**网站个人信息**

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| 电子邮件 | yzhan@ncu.edu.cn | 所在单位 | 南昌大学先进制造学院能源与动力工程系 | | |
| 个人信息 | 南昌大学先进制造学院能源与动力工程系教授、博导、系主任。获得2023年度江西省自然科学奖二等奖、2022年度江西省教学成果奖二等奖、2019年度江西省百千万人才，2015年度江西省百人远航工程人选，2013年度江苏省双创人才。中国内燃机学会理事。主要研究领域为：有色金属半固态加工技术，材料凝固过程的传热传质机理、新型热管强化换热和微尺度传热机理研究、多孔介质内热流场介观分析研究、超临界二氧化碳驱替研究、热管换热器在电厂节能减排中的应用、微通道内热流耦合传热传质机理研究、复杂热流场多相流介观尺度数值模拟与实验研究、血液动力学、呼吸道气流输运机理等方面。主持国家自然科学基金五项，省科技厅自然科学基金两项，国家“十一五”科技支撑计划一项，国家科研院所基金一项，其他横向项目8项，发表论文200余篇，其中SCI和EI检索60篇，申报国家发明专利60项，其中授权14项， | | | | |
| 教育经历 | |  |  |  |  | | --- | --- | --- | --- | | 起止年月 | 毕业院校 | 所学专业 | 学历学位 | | 1987.9-1991.7 | 华中理工大学  （华中科技大学） | 工程热物理 | 学士 | | 2001.9-2003.7 | 南昌大学 | 工程热物理 | 硕博连读 | | 2003.9-2008.1 | 南昌大学 | 材料加工工程 | 博士 | | | | | |
| 工作履历 | |  |  |  |  | | --- | --- | --- | --- | | 起止年月 | 工作单位 | 职务 | 职称 | | 1991.7-2000.1 | 江西省科学院能源研究所 |  | 研究实习员 | | 2000.2-2012.12 | 南昌大学机电学院 |  | 讲师、副教授 | | 2012.12- | 南昌大学机电学院 | 副所长 | 教授 | | 2012.9-2013.9 | 美国圣母大学航空机械系 | 访问学者 | 访问教授 | | 2017.4- | 南昌大学机电学院 | 副所长 | 博导教授 | | 2018.1-2018.3 | 美国西弗吉尼亚大学页岩气中心 | 访问学者 | 访问教授 | | 2024.4- | 南昌大学先进制造学院  能源与动力工程系 | 系主任  学科负责人 | 教授、博导 | | | | | |
| 科研项目 | [[1].](#_Toc422219634)[基于物理信息DeepONet神经网络及多孔介质孔隙尺度建模的多相流动力学研究，国家自然科学基金12372246，2024.1-2027.12，直接经费52万元，主持，在研。](#_Toc422219634)  [[2]基于机器学习的复杂多相界面演化FT-LB耦合建模及动力学特性研究，国家自然科学基金52166009，2022.1-2025.12，直接经费35万元，主持，在研。](#_Toc422219634) [[3].](#_Toc422219635)[2\*1000W服务器芯片两相传热传质机理及优化研究，杭州衡鼎科技有限公司，横向课题，2024-2027,60万，主持，在研](#_Toc422219634)  [[4].](#_Toc422219635)[加热雾化过程以及气溶胶生成传输机理及流动-传热-传质多物理耦合模型开发，横向课题，2021-2023,60万，主持，在研](#_Toc422219634)  [[5] 精密单面抛光机自动控制技术开发，横向课题，2020-2021,10万，主持，在研 [6] 毛细管内脉动两相流动的演化规律和机理研究,国家自然科学基金11562011，2016.1-2019.12，直接经费48万元，主持，](#_Toc422219634)[已结题。](#_Toc422219634)  [[7].](#_Toc422219635)镁合金半固态流变铸轧相变传热机理研究, 国家自然基金51066005,主持，25万，2011.1-2013.12，主持，已结题。  [[8].基于界面追踪法的半固态镁合金凝固数值模拟，国家自然科学基金国际合作交流项目51310105027,2013.9-12，主持，已结题](#_Toc422219636)  [[9].基于分形原理的双连续相复合材料成形过程传热传质机理研究,国家自然科学基金51566012，2016.1-2019.12，直接经费39万元，排名第二，在研。](#_Toc422219637)  [[10].](#_Toc422219638)基于LBM方法的超临界CO2驱替油气过程动力学特性研究,江西省自然科学基金20181BAB206031，2018.1-2019.12, 6万元，主持，已结题。  [[11].](#_Toc422219639)震荡热管气液两相流直接数值模拟及实验研究，江西省自然科学基金，2015.9-2016.12, 5万元，主持，已结题。  [12].基于Front Tracking方法的气液两相流直接数值模拟，2015-2016，江西省远航工程， 经费4.2 万，主持，已结题。 | | | | |
| 科研成果 | 1. Peisheng Li, Hongsheng Zhou, Zhaoqing Ke, Shuting Zhao, **Ying Zhang**\*, Jiansheng Liu\*, Yuan Tian\*,A Coupled Machine Learning and Lattice Boltzmann Method Approach for Immiscible Two-Phase Flows[J].Mathematics 2024, 12, 109. 2. Zhaoqing Ke, **Ying Zhang**\*, Heat transfer enhancement in a rectangular channel with flow-induced pitching, heaving or surging of an airfoil[J]. International Communications in Heat and Mass Transfer, 2023 (142) 106657 3. **[Ying Zhang](https://www.researchgate.net/profile/Ying-Zhang-240?