

Qian Yuan

Curriculum Vitae

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Education

- 2016–2019 **Ph.D. in Mathematics**, *The Chinese University of Hong Kong*, Hong Kong, China.
- 2012–2016 **M.S. in Mathematics**, *Nanjing University*, Nanjing, China.
- 2008–2012 **B.S. in Mathematics**, *Nanjing University*, Nanjing, China.

Professional Appointments

- 2025.04–now Associate Professor, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China
- 2021.06–2025.04 Assistant Professor, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China
- 2019.08–2021.06 Postdoc, Hua Loo-Keng Center for Mathematical Sciences, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China

Publications

1. **Q. Yuan**, W. Zhao: Global nonlinear stability of vortex sheets for the Navier-Stokes equations with large data. *arXiv:2507.09359*
2. F. Huang, Z. Xin, L. Xu, **Q. Yuan**: Nonlinear asymptotic stability of compressible vortex sheets with viscosity effects. *arXiv:2308.06180*
3. **Q. Yuan**: Time-asymptotic stability of planar Navier-Stokes shocks with spatial oscillations. *Sci. China Math.* 68 (2025), no. 6, 1355–1392.
4. **Q. Yuan**: Planar Viscous Shocks with Periodic Perturbations for Scalar Multi-Dimensional Viscous Conservation Laws. *SIAM J. Math. Anal.* 55 (2023), no. 3, 1499–1523
5. F. Huang, L. Xu, **Q. Yuan**: Asymptotic stability of planar rarefaction waves under periodic perturbations for 3-d Navier-Stokes equations. *Adv. Math.* 404 (2022), Paper No. 108452, 27 pp.
6. **Q. Yuan**, Y. Yuan: Periodic perturbations of a composite wave of two viscous shocks for 1-D full compressible Navier-Stokes equations. *SIAM J. Math. Anal.* 54 (2022), no. 3, 2876–2905
7. F. Huang, **Q. Yuan**: Stability of planar rarefaction waves for scalar viscous conservation law under periodic perturbations. *Methods Appl. Anal.* 28 (2021), no. 3, 337–353
8. Z. Xin, **Q. Yuan**, Y. Yuan: Asymptotic stability of shock profiles and rarefaction waves

- under periodic perturbations for 1-D convex scalar viscous conservation laws. *Indiana Univ. Math. J.* 70 (2021), no. 6, 2295–2349
9. F. Huang, **Q. Yuan**: Stability of large-amplitude viscous shock under periodic perturbation for 1-d isentropic Navier-Stokes equations. *Comm. Math. Phys.* 387 (2021), no. 3, 1655–1679
 10. **Q. Yuan**, Y. Yuan: On Riemann solutions under different initial periodic perturbations at two infinities for 1-d scalar convex conservation laws. *J. Differential Equations* 268 (2020), no. 9, 5140–5155
 11. Z. Xin, **Q. Yuan**, Y. Yuan: Asymptotic stability of shock waves and rarefaction waves under periodic perturbations for 1-D convex scalar conservation laws. *SIAM J. Math. Anal.* 51 (2019), no. 4, 2971–2994

Grants

2026.01- 2028.12	National Natural Science Foundation of China (PI)
2023.01- 2025.12	National Natural Science Foundation of China (PI)
2022.10- 2027.12	CAS Project for Young Scientists in Basic Research (Participant)
2022.01- 2026.12	Youth Innovation Promotion Association of CAS (PI)
2019.08- 2021.05	Fellowships of China Postdoctoral Science Foundation (PI)

Awards

2022	Member of the 12th Youth Innovation Promotion Association of Chinese Academy of Sciences
2022	The 14th “Chen Jingrun Future Star” Project, by Academy of Mathematics and Systems Science

Conference Talks

2024 Jul.	The 19th International Conference on Hyperbolic Problems: Theory, Numerics and Applications, Shanghai, China
2023 Aug.	The 10th ICIAM “Compressible fluid dynamics and related PDE topics”, Tokyo, Japan
2022 Dec.	New Advances in Modern Partial Differential Equations, Hubei, China
2022 Oct.	The Eighth Japan-China Workshop on “Mathematical Topics from Fluid Mechanics”, via Zoom
2021 Oct.	The 19th CSIAM “Mathematical Theory in Fluid Mechanics”, Anhui, China

2020 Nov. The 7th Partial Differential Equations Forum for Young Researchers, Guangdong, China

Teaching Experience

2024 Spring Lecturer, 180080070102P4011Z “Applied Partial Differential Equations”

Research Interests

Partial differential equations in fluid mechanics, especially for the stability of wave phenomena in gas dynamics.