wall Interactions during Nucleate Pool Boiling, 2001-2002

Temperature and Velocity Distributions around Vapor Bubbles during Nucleate Boiling, 2000-2003

奖励与荣誉

Chinese Bureau of Foreign Experts' Friendship Award, 1994

Tsinghua University's Friendship Award, 1994

Tsinghua University's Friendship Award, 1995

Tau Beta Pi Fellow

Purdue University Fellow

Tsinghua University teaching award, 1st Class, 1998

Tsinghua University teaching award, 1st Class, 1997

Tsinghua University teaching award, 1st Class, 1996

学术成果

Patents: “Louvered Air-Heating Solar Collector,” 1989

Journal Articles

Christopher, DM, Wang H, Peng, XF, Numerical Analysis of the Dynamics of Moving Vapor Bubbles, accepted by International Journal of Heat and Mass Transfer, 2006

Christopher, DM, Wang H, Peng, XF, Dynamics of Bubble Motion and Bubble Top Jet Flows from Moving Vapor Bubbles on Microwires, Journal of Heat Transfer, Vol. 127 (11), 2005, pp 1260-1268.

Wang H, Peng X F, Christopher D M, Lin W K and Pan C. Investigation of bubble-top jet flow during subcooled boiling on wires. International Journal of Heat and Fluid Flow, 26(3), pp. 485-494, 2005.

Wang H, Peng XF, Christopher DM, Wang BX, Flow Structures around Micro Bubbles during Subcooled Nucleate Boiling, China Physics Letters, 22 (1): pp. 154-157, 2005

Christopher, DM, Wang H, Peng, XF, Wang BX, Jet Flow Structures Around Stationary Bubbles During Nucleate Boiling, Journal of Engineering Thermophysics, Vol. 26 Supplement, pp. 143-145, 2005.

柯道友, 王昊, 彭晓峰. 加热铂丝上运动汽泡产生的射流. 工程热物理学报，V. 26 (4), pp. 638-640, 2005.

Hao Wang, Xiaofeng Peng, David M. Christopher, and Suresh V. Garimella, Jet Flows Around Microbubbles in Subcooled Boiling, Journal of Heat Transfer, V 127, No. 8, p. 802, 2005

Hao Wang, Xiaofeng Peng, and David M. Christopher, Dynamic Bubble Behavior during Microscale Subcooled Boiling, China Physics Letters, V 22, No. 11,2005.

Christopher, D.M. and Guo, L., “High moisture content gas flow across a cylinder at moderate Reynolds numbers,” Heat Transfer Engineering, Vol. 25, No. 6, pp. 23-32, 2004.

Wang H, Christopher D M, Peng X F and Wang B X. Jet flows from a bubble during subcooled pool boiling on micro wires. Science in China (Series E), 2004, Vol. 48, No. 4, pp. 385-402.

Christopher, D.M. and Wang, B.X., "Similarity solution for Marangoni convection over a flat surface," Journal of Heat Transfer, Vol. 124 (3), 587-589, 2002

Christopher, D.M., "Numerical Prediction of Natural Convection in a Tall Enclosure," International Journal for Numerical Methods in Fluids, Vol. 40, 1039-1044, 2002

Christopher, D.M. and Wang, B.X. "Heat transfer for Marangoni driven boundary layer flow," Heat Transfer-Asian Research, Vol. 31 (2), 105-116, 2002

Christopher, D.M. and Wang, B.X., "Prandtl number effects for Marangoni convection over a flat surface," International Journal of Thermal Science, Vol. 40, 564-570, 2001.

Christopher, D.M. and Wang, B.X., "Similarity solution for Marangoni convection around a vapor bubble during nucleation and growth," International Journal of Heat and Mass Transfer, Vol. 44, pp. 799-810, 2001.

Christopher, D.M., Wang, B.X. and Peng, X.F., "Convection and evaporation of microlayer underneath bubbles under microgravity," Heat Transfer, Asian Research, Vol. 30(1), 1-10, 2001.

Christopher, D.M. and Wang, B.X., "Heat Transfer due to Marangoni Convection over a Flat Surface: Effect of Prandtl number," Journal of Engineering Thermal Physics, Vol. 22(3), 348-350, 2001.