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6ImxvZ2luIiwicGFnZSI6InB1YmxpY2F0aW9uIiwicHJldmlvdXNQYWdlIjoiX2RpcmVjdCJ9fQ)**,[Yu Mao](https://www.researchgate.net/scientific-contributions/Yu-Mao-2260237707?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6ImxvZ2luIiwicGFnZSI6InB1YmxpY2F0aW9uIiwicHJldmlvdXNQYWdlIjoiX2RpcmVjdCJ9fQ),[Yuan Tian](https://www.researchgate.net/scientific-contributions/Yuan-Tian-2262918383?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6ImxvZ2luIiwicGFnZSI6InB1YmxpY2F0aW9uIiwicHJldmlvdXNQYWdlIjoiX2RpcmVjdCJ9fQ),[Yichen Huang](https://www.researchgate.net/scientific-contributions/Yichen-Huang-2171931092?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6ImxvZ2luIiwicGFnZSI6InB1YmxpY2F0aW9uIiwicHJldmlvdXNQYWdlIjoiX2RpcmVjdCJ9fQ),[Jiansheng Liu](https://www.researchgate.net/scientific-contributions/Jiansheng-Liu-2262902665?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6ImxvZ2luIiwicGFnZSI6InB1YmxpY2F0aW9uIiwicHJldmlvdXNQYWdlIjoiX2RpcmVjdCJ9fQ),[Zhaoqing Ke](https://www.researchgate.net/scientific-contributions/Zhaoqing-Ke-2226273137?_tp=eyJjb250ZXh0Ijp7ImZpcnN0UGFnZSI6ImxvZ2luIiwicGFnZSI6InB1YmxpY2F0aW9uIiwicHJldmlvdXNQYWdlIjoiX2RpcmVjdCJ9fQ)\*,Effects of continuous wettability on the pool-boiling bubble dynamics and heat transfer characteristics of a triangular structure-roughened surface[J]. Physics of Fluids,2023,35:107110 4. **Ying Zhang**,Ruifeng Gao,Yuwei Tu,Yichen Huang,Zhaoqing Ke\*,Numerical Simulation Study of Self-driven Microdroplet on Locally Restrictive Discontinuous Wetting Gradient Surface Using Front Tracking Method[J]. Canadian Journal of Physics,2023. 101: 619–629 5. Zhaoxuan Tang, Tingfang Yu, Zhaoqing Ke,\* Bozhen Lai, Yan Gao, **Ying Zhang**\*. Experimental investigation on boiling regime transformation when the binary-droplet impact on the superheated surface[J]. Applied Thermal Engineering, 2023, 233:121194. 6. Yichen Huang, Zhaoqing Ke, Zhihao Li, Yan Gao, Zhaoxuan Tang, **Ying Zhang.** A non-uniform magnetic field coupled lattice Boltzmann model and its application on the wetting dynamics of a ferrofluid droplet under gravity effects[J]. Computers and Mathematics with Applications, 2023, 143:73-93. 7. Zhihao Li (李志豪),Zhaoqing Ke (柯招清),Yichen Huang (黄逸宸),Wei Wu (吴伟),**Ying Zhang\* (张莹),** Peisheng Li (李培生).Investigation of flow characteristics on porous gas diffusion layer microstructure that generated with binder and polytetrafluoroethylene distribution[J]. Physics of Fluids,2023,35, 013605. 8. Zhihao Li (李志豪), Zhaoqing Ke (柯招清), Yichen Huang (黄逸宸), Wei Wu (吴伟), **Ying Zhang\* (张莹),**Peisheng Li (李培生).A pore-scale reconstruction-based approach to analyze the tobacco-containing segment in electrically heated cigarettes[J].Physics of Fluids.2023,35:023602 9. Bozhen Lai, Zhaoqing Ke, Zhiqiang Wang, Ronghua Zhu, Ruifeng Gao,Yu Mao,  **Ying Zhang\*** A Lattice Boltzmann Front-Tracking Interface Capturing Method based on Neural Network for Gas-Liquid Two-Phase Flow, International Journal of Computational Fluid Dynamics, 2023.2246398:DOI: 10.1080/10618562. 