

Teng Zhang

CURRICULUM VITAE

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EDUCATION

Sep. 2021– Present	Xi'an Jiaotong University, Xi'an, China Ph.D. student in Mathematics, School of Mathematics and Statistics. Advisor: Zongben Xu. Previously studied under the guidance of Minghua Lin.
Dec. 2025– Dec. 2026	University of Szeged, Szeged, Hungary Joint Ph.D. student in Mathematics, Department of Analysis, Bolyai Institute. Advisor: Lajos Molnár.
Sep. 2017– Jul. 2021	Taiyuan University of Technology, Taiyuan, China B.S. in Mathematics, School of Mathematics.

RESEARCH INTERESTS

Complex analysis; operator algebra; matrix analysis.

RESEARCH FUNDING

Jan. 2025– Dec. 2026	CAST Young Talent Support Program (Doctoral Candidates) China Association for Science and Technology. Funding: CNY 40,000. Role: Host.
Dec. 2025– Dec. 2026	CSC Joint PhD Training Program China Scholarship Council. Funding: USD 14,400. Role: Host.
Jan. 2024– Dec. 2025	Fundamental Research Fund for the Central Universities Project Funding: CNY 30,000. Role: Host.

AWARDS AND HONORS

Oct. 2026	National Scholarship for Doctoral Students Xi'an Jiaotong University.
Oct. 2026	Graduate Student Pacesetter Xi'an Jiaotong University; highest individual honor for graduate students.
Sep. 2024– Sep. 2025	Grand Prize Scholarship for PhD Student Xi'an Jiaotong University.
Sep. 2021– Sep. 2025	Outstanding Graduate Student Xi'an Jiaotong University.
Sep. 2021– Sep. 2022	National Scholarship for Graduate Students Xi'an Jiaotong University.

PUBLISHED AND ACCEPTED ARTICLES

Complex Analysis

- [1] T. Zhang. **When do the convex hulls of zeros and critical points coincide?**
J. Math. Anal. Appl. **566** (2027), no. 1, Paper No. 131002. [DOI]
- [2] T. Zhang. **Angle duality and a gap principle for convex combinations of incomplete polynomials on the unit circle.**
Canad. Math. Bull. (to appear). [arXiv:2601.20748]

- [3] T. Zhang. **Distributions of zeros of a complex polynomial.**
J. Math. Anal. Appl. **561** (2026), no. 1, Art. No. 130609. [DOI]
- [4] T. Zhang. **A refinement of Pawłowski’s result.**
Proc. Amer. Math. Soc. **154** (2026), no. 2, 775–782. [DOI; arXiv:2411.07105]
- [5] T. Zhang. **When D-companion matrix meets incomplete polynomials.**
J. Math. Anal. Appl. **539** (2024), no. 1, Art. No. 128466. [DOI; arXiv:2310.08930]

Operator Algebra

- [6] T. Zhang. **Bourin-type inequalities for τ -measurable operators in fully symmetric spaces.**
Acta Math. Sci. Ser. B (Engl. Ed.) (to appear). [arXiv:2602.00358]
- [7] T. Zhang. **Proof of Audenaert–Kittaneh’s conjecture.**
Israel J. Math. **273** (2026), no. 2, 811–821. [DOI; arXiv:2401.05456]