Christopher, D.M. "Comparison of interface-following techniques for numerical analysis of phase-change problems," Numerical Heat Transfer, Part B, Vol. 39 (2), 189-206, 2001.

Christopher, D.M., "Accuracy of Coordinate Transformations in Phase-change Interface-following Techniques," Journal of Shanghai University of Technology, Vol. 23(3), 209-212, 2001.

Zhang, Y.G, Guo, L., Wang, B.X., Peng, X.F., Christopher, D.M., "Analysis and calculation on the characteristics for radiative heat transfer of flue gas with high moisture content," Chinese Journal of Mechanical Engineering, Vol. 36, No. 4, 2000.

Christopher, D.M., Peng, X.F., and Wang, B.X., "Microlayer Thickness under a Vapor Bubble on a Cylindrical Probe," Heat Transfer, Asian Research, Vol. 29(3), pp. 193-203, 2000.

Jia, L, Peng, X.F. and Christopher, D.M., "Heat transfer performance of a plastic heat exchanger with wet flue gas," Thermal Science and Engineering, Vol. 8(6), pp. 43-48, 2000

Meetings

Guohong Tong, Baoming Li, David M Christopher, "Measured and Predicted Temperatures

inside Chinese Solar Greenhouses," IEEE Conference on Sensing, Computing and Automation, May 8-11, 2006, Chongqing, China.

Christopher, DM, Wang H, Peng, XF, Comparison of Heat Transfer Rates around Moving and

Stationary Bubbles during Nucleate Boiling, 2005 ASME Heat Transfer Conference, San Francisco, Paper # HT2005-72625, 2005.

Christopher, DM, Wang H, Peng, XF, Experimental and Numerical Investigation of the

Dynamics of Moving Vapor Bubbles, 2005 ASME Heat Transfer Conference, San Francisco, Paper # HT2005-72415, 2005.

Li, S., Christopher, D.M., and Han, Y., "Temperature and flow distributions around stationary vapor bubbles on the underside of a heater surface," 6th International Symposium on Heat Transfer, Beijing, 356-361, 2004

Wang H, Christopher D M, Peng X F and Wang B X., "Flow Structures around Micro Bubbles During Subcooled Boiling," 6th International Symposium on Heat Transfer, Beijing, pp. 486-490, 2004.

Peng X F, Christopher D M and Wang B X., "Microscale Boiling Nucleation and Bubble Dynamics," 6th International Symposium on Heat Transfer, Beijing, pp. 42-55, 2004.

Wang H, Peng X F, Christopher D M and Wang B X. Jet flows from a bubble on micro wires, Korea-China Microscale Heat Transfer Conference, pp. 67-72, 2004.

Wang H, Peng X F, Garimella S V and Christopher DM, Microbubble Return Phenomena During Subcooled Boiling, 2004 ASME IMECE, Heat Transfer Photogallery, Anaheim, California, Nov. 13-19, 2004

Wang H, Peng X F, Christopher DM and Garimella S V, Jet Flows Around Microbubbles In Subcooled Boiling, 2004 ASME IMECE, Heat Transfer Photogallery, Anaheim, California, Nov. 13-19, 2004

Christopher, D.M.，“Numerical prediction of natural convection in a tall enclosure,” MIT Symposium on Computational Fluid and Solid Mechanics, K.J. Bathe, ed., Elsevier, Amsterdam, 1469-1471, 2001

Christopher, D.M. and Wang, B.X.，“Similarity solution for heat transfer due to Marangoni convection over a surface,” 5th International Symposium on Heat Transfer, Beijing, pp. 604-609, 2000.

Peng, X.F., Wang, B.X. and Christopher, D.M.，“Some fundamentals of boiling in microgravity,” 5th International Symposium on Heat Transfer, Beijing, pp. 60-76, 2000.

Guo, L. and Christopher, D.M.，“Experimental study of high moisture content gas flow over a cylinder at moderate Reynolds numbers,” 5th International Symposium on Heat Transfer, Beijing, pp. 270-275, 2000.

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