

Zeyu (Derek) Zeng

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EDUCATION

Beijing 101 High School	2021.9 - 2024.7
University of Illinois Urbana-Champaign	2024.8 - present
(Current) GPA: 3.93	Bachelor of Science Program in Physics, Dual degree in Mathematics
(Current) Technical GPA: 3.91	
Courses:	
Fall 2024: MATH 423 (Differential Geometry, A), PHYS 225 (Relativity & Math, A), PHYS 211 (University Physics: Mechanics, A), ESL 111 (Introduction to Academic Writing I, A), HK 110 (Contemporary Health, A), ENG 100 (Engineering Orientation, A)	
Spring 2025: MATH 416H (Abstract Linear Algebra Honor Session, A+), MATH 441 (Differential Equations, A-), MATH 347H (Introduction to Abstract Mathematics Honor Session, A), PHYS 325 (Classical Mechanics I, A), PHYS 214 (University Physics: Quantum, B+), ESL 112 (Introduction to Academic Writing II, A+), MATH 497 (Individual Study, A+)	
Fall 2025: MATH 518 (Differentiable Manifold I, A+), MATH 535 (General Topology, A+), MATH 424 (Honors Real Analysis, A+), PHYS 435 (Electromagnetic Fields I, A-), MATH 492 (Undergraduate Research, S), RST 335 (Leisure and Consumer Culture, A+)	
Spring 2026 ¹ : MATH 519 (Differentiable Manifold II, A+), MATH 525 (Algebraic Topology I), MATH 500 (Abstract Algebra I), PHYS 486 (Quantum Mechanics I), MATH 492 (Reading Course on Differential Topology and Cobordism)	
Fields Institute Shared Graduate Courses: Geometry of Quantum Mechanics (Fall 2025), Mathematics Inspired by Quantum Field Theory (Winter 2025-2026)	

RESEARCH EXPERIENCES

Exploring the Teapot Effect: Microscale Investigations and Mechanistic Analysis	2023.4 - 2023.9
<ul style="list-style-type: none">Research Instructor: Prof. Baoyi ChenStudied the formation and the factor of the teapot effect.S. -T. Yau High School Science Competition Semifinalist.	
Relativistic Corrections to Hadron-Hadron Correlation Function	2023.11 - 2025.6
<ul style="list-style-type: none">Research Instructor: Prof. Baoyi Chen, Prof. Jiaxing ZhaoExamine relativistic corrections to scattering phase shifts and correlation functions using the two-body Dirac equation framework.See arXiv:2506.19240 [hep-ph]	
Undergraduate Research, Schwarzschild-like Metric in Isotropic Coordinates	2025.3 - present
<ul style="list-style-type: none">Research instructor: Dr. Elena KoptievaDerive the coordinate transformation from the canonical form to the isotropic coordinate.Develop a general method for transforming Kiselev solutions into isotropic coordinates	
Illinois Math Lab Research Project, Arithmetics of Polynomials in Knots Theory	2025.8 - 2025.12
<ul style="list-style-type: none">Research instructor: Dr. Yi WangStudy the Knots theory by the factorization of a polynomial related to the trace field of $-a/b$-Dehn filling.	

ACADEMIC ACTIVITIES

UIUC Undergraduate Research Symposium, Poster Presenter	2025.4
<ul style="list-style-type: none">Poster named "Derivation of Conformally Flat Metric for Generalized Schwarzschild-like Solutions"	
"The Largest and The Smallest", SJTU Summer School on Physics, Participant	2025.7
<ul style="list-style-type: none">Delivered the presentation named "Gauge Theory of Shallow Water" with collaborators.	

HONORS

S. -T. Yau High School Science Award, Semi-Finalist	2023.9
UIUC James Scholar	2025.2 - present
Dean's List, Fall 2024, UIUC Grainger College of Engineering	2025.4
Ralph O. Simmons Undergraduate Research Scholarship	2025.4

¹The grading is pending.