10. Peisheng li, Qi Zeng, Ming Ma, **Ying Zhang**, Zhaoqing Ke,\* Wei Wu.NUMERICAL STUDY OF THE PERFORMANCE OF HEAT PIPE-BASED THERMAL MANAGEMENT SYSTEM FOR POWER LITHIUM BATTERY[J]. Heat Transfer Research, 2023,54(14):63–77. 11. **Zhang, Y**.; Fu, Q.; Liu, Y.; Lai, B.; Ke, Z.; Wu, W. Investigations of Lithium-Ion Battery Thermal Management System with Hybrid PCM/Liquid Cooling Plate[J]. Processes 2023, 11：57. <https://doi.org/10.3390/pr11010057> 12. **Ying Zhang**, Peilin Lu, Xuhui Huang, Yichen Huang, Zhaoqing Ke\*, Convective heat transfer in I-shape heat sink under the action of Lorentz force via LBM[J]. Numerical Heat Transfer, Part A: Applications ,2023,83(4):379-399. 13. Yan Gao, Zhaoqing Ke, Wei Yang, Zhiqiang Wang, **Ying Zhang**\*, Wei Wu. Coalescence-Induced Droplet Jumping on Honeycomb Bionic Superhydrophobic Surfaces[J].Langmuir. 2022, 38(32), 9981−9991 14. Chen, Y. H., Yue, Y. F., **Zhang, Y.**, Li, R. P., Xu, X\*. 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Ye, Wenlin; Bao, Jin; Lei, Jie; Huang, Yicheng; Li, Zhihao; Li, Peisheng; **Zhang, Ying**\*. Multiphysics Modeling of Thermal Behavior of Commercial Pure Titanium Powder During Selective Laser Melting[J]. Metals and Materials International, 2022, 28(1): 282-296. 19. Yu, Tingfang; Feng, Zhaoliang; **Zhang, Ying**; Xu, Xuefeng; Xu, Meng\*. Numerical Study on the Thermal Performance of Microchannel Heat Sink With Composite Elliptical Pin Fin [J]. Heat Transfer Research, 2022, 53(1): 61-81. 20. Wenbin Li, Meng Xu, **Ying Zhang**\*, Jie Lei, Zhihao Li, Yicheng Huang, Yuan Tian\*. Computational study on structures of vertical columns formed by successive droplets[J]. Journal of Materials Processing Technology. 2021,288:116903. 21. Wenbin Li, Jiacai Lu, Gretar Tryggvason, **Ying Zhang**\*. Numerical study of droplet motion on discontinuous wetting gradient surface with rough strip[J]. Physics of Fluids,2021,33, (1):012111. 22. 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Li, Zhihao, Zhang, Ying\*, Li, Peisheng\*, Huang, Yichen, Ye, Wenlin, Li, Wenbin.Numerical research on the effect of leaf venation shape bionic surface extension and the location on latent heat storage system[J]. Numerical Heat Transfer, Part A: Applications. 2021,80,(8):436-449. 27. Zhang, Ying, Huang, Xuhui, Huang, Yichen, Xu, Meng, Lei, Jie. Numerical simulation of natural convection in a porous cavity with internal hot and cold sources using the lattice Boltzmann method [J]. Canadian Journal of Physics, 2021，99(10):933-945. 