

Changxin Ding

CONTACT INFORMATION

School of Mathematics
Georgia Institute of Technology
686 Cherry Street
Atlanta, GA, 30332-0160, USA

cding66@gatech.edu

EDUCATION

Brandeis University, 2017-2022

Doctor of Philosophy, Mathematics, May 2022

- Dissertation Topic: Combinatorial and geometric correspondences in algebraic graph theory
- Advisor: Olivier Bernardi

University of Chinese Academy of Sciences, Beijing, China, 2005-2008

Master of Science, Mathematics, July 2008

- Dissertation Topic: Generators of separably generated field extensions
- Advisor: Kezheng Li

Shanghai Jiao Tong University, Shanghai, China, 2001-2005

Bachelor of Science, Mathematics and Applied Mathematics, July 2005

EMPLOYMENT

Georgia Institute of Technology, 2022-current

Visiting Assistant Professor

Kongjiang High School, Shanghai, China, 2009-2017

Math Teacher

PAPERS

The Jacobian of a regular orthogonal matroid and torsor structures on spanning quasi-trees of ribbon graphs, with Matt Baker and Donggyu Kim, preprint available on arXiv.

A consistent sandpile torsor algorithm for regular matroids, with Alex McDonough, Lilla Tóthmérész, and Chi Ho Yuen, European Journal of Combinatorics, 2025.

The Jacobian of a sixth-root-of-unity matroid, with Matt Baker and Xu Zhuang, preprint available on arXiv.

Csikvári's poset and Tutte polynomial, Discrete Mathematics, 2025.

A framework unifying some bijections for graphs and its connection to Lawrence