Xing-Yu Li

Academic Curriculum Vitae | November 2026

Postdoctoral research · University of Manchester

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https://xyli9596.github.io | GitHub: xyli9596

Research interests

Complex analysis · Differential equations · Transcendental dynamics

Research experience

2026.05-present **University of Manchester**

CSC-funded postdoctoral research with Lasse Rempe.

2023.09-2024.09 **Kiel University**

Academic visitor; host: Walter Bergweiler.

Education

2019.09-2025.06 **Shantou University**

Integrated master's and Ph.D. programme in pure mathematics; Ph.D. awarded in 2025. Advisors: Hasi Wulan and Zhi-Tao Wen.

2014.09-2018.06 **Shandong University**

Bachelor's degree in Mathematics and Applied Mathematics.

Publications & preprints

1. **Representation of finite order solutions to linear differential equations with exponential sum coefficients**

Xing-Yu Li, Jun Wang, Zhi-Tao Wen. Journal of Differential Equations 423 (2025), 118-132.

https://doi.org/10.1016/j.jde.2024.12.035 [Published]

2. **Completely regular growth of solutions to linear differential equations with exponential polynomial coefficients**

Xing-Yu Li. arXiv:2409.14492v3.

https://arxiv.org/abs/2409.14492v3 [Preprint]

3. **Global zero distribution and pluripolar exceptional cones for complex linear differential equations**

Xing-Yu Li. arXiv:2611.12670 (2026).

https://arxiv.org/abs/2611.12670 [Preprint]

Current research

Complex differential equations and entire functions

Work in progress

Riemann surfaces and conformal geometry

Joint work in progress with Lasse Rempe

Transcendental dynamics

Joint work in progress with Lasse Rempe

AI-assisted autoformalisation in Lean 4

I use LLM-based tools to explore the autoformalisation of selected results in complex analysis in Lean 4. These are experimental projects; correspondence between the generated formal statements and the source mathematics remains to be systematically reviewed.

Li-Wang-Wen: representation of finite-order solutions

An autoformalisation project associated with the representation results in Li-Wang-Wen (JDE, 2025).

GitHub - v0.1.1

CRG: growth and zero distribution

An autoformalisation project associated with my preprint on completely regular growth and zero distribution.

GitHub - v1.0.2

B. Ja. Levin: entire function theory

Exploratory autoformalisation of selected material from B. Ja. Levin's classic textbook on entire function theory.

GitHub - v0.1.0

W. Wasow: asymptotic analysis

Exploratory autoformalisation of selected material from W. Wasow's classic textbook on asymptotic analysis.

GitHub - v0.1.0

The repositories provide experimental code and project notes; the paper-related releases also provide verification reports.

I participate in Lasse Rempe's weekly Thursday online Lean 4 meetings. The collaboration shares work on GitHub and aims to contribute reusable formal statements and proofs of classical results to mathlib.

Talks & presentations

2026.07.01 **University of Liverpool** - Holomorphic Dynamics Scheme 3 meeting · Talk

Finite-order solutions of complex linear differential equations with exponential-polynomial coefficients

2025.12 **Shantou University** - Academic talks; Young Scholars Forum in Frontier Mathematics

2025.01 **Shenzhen University** - China Complex Analysis Conference · Talk

2024.07 **ICMS, Edinburgh** - Classical Function Theory in Modern Mathematics · Poster

Short academic visits

2026.03-04 **Fudan University** - Short academic visit · Host: Lun Zhang

2025.12 **Shantou University** - Short academic visit · Host: Zhi-Tao Wen

2025.08 **Taiyuan University of Technology** - Short academic visit · Host: Jie Ding

Conferences & schools

2026.09.07 De Morgan House, London - One-Day Function Theory Meeting (participant)

2025.01 Peking University - Winter School on Complex Dynamics and Related Fields; Conference on Holomorphic Dynamics and Fractal Geometry

2024.07 Będlewo, Poland - On geometric complexity of Julia sets V

2024.06 / 2023.08 Hamburg / Constructor University - Northern Germany Workshops on Dynamical Systems and Ergodic Theory

2022.07-08 / 2021.06 China / online - Fourth and Third Conferences on Complex Dynamical Systems and Differential Equations

Teaching support

Teaching Assistant at Guangdong Technion-Israel Institute of Technology (2020.02-2021.04), responsible for coursework marking in calculus and partial differential equations. Additional teaching assistant experience at Shantou University in calculus, mathematical analysis and complex analysis.

Academic communication in English; basic German.