28. Zhang, Ying, Ma, Ziqiang, Yao, Mengjun, Gao, Hui, Xu, Xun\*. A numerical study on the thermocapillary migration of a droplet under microgravity with periodic thermal boundaries using the front-tracking method[J]. Canadian Journal of Physics, 2021，99(12):1042-1051. 29. Ye, Wenlin, Tian, Yuan, Zhou, Dan, Li, Peisheng, Lei, Jie, Zhang, Ying \*. Thermal Model and Numerical Simulation of Selective Laser Alloying Process of Elemental Ti and B[J]. Metals and Materials International, 2021,28(7):2791-2808. 30. Ying Zhang, Yichen Huang, Meng Xu, Jie Lei, Zhihao Li, Yuan Tian\*. Flow and heat transfer simulation in porous volumetric solar receivers by non-orthogonal multiple-relaxation time lattice Boltzmann method[J]. Solar Energy, 2020, 201: 409-419. 31. Daoxu Zhang, Junzhi Zhao, Haotian Liu, Jin Bao, Ying Zhang\*, Yuan Tian\*. Numerical investigation on the influence of installation angle of inclined interrupted fins heat sink on heat dissipation performance[J]. Numerical Heat Transfer, Part A: Applications. 2021,80,(3):111-129. 32. Ying Zhang, Hui Gao, Qiang Liu, Mengjun Yao, Jin Bao, Meng Xu\*. The effect of fluctuating pressure gradient on the coalescence of Taylor bubble [J]. Canadian Journal of Physics, 2021，99(7):501-512. 33. Ying Zhang, Zhen Xia, Benzhe Song, Meng Xu, Yuan Tian\*. Experimental analysis on the loop heat pipes with different microchannel evaporators[J]. Applied Thermal Engineering, 2020, 178:115547. 34. Ying Zhang, Yichen Huang, Meng Xu, Qikun Wan, Wenbin Li, Yuan Tian\*. Flow and heat transfer simulation in a wall-driven porous cavity with internal heat source by multiple-relaxation time lattice Boltzmann method (MRT-LBM) [J]. Applied Thermal Engineering, 2020, 173:115209. 35. Peisheng Li, Zhihao Li, Ying Zhang\*, Wenbin Li, Yue Chen, Jie Lei. Numerical research on performance comparison of multi-layer high temperature latent heat storage under different structure parameter[J]. Renewable Energy, 2020,156（8）: 131-141 36. Min Lu, Jiacai Lu, **Ying Zhang**\*, Gretar Tryggvason. Numerical study of thermocapillary migration of a bubble in a channel with an obstruction[J]. Physics of Fluids,2019,31, (6):062101. 37. Shengxiang Lin, Jiacai Lu, Gretar Tryggvason, **Ying Zhang**\*. The effect of fluid shear on oscillating bubbly flows[J]. Physics of Fluids,2019,31(4):042110. 38. Shengxiang Lin, Jiacai Lu, Gretar Tryggvason, **Ying Zhang**\*. 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Canadian Journal of Physics. 2020,98,(10):907-916. 43. **Ying Zhang**, Mengjun Yao, Wenqiang Shang, Chunyang Ma, Wenbin Li, Peisheng Li\*. Numerical Analysis of Coupled Kelvin-Helmholtz and Rayleigh-Taylor Instability on Inclined Walls[J]. Canadian Journal of Physics. 2020,98：(8):790-800. 44. Pengsheng Li, Chengyu Peng, Peng Du, **Ying Zhang**\*, Boheng Dong, Ming Ma. The investigation of viscous fingering phenomenon of immiscible fluids displacement by Lattice Boltzmann method [J]. Canadian Journal of Physics. 2020, 98:(7): 650-659. 