Xinxin Wang , Ph.D. Candidate

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https://wazedxwxx.github.io/

Education

2021 – · · · ·
Ph.D. in Aeronautical and Astronautical Science and Technology
National University of Defense Technology, China

2018 – 2020
M.S. in Aeronautical and Astronautical Science and Technology
National University of Defense Technology , China
Thesis title: *Applications of Immersed Boundary Method on Detonation Simulation*.

2014 – 2018
B.S. in Flight Vehicle Propulsion Engineering
Northwestern Polytechnical University , China
Thesis title: *Design of Experimental Device for High Pressure Combustion Characteristics of Solid Propellant*.

Research Publications

Journal Articles

1. **Xinxin**, **W.**, Ralf, D., Jianhan, L., Xiaodong, C., & Wandong, Z. (n.d.). A second order ghost-cell immersed boundary method with hybrid reconstruction for compressible simulations. *Computer and Fluids, (Revision)*.
2. Wandong, Z., Jianhan, L., Ralf, D., Xiaodong, C., & **Xinxin**, **W.** (2021). Effect of transverse jet position on flame propagation regime. *Physics of Fluids*, *33*(9), 091704. doi:https://doi.org/10.1063/5.0063363

Conference Proceedings

1. Wandong, Z., Jianhan, L., Xiaodong, C., Ralf, D., & **Xinxin**, **W.** (2022). Effect of mach number on the flame acceleration and deflagration-to-detonation transition. In *28th international colloquium on the dynamics of explosions and reactive systems*, Napoli, Italy.
2. Can, N., Hongbo, W., Mingbo, S., Yixin, Y., Yanan, W., Li, P., & **Xinxin**, **W.** (2021). Numerical study of shock train characteristics in reverse pressure supersonic pipeline flow. In *5th symposium on coupling flow of internal and external flows of ramjet engines*, Weihai, China.
3. Wandong, Z., Jianhan, L., Xiaodong, C., & **Xinxin**, **W.** (2021). The influence of the transverse jet in the ddt process on the flame propagation mode. In *The 19th national conference of the computational fluid dynamics*, Nanjing, China.
4. Wandong, Z., Jianhan, L., **Xinxin**, **W.**, & Xiaodong, C. (2021). Flame-turbulence interaction in the process of ddt in a fluid-solid combination obstacle. In *7th symposium on heat and mass transfer*, Zhangzhou, China.
5. **Xinxin**, **W.**, Jianhan, L., Xiaodong, C., & Wandong, Z. (2021). An improved ghost-cell immersed boundary method for detonation simulations. In *21st iacm computational fluids conference (cfc 2021)*, HangZhou, China.

6 **Xinxin**, **W.**, Jianhan, L., Xiaodong, C., Wandong, Z., & Liang, L. (2020). Adaptive simulation on multiple wave mode of rotating detonation combustion. In *Research on future warfare and missile weapon system conference*, Taiyuan, China.

7 Liang, L., Wang, H., Xiong, D., Sun, M., Tang, T., Zhao, G., & **Xinxin**, **W.** (2019). An adaptive high-resolution and low-dissipation hybrid energy consistent/wenocu scheme. In *4th international conference on computational modeling, simulation and applied mathematics*, Guangzhou, China.

Research Experience

Present
- Focusing on the flow, combustion and heat transfer within an advanced Cartesian adaptive method.
- Developing an improved immersed boundary method for the 2D and 3D complex boundaries in compressible flow simulations with Multi-GPU implementations through MPI.
- Using developed immersed boundary method to investigate the flow and combustion in compressible flow, especially focusing on the efficiency of the detonation combustion calculation.

2020
- Developed an improved ghost-cell immersed boundary method with hybrid reconstruction for geometrically complex boundaries in compressible flow simulations.

2019
- Developed the application of 2D and 3D rotating detonation simulation base on the open-source program of blocked-structured Adaptive mesh refinement Object-oriented C++ (AMROC).

2018
- Developed numerical transient CFD models to investigate and analyze the flow and heat transfer in rotating detonation combustion. Having a comprehensive knowledge concerning detonation combustion, especially for the detonation theory.

Skills

Languages
- Strong reading, writing and speaking competencies for English, Chinese.

Coding
- C++, Python, Fortran, Matlab, Shell, LaTeX, …

Web Dev
- Html, css.

Misc.
- Academic research, teaching, training, consultation, LaTeX typesetting and publishing.

Miscellaneous Experience

Awards and Achievements

2016
- **Excellent School Students**, Northwestern Polytechnical University.

2019
- **Third Prize in National Post-Graduate Mathematical Contest in Modeling**, Department of Higher Education of the Ministry of Education.

2021
- **Third Prize in National University Student Social Practie and Science Contest on Energy Saving** & **Emission Reduce**, Department of Higher Education of the Ministry of Education.

Miscellaneous Experience (continued)

Certification

2018 **College English Test Band 6,**. Department of Higher Education of the Ministry of Education .

2015 **National Computer Rank Examination Certificate Grade 2**. Awarded by National Education Examinations Authority.