Matrix Analysis

- [8] T. Zhang. **Johnson’s determinantal identity for contiguous minors of Toeplitz matrices, with an accretive extension.**
J. Algebra **711** (2027), 14–25. [DOI; arXiv:2601.18977]
- [9] T. Zhang. **Sharp condition-number bounds for growth factors of Higham matrices in Gaussian elimination.**
Math. Comp. (to appear). [arXiv:2604.23024]
- [10] T. Zhang. **Schur–Horn type inequalities for hyperbolic polynomials.**
Indiana Univ. Math. J. (to appear). [arXiv:2601.10602]
- [11] T. Zhang. **A counterexample to the Huang–Tam conjecture and Frobenius bounds for self-commutators under λ -Aluthge transforms.**
Proc. Amer. Math. Soc. (2026), published electronically September 3, 2026. [DOI; arXiv:2603.04655]
- [12] T. Zhang. **Weak majorization inequalities for the cubic and quartic coefficients of $e^{(A+B)t}$ versus $e^{At}e^{Bt}$.**
Linear Algebra Appl. (to appear). [arXiv:2601.07286]
- [13] T. Zhang. **Operator symmetric moduli and sharp triangle inequalities.**
J. Lond. Math. Soc. (2) **114** (2026), no. 2, Art. No. e70672. [DOI; arXiv:2603.01046]
- [14] T. Zhang. **Three-factor positive results and counterexamples for a conjectured Young-type inequality.**
Linear Algebra Appl. **750** (2026), 284–295. [DOI]
- [15] T. Zhang. **The equality case in $\|f(A)\| \leq f(\|A\|)$ for analytic matrix functions under strongly stable norms.**
Linear Algebra Appl. **750** (2026), 154–162. [DOI]
- [16] T. Zhang. **A new proof of Lee’s conjecture on the Frobenius norm via the matrix Cauchy–Schwarz inequality.**
Linear Algebra Appl. **725** (2025), 355–358. [DOI; arXiv:2507.02684]
- [17] F. Nan and T. Zhang. **An improvement and a generalization of Rotfel’d type inequalities for sectorial matrices.**
Linear Multilinear Algebra **73** (2025), no. 4, 675–683. [DOI; arXiv:2404.12849]
- [18] M. Lin, J. Zhang, and T. Zhang. **A lower bound for the spectral radius of complex matrices.**
Linear Algebra Appl. **656** (2023), 1–8. [DOI]
- [19] M. Lin and T. Zhang. **On an upper bound for the eigenvalues of the solution of the continuous algebraic Riccati equation.**
Appl. Math. Lett. **132** (2022), Art. No. 108194. [DOI]

PREPRINTS AND MANUSCRIPTS

Complex Analysis

- [1] A. Eremenko, T. W. Ng, and T. Zhang. **Entire solutions of higher order Briot–Bouquet equations.**
Preprint, 2026. [arXiv:2610.20438]

- [2] T. Zhang. **The Bloch constant is strictly smaller than the Ahlfors–Grunsky value.**
Preprint, 2026. [arXiv:2610.16808]
- [3] T. Zhang. **Borcea’s 2-variance conjecture.**
Preprint, 2026. [arXiv:2610.02035]
- [4] T. Zhang. **Baernstein’s quasi-norm monotonicity conjecture for polynomials with unimodular zero.**
Preprint, 2026. [arXiv:2610.02009]
- [5] A. Eremenko and T. Zhang. **Holomorphic curves of finite lower order with few inflection points.**
Preprint, 2026. [arXiv:2609.38032]
- [6] A. Eremenko and T. Zhang. **A counterexample to Fuchs’s conjecture.**
Preprint, 2026. [arXiv:2609.28443]
- [7] A. Eremenko, Z. Xu, and T. Zhang. **The modified Cartan conjecture.**
Preprint, 2026. [arXiv:2609.23674]
- [8] T. Zhang. **Sendov’s conjecture holds for every degree $n \geq 10^{200000}$.**
Preprint, 2026. [arXiv:2609.20256]
- [9] T. Zhang. **Beyond Sendov’s conjecture: the quadratic Tang–Zhang inequality.**
Preprint, 2026. [arXiv:2609.19126]
- [10] Y. He and T. Zhang. **A counterexample to Nevanlinna’s century-old half-plane problem.**
Preprint, 2026. [arXiv:2608.24829]
- [11] J. Lei and T. Zhang. **Proof of the Agler–McCarthy entropy conjecture.**
Preprint, 2026. [arXiv:2605.03949]
- [12] Y. He, Q. Tang, and T. Zhang. **Optimal universal growth for integral means of normalized logarithmic derivatives in the Carathéodory class.**
Preprint, 2026. [arXiv:2603.23734]
- [13] Y. He, Q. Tang, and T. Zhang. **A solution to a problem of Rubel on two-parameter normal families of entire functions.**
Preprint, 2026. [arXiv:2603.20883]
- [14] Q. Tang and T. Zhang. **Sharp Schoenberg type inequalities and the de Bruin–Sharma problem.**
Preprint, 2025. [arXiv:2508.10341]

Operator Algebra

- [15] Z. Xu and T. Zhang. **Sharp tangent inequalities in noncommutative L_p -spaces.**
Preprint, 2026. [arXiv:2609.16202]
- [16] Y. He, Q. Tang, Z. Xu, and T. Zhang. **The nonseparable case of Kadison’s problem on orthonormal bases of unitaries for type II_1 factors.**
Preprint, 2026. [arXiv:2608.18405]
- [17] T. Zhang. **On the embedding rigidity problem for uniformly locally finite coarse spaces.**
Preprint, 2026. [arXiv:2607.16949]
- [18] T. Zhang. **Isomorphism rigidity of uniform Roe algebras over arbitrary uniformly locally finite coarse spaces.**
Preprint, 2026. [arXiv:2607.15096]
- [19] Y. He, Q. Tang, and T. Zhang. **The separable case of Kadison’s problem on orthonormal bases of unitaries for type II_1 factors.**
Preprint, 2026. [arXiv:2605.15006]
- [20] L. Molnár and T. Zhang. **On interrelations among different versions of a Heron type mean and commutativity in C^* -algebras.**
Preprint, 2026. [arXiv:2602.14123]
- [21] L. Molnár and T. Zhang. **Kadison’s theorem on linear order isomorphisms of C^* -algebras holds without the additivity assumption.**
Manuscript, 2026. [PDF]

- [22] T. Zhang. **Trace arithmetic– κ_p inequality**.
Preprint, 2026. [arXiv:2602.11922]
- [23] T. Zhang. **Metric properties: from S-divergence to quantum Jensen divergence**.
Preprint, 2026. [arXiv:2602.08164]
- [24] T. Zhang. **Clarkson–McCarthy type inequalities, Part I: ℓ_p – ℓ_p and ℓ_q – ℓ_p Schatten p -estimates**.
Preprint, 2024. [arXiv:2410.21961]

Matrix Analysis

- [25] T. Zhang. **The A-optimal design problem and the S-matrix conjecture**.
Preprint, 2026. [arXiv:2609.20306]
- [26] T. Zhang. **Plank theorems, Gaussian probabilistic estimates and Rump’s 100 Euro conjecture**.
Preprint, 2026. [arXiv:2603.07423]
- [27] T. Zhang. **An operator triangle inequality for the quadratic symmetric modulus**.
Preprint, 2026. [arXiv:2602.01463]
- [28] Z. Xu and T. Zhang. **Sharp perturbation bounds on the Frobenius norm of subunitary and positive polar factor**.
Preprint, 2025. [arXiv:2507.14940]

Group Theory

- [29] J. Lei and T. Zhang. **Colored Stallings graphs and counterexamples to Stallings equalizer conjecture**.
Preprint, 2026. [arXiv:2604.24502]
- [30] J. Lei and T. Zhang. **Nonscalar non-commutators in elementary linear groups**.
Preprint, 2026. [PDF]

TALKS

Jul. 2, 2026	Kadison’s Theorem on Linear Order Isomorphisms of C^*-Algebras Holds Without the Additivity Assumption The 8th Conference of PhD Students in Mathematics, University of Szeged, Szeged, Hungary.
Dec. 2024	Joint Symposium by Five Schools of Mathematics Renmin University of China, Xi’an Jiaotong University, Beijing Institute of Technology, Shandong University, and Beijing Normal University. Online.
Sep. 2024	2nd Symposium on Frontiers in Mathematics for PhD Students Central China Normal University.
Oct. 2023	1st Symposium on Frontiers in Mathematics for PhD Students Peking University.

TEACHING ASSISTANT EXPERIENCE

Sep. 2023– Jan. 2024	Complex Analysis, Honors Mathematics Program Xi’an Jiaotong University.
Sep. 2021– Jun. 2022	Linear Algebra and Analytic Geometry, Undergraduate Courses Xi’an Jiaotong University.