45. **Y. Zhang**, J. Bao, M. Yao, Y. Xie, Y. Huang and P. Li\*. Non-orthogonal Multiple-Relaxation-Time Lattice Boltzmann Simulation of Mixed Convection in Lid-Driven Porous Cavity with an Isothermally Heated Block[J]. Journal of Applied Fluid Mechanics. 2020,13,(5):1649-1662. 46. **Zhang Ying,** Liu Qiang, Li Wenbin, Lian Xiaolong, Li Jinglun,Rao Xixin\*. Analysis of dynamic characteristics of bubble rise under a free surface [J]. Canadian Journal of Physics. 2020, 98:(11): 981-992. 47. Qichen Zhao, **Ying Zhang**\*, Dan Zhou, Yichen Huang, Meng Xu, Yuan Tian\*. Lattice Boltzmann method for nanofluid forced convection heat exchange in a porous channel with multiple heated sources[J]. Numerical Heat Transfer, Part A: Applications.2021,79(1):21-39. 48. Wandong Zhao, Ruijie Li, Hailing Li, **Ying Zhang**, Songgang Qiu. Numerical analysis of fluid dynamics and thermodynamics in a Stirling engine [J]. Applied Thermal Engineering, 2021, 173:115209. 49. Wandong Zhao,**Ying Zhang**\*, Wenqiang Shang, Zhaotai Wang, Ben Xu\*,Shuisheng Jiang.Simulation of droplet impacting a square solid obstacle in microchannel with different wettability by using high density ratio pseudopotential multiple-relaxation-time (MRT) lattice Boltzmann method (LBM)[J]. Canadian Journal of Physics.2019,97(1) :93-113. 50. **Zhang Ying**, Wang Zhiqiang, Li Peisheng\*, Zhou Min, Dong Boheng, Pan Yanni. 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Study on the Instability of Two-Phase Flow in the Heat-Absorbing Tube of Trough Solar Collector[J]. International Journal of Photoenergy, 2017:6547203. 55. **Zhang Ying**, Lu Min, Shang Wenqiang, Xia Zhen, Zeng Liang, Li Peisheng\*. Numerical Simulation of Bubble Free Rise after Sudden Contraction Using the Front-Tracking Method[J]. International Journal of Photoenergy, 2017:5128345. 56. Zhong Yuan, Du Haichun, **Zhang Ying**\*, Chen Yue, Liu Qiang, Huang Jie. Experimental research on dynamic characteristics of viscous droplets impacting rough solid surfaces at different temperatures[J]. Canadian Journal of Physics, 2019,97(12):1288-1300. 57. Ye, Wenlin, Zhang, Shanshan, Mendez, Mendez, Lazaro Lopez, Farias, Mathew, Li, Jianzhi, Xu, Ben, Li, Peisheng, **Zhang, Ying**.Numerical simulation of the melting and alloying processes of elemental titanium and boron powders using selective laser alloying[J]. Journal of Manufacturing Processes,2021,64 : 1235-1247. 58. 李培生，黄杰，王昭太，**张莹**\*，钟源.非均质表面诱导液滴脱落的数值模拟[J]. 华南理工大学学报,2020,48(2):42-49+75 59. **张莹**,包进,过海龙,连小龙,黄逸宸,李培生\*.含内热源的多孔方腔自然对流非正交MRT-LBM模拟[J].北京航空航天大学学报,2020,46(02):241-251. 60. **张莹**,许术方,李文彬,夏珍,马明,李培生\*.液滴撞击亲疏水间隔条纹表面[J].化工进展,2020,39(02):461-467. 61. **张莹**,黄逸宸,陈岳,马明,李培生,王昭太.含内热源的多孔方腔流热耦合非正交MRT-LBM数值模拟[J].北京航空航天大学学报,2019,45(09):1700-1712. 62. **张莹**,卢敏,李培生,许术方,刘强,黄杰.非均质壁面对液滴俘获能力的数值模拟研究[J].北京航空航天大学学报,2018,44(10):2021-2027. | | | | |