

# 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

- 2024/03–now Associate Professor, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China
- 2021/06–2024/03 Assistant Professor, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China
- 2019–2021 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 solutions around vortex sheets for the Navier-Stokes equations with large data and low Mach number. Preprint
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. accepted by *Sci. China Math.*
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

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## Grants

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

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## 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

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## 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.