Xinxin Wang

PhD Candidate

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Education

2021-Present: **PhD, Aeronautical and Astronautical Science and Technology**, *College of Aerospace Science and Engineering*, National University of Defense Technology.

2023–2024 : **Visiting Scholar, Fluid Dynamics**, Faculty of Mechanical Engineering.
RWTH Aachen University

2018–2021 : **Master, Aeronautical and Astronautical Science and Technology**, *College of Aerospace Science and Engineering*, National University of Defense Technology.

2006–2010 : **Bachelor, Flight Vehicle Propulsion Engineering**, *School of Astronautics*, Northwestern Polytechnical University.

Research Grants and Projects

2025 – 2028 ***Study on flame acceleration and DDT initiation mechanism in non-uniform supersonic flow field under wall lateral injection condition***, *Co-I, 600,000 CNY*, General Project, National Natural Science Foundation of China.

2023 – 2025 ***Supersonic Detonation Combustion***, *Co-I 500,000 CNY*, Outstanding Youth Fund, Hunan Provincial Science and Technology Department.

2021 – 2023 ***XXX Combustion Mode Research***, *Co-I 2.7 million CNY*, Basic Research Enhancement Program, CMC Science and Technology Commission.

2020 – 2023 ***Numerical Methods for Gas-Liquid Two-Phase Combustion***, *Co-I 300,000 CNY*, Youth Innovation Award, National University of Defense Technology.

2019 – 2022 ***Key Basic Research in XXX***, *Co-I 300,000 CNY*, First Excellence Youth Talent Program, National University of Defense Technology.

2018 – 2022 ***Key Technologies of XXX Engine***, *Co-I 2.7 million CNY*, XXX Excellence Youth Talent Fund, CMC Science and Technology Commission.

2018 – 2020 ***Numerical study of large-scale parallel adaptive mesh refinement in strongly unstable turbulent detonation combustion***, *Co-I 600,000 CNY*, Postdoctoral Innovation Talent Support Program, National Natural Science Foundation of China.

Publications

Journal Articles

2024 **Xinxin Wang**, Jiaqing Kou, Wandong Zhao, and Jianhan Liang. An analytical model for eigensolution analysis in the ghost-cell immersed boundary method. *Physics of Fluids*, volume 36. AIP Publishing, 2024.

2023 Wandong Zhao, Ralf Deiterding, Jianhan Liang, **Xinxin Wang**, Xiaodong Cai, and Jon Duell. Adaptive simulations of flame acceleration and detonation transition in subsonic and supersonic mixtures. *Aerospace Science and Technology*, volume 136, page 108205. Elsevier, 2023.

2023 Wandong Zhao, Ralf Deiterding, Jianhan Liang, Xiaodong Cai, and **Xinxin Wang**. Detonation simulations in supersonic flow under circumstances of injection and mixing. *Proceedings of the Combustion Institute*, volume 39, pages 2895–2903. Elsevier, 2023.

2022 Wandong Zhao, Jianhan Liang, Ralf Deiterding, Xiaodong Cai, and **Xinxin Wang**. Flame–turbulence interactions during flame acceleration using solid and fluid obstacles. *Physics of Fluids*, volume 34. AIP Publishing, 2022.

2022 **Xinxin Wang**, Ralf Deiterding, Jianhan Liang, Xiaodong Cai, and Wandong Zhao. A second-order-accurate immersed boundary ghost-cell method with hybrid reconstruction for compressible flow simulations. *Computers & Fluids*, volume 237, page 105314. Elsevier, 2022.

2021 Wandong Zhao, Jianhan Liang, Ralf Deiterding, Xiaodong Cai, and **Xinxin Wang**. Effect of transverse jet position on flame propagation regime. *Physics of Fluids*, volume 33. AIP Publishing, 2021.

2021 F Zhang, SH Yi, HB Niu, XG Lu, and **XX Wang**. Experimental and numerical simulation research on boundary layer transition front over a swept wing at m= 6. *Fluid Dynamics*, volume 56, pages 383–392. Springer, 2021.

In Conference Proceedings

2023 Haorui Liu, **Xinxin Wang**, Xueqiang Yuan, and Xiaodong Cai. Numerical study on ddt detonation under supersonic injection mixing conditions. IET, 2023.

2022 Wandong Zhao, Jianhan Liang, Xiaodong Cai, R Deiterding, and **Xinxin Wang**. Effect of mach number on the flame acceleration and deflagration-to-detonation transition. *Proceedings of the 28th ICDERS, Napoli, Italy*, pages 19–24, 2022.

2022 Yuqiao Chen, Jianhan Liang, Meng Ding, Lin Zhang, Qingdi Guan, and **Xinxin Wang**. Acceleration and performance analysis of a compressible euler solver with cuda. In *Journal of Physics: Conference Series*, volume 2364, page 012031. IOP Publishing, 2022.

2020 Liang Li, Hongbo Wang, Dapeng Xiong, Mingbo Sun, Tao Tang, Guoyan Zhao, and **Xinxin Wang**. An adaptive high-resolution and low-dissipation hybrid energy consistent/wenocu scheme. In *IOP Conference Series: Materials Science and Engineering*, volume 790, page 012078. IOP Publishing, 2020.

Academic Achievements & Recognitions

2021 **Oral presentation** in 21^{st} ***IACM Computational Fluids Conference***, Hangzhou, China.

2018-Present **Reviewer** in *Physics of Fluids, Aerospace Science and Technology*.