Chensheng Luo(罗宸晟)

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I am a first-year Ph.D. student in fluid mechanics at the Laboratory of Mathematics & Physics - Laboratory of Complex System(LMP-LCS) of Beihang University, under the supervision of Professor Fang Le. My research interest mainly relies on fluid mechanics and turbulence, especially in the energy transfer of turbulence.

Education

Ph.D. student in *Fluid Mechanics* | **Beihang University**   09/2024-06/2028(expt.), Beijing
- Research direction: Turbulence. Supervisor: Professor Fang Le.   **current GPA: 3.84/4**

M.Eng. in *International Engineer* | **Beihang University, École centrale de Pékin**   09/2021-06/2024, Beijing
- Research direction: Turbulence. Supervisor: Professor Fang Le.   **GPA: 3.88/4**
- **Award** : Outstanding Master Graduate Student of Beijing

General Engineer Degree | **CentraleSupélec (Université Paris-Saclay)**   09/2020-06/2022, Gif-sur-Yvette
- Double-degree program, general engineering education & specialization in mechanics.   **GPA: 4.295 / 4.33, A+**

B.Sc. in *Mathematics* | **Beihang University, École centrale de Pékin**   09/2017-06/2021, Beijing
- French-style preparatory class education (MPSI).   **Average note: 94.61 / 100, Rank: 1 / 99**
- **Award** : Outstanding Bachelor Graduate Student of Beijing

Experiences & Projects

Master Thesis | Research on multi-scale energy transfer in compressible turbulence   12/2022-06/2024
Laboratory of Mathematics & Physics - Laboratory of Complex System (Beihang Univ.)   Articles: [2,3,4] 🔗
Theoretical and numerical study of multi-scale energy transfer in compressible turbulence. The study mainly covers three topics: structural study of velocity gradient, spatial solution study of numerical cases and energy transfer study using spectral method.

Internship | Discontinuous Galerkin solver of fluid dynamics   02/2023-08/2023
Suprieum (适创科技)
Implementation of a numerical solver for the Euler equations of compressible fluids using the discontinuous finite element method (DG) basing on the open source finite element library MFEM.

Research | Vortex-induced rotation theoretical study   08/2022-04/2023
Laboratory of Mathematics & Physics - Laboratory of Complex System (Beihang Univ.)   Articles: [1]
Development of a theoretical model for the small-amplitude oscillation regime of square cylinder under vortex-induced rotation.

Research | Dynamic arlequin coupling method solver   12/2020-06/2022
Laboratory of Mechanics Paris-Saclay (Université Paris-Saclay)   🔗
Design and implementation the Dynamic Arlequin method for multi-spatial-temporal scale coupling, based on Newmark method and static Arlequin method.

Publications

[1] Luo, C., Mou, R., Huang, X., et al. (2023).A free-streamline boundary-layer model for small-amplitude oscillation regime of square cylinder under vortex-induced rotation. Physics of Fluids, 35(9), 093602. 🔗

[2] Luo, C., Yang, P. F., & Fang, L. (2024). Low-Order Moments of Velocity Gradient Tensors in Two-Dimensional Isotropic Turbulence. Symmetry, 16(2), 175. 🔗

[3] Luo C, Fang L, Fang J, et al. Dilatational contribution to energy flux in compressible turbulence. Journal of Fluid Mechanics. (Under review)

[4] Luo C, Fang J, & Fang L. Minimum scale and spatial resolution requirement for direct numerical simulations of compressible turbulence. Journal of Computational Physics. (Under review)

Languages

- English: Fluent - IELTS 7.0 / 9.0 (2022) - level C1
- French: Fluent - DALF C2 (2022)
- Mandarin: Native   • German: Basic(level A1)

Informatic Skills

- Windows, Linux, HPC(parallel computing)
- **C++, Fortran**, MATLAB, Python, Julia
- LaTeX, Typst, Git, Arm Forge, COMSOL, Tecplot, ParaView

Interests & Activites

- Teaching assistant for the bachelor course *Fluid Mechanics* at Beihang University   09/2022-12/2022 & 09/2024-12/2024
- President of Chinese Club - CentraleSupélec   05/2021-05/2022
- Mathematics teacher at the International Student Summer School of CentraleSupélec   06/2021-07/2021
- Vice President of Beihang University Orienteering Association   07/2018-08/2019