Shengxuan ZHOU

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Research Interests

Kähler Geometry, Riemannian Geometry and related topics

Employment

Institute of Mathematics of Toulouse — September 2024 – Present
Postdoc, funded by Labex CIMI — *Toulouse, France*
Mentor: Professor Henri Guenancia

Education

Peking University — September 2019 – July 2024
Ph.D. in Mathematics, Department of Mathematics — *Beijing, China*
Advisor: Professor Gang Tian

Lanzhou University — September 2015 – July 2019
B.S. in Mathematics, School of Mathematics and Statistics — *Lanzhou, China*

Publications and Preprints

Quantitativity on the number of rational points in the Mordell conjecture
Joint work with Jiawei Yu and Xinyi Yuan
arXiv:2602.01820.

A family of 4-Manifolds with Nonnegative Ricci Curvature and Prescribed Asymptotic Cone
arXiv:2406.02279 (Accepted by J. Reine Angew. Math.).

New exotic examples of Ricci limit spaces
Joint work with Xilun Li
Adv. Math. **462** *(2025).* https://doi.org/10.1016/j.aim.2024.110098

On the L^2 volume of Bergman spaces
arXiv:2404.12840 (Accepted by Indiana Univ. Math. J.).

Examples of Ricci limit spaces with infinite holes
arXiv:2404.00619 (Submitted).

On the Gromov-Hausdorff limits of Tori with Ricci conditions
arXiv:2309.10997 (Accepted by Amer. J. Math.).

Bergman kernels on degenerations
Joint work with Linsheng Wang
Math. Z. **308** *(2024).* https://doi.org/10.1007/s00209-024-03610-9

Peak sections and Bergman kernels on Kähler manifolds with complex hyperbolic cusps
Math. Ann. **390** *(2024), 1973-2041.* https://doi.org/10.1007/s00208-024-02798-9

A Regularity Theory for Static Schrödinger Equations on $\mathbf{R}^d$ in Spectral Barron Spaces
Joint work with Zi'ang Chen, Jianfeng Lu and Yulong Lu.
SIAM J. Math. Anal. **55** *(2023), no. 1, 557–570.* https://doi.org/10.1137/22M1478719

The asymptotic behaviour of Bergman kernels
Adv. Math. **440** *(2024).* https://doi.org/10.1016/j.aim.2024.109514

On the convergence rate of Bergman metrics
Peking Math. J. **7** *(2024), 399–439.* https://doi.org/10.1007/s42543-022-00055-z

Talks

Workshop on Analytic Methods in Complex Geometry — January 2026
Westlake University

Joint Seminar on Complex Algebraic Geometry and Complex Analysis — November 2025
University of Cologne

Workshop on Curvature and Global Shape — July 2025
University of Münster

Workshop: Geometric Flows and Quantization of Kähler Metrics — January 2025
Free University of Brussels (VUB)

Workshop on Geometric Analysis — July 2024
Inner Mongolia University

Differential Geometry Seminar — March 2024
Capital Normal University

Differential Geometry Seminar (Online) — February 2024
University of California, Berkeley

Geometry Seminar — October 2023
Westlake University

Geometry Seminar — September 2023
Tsinghua University

Recent Progress in Geometric Analysis — April 2023
Westlake University

Beijing Geometry Day — March 2023
Beijing Normal University

Rutgers CA/HA/CG Seminar (Online) — April 2022
Rutgers University

Geometric Analysis Seminar (Online) — December 2021
Zhejiang University

Teaching

Teaching Assistant: Advanced Mathematics B — Fall 2022
Peking University

Teaching Assistant: Advanced Algebra II — Spring 2022
Peking University

Teaching Assistant: Mathematical Analysis III — Fall 2021
Peking University

Teaching Assistant: Differential Geometry — Spring 2021
Peking University

Teaching Assistant: Differential Geometry — Spring 2020
Peking University