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教育经历

2018.09 - 2022.07
北京大学 流体力学 博士 (导师: 陈十一院士)
2014.09 - 2018.07
北京大学 理论与应用力学 本科

研究方向

湍流, 传热传质, 多相流, 智能科学计算

科研项目

国自然青年科学基金, 壁湍流中展向旋转与法向分层效应的相似性研究, 30 万元, 2024.01-2026.12, 主持
国家科技重大专项子课题, 锻造工艺宏/微观并行耦合仿真计算算法研究, 40 万元, 2024.10-2027.09, 主持
宁波市甬江人才工程青年创新人才项目, 旋转壁湍流控制优化的数值模拟研究, 100 万元, 2025.01-2029.12, 主持
宁波市重点研发计划项目, 基于人工智能的复杂流动建模与快速仿真技术与软件平台研发, 100 万元, 2023.04-2026.04, 主持
宁波市顶尖人才科技项目, 智能制造中的流动分析建模与仿真软件开发, 10000 万元, 2023.07-2028.06, 第三完成人
企业研发课题, 新型固定床反应器设计与数值模拟, 15 万元, 2024.10-2025.04, 主持

奖励荣誉

浙江省万人计划青年创新人才, 2025
宁波市甬江人才工程青年创新人才, 2024
北京市优秀博士学位论文, 2023
北京大学优秀博士学位论文, 2022
北京大学优秀毕业生, 2022
国家奖学金, 2020 & 2021
北京大学三好学生标兵, 2020 & 2021
北京大学博士生校长奖学金, 2018 - 2022
徐芝纶力学优秀学生奖, 2018

学术论文(通讯作者以*标记)

Shengqi Zhang*, Chao Sun, (2024). Twin forces: similarity between rotation and stratification effects on wall turbulence. *Journal of Fluid Mechanics*, 979: A45.

Shengqi Zhang, Zhenhua Xia*, Shiyi Chen, (2024). Enhancing large-scale motions and turbulent transport in rotating plane Poiseuille flow. *Journal of Fluid Mechanics*, 979: A43.

Shengqi Zhang, Zhenhua Xia*, Shiyi Chen, (2022). Flow structures in spanwise rotating plane Poiseuille flow based on thermal analogy. *Journal of Fluid Mechanics*, 933: A24.

Shengqi Zhang, Zhenhua Xia*, Shiyi Chen*, (2022). Perturbation analysis of baroclinic torque in low-Mach-number flows. *Journal of Fluid Mechanics*, 930: A4.

Shengqi Zhang, Xin Chen, Zhenhua Xia*, Heng-Dong Xi, Quan Zhou, Shiyi Chen*, (2021). Stabilizing/destabilizing the large-scale circulation in turbulent Rayleigh–Bénard convection with sidewall temperature control. *Journal of Fluid Mechanics*, 915: A14.

Shengqi Zhang, Zhenhua Xia*, Quan Zhou, Shiyi Chen*, (2020). Controlling flow reversal in two-dimensional Rayleigh–Bénard convection. *Journal of Fluid Mechanics*, 891: R4.

Shengqi Zhang, Zhenhua Xia*, Yipeng Shi, Shiyi Chen*, (2019). A two-dimensional-three-component model for spanwise rotating plane Poiseuille flow. *Journal of Fluid Mechanics*, 880: 478-496.

Shengqi Zhang, Zhenhua Xia*, Shiyi Chen, (2021). A CFD-aided Galerkin Method for Global Linear Instability Analysis. *Communications in Computational Physics*, 29(1): 128-147.

Kaizhen Shi, Shengqi Zhang*, (2025). Turbulent transport in annular Poiseuille flow with axial rotation. *Physics of Fluids*, 37(3): 035116.

Shengqi Zhang, Zhenhua Xia*, (2022). Capturing the Baroclinic Effect in non-Boussinesq Gravity Currents. *Theoretical and Applied Mechanics Letters*, 12(1): 100313.

Jin Hu, Shengqi Zhang, Zhenhua Xia*, (2024). Flow reversal and multiple states in turbulent Rayleigh–Bénard convection with partially isothermal plates. *Journal of Fluid Mechanics*, 987: A9.

Jin Hu, Shengqi Zhang, Zhenhua Xia*, (2025). An efficient modified enthalpy method for phase-change melting problems with dual time-steps. *International Journal of Heat and Mass Transfer*, 239: 126544.

Jin Hu, Shengqi Zhang, Zhishun Yang, Lihua Chen, Zhenhua Xia*, (2024). Numerical investigations of melting process with sidewall heating under various control parameters. *International Journal of Heat and Mass Transfer*, 227: 125529.

Qifan Wang, Shengqi Zhang, Yu Zhang, Jiahong Fu, Zhentao Liu*, (2023). Enhancing performance of nanofluid mini-channel heat sinks through machine learning and multi-objective optimization of operating parameters. *International Journal of Heat and Mass Transfer*, 210: 124204.

Feixiong Rao, Shengqi Zhang, (2025). The in-depth analysis and validation of momentum dispersion modeling based on direct numerical simulation. *Physics of Fluids*, 37(1): 015142.

Jun Lai*, Yiming Qi, Shengqi Zhang, Lian-Ping Wang*, (2025). Analytical solutions of layered Poiseuille flows in the diffuse interface model. *Physics of Fluids*, 37(2), 023612.

Qifan Wang, Shengqi Zhang, Taipeng Guo, Wenxuan Sha, Keyang Li, Zhentao Liu*, (2024). Enhancing plate-fin heat exchanger hydraulic thermal performance through air-side fin optimization based on pseudo-3D topology optimization. *Applied Thermal Engineering*, 252: 123642.

Jun Lai, Tao Chen, Shengqi Zhang, Zuoli Xiao, Shiyi Chen, Lian-Ping Wang*, (2022). A systematic study of a droplet breakup process in decaying homogeneous isotropic turbulence using a mesoscopic simulation approach. *Journal of Turbulence*, 23(11-12): 567-614.

Liren Li, Yipeng Shi, Shengqi Zhang, Lian-Ping Wang, Zhenhua Xia*, (2019). On the comparison between lattice boltzmann methods and spectral methods for DNS of incompressible turbulent channel flows on small domain size. *Advances in Applied Mathematics and Mechanics*, 11(3): 598-607.

Jin Hu, Shengqi Zhang, Zhenhua Xia*, (2022). Flow field and heat transfer properties in turbulent convection with local heating condition at the bottom wall. *Acta Aerodynamica Sinica*, 40(2): 208-214.

邀请报告

“剪切流中密度分层与展向旋转效应的相似性”，*全国湍流与流动稳定性专题研讨会*, 2025 年 4 月, 南昌.

“壁湍流中展向旋转与法向分层效应的相似性”，“*湍流结构的生成演化与作用机理重大研究计划*”年度交流会, 2024 年 1 月, 陵水.

“壁湍流中展向旋转与法向分层效应的相似性”，*全国湍流与流动稳定性专题研讨会*, 2023 年 4 月, 宁波.

“低马赫数流动中斜压矩的摄动展开”，“*湍流结构的生成演化与作用机理重大研究计划*”年度交流会, 2023 年 1 月, 宁波.

“Perturbation Analysis and Perturbative Control of Buoyancy-Driven Flows”, 2023 年 1 月, 香港理工大学, 香港.

“Perturbation analysis of baroclinic torque in low-Mach-number flows”, 2022 年 11 月, 中南大学, 长沙.

学术兼职

审稿人: Physics of Fluids, Journal of Turbulence, Acta Mechanica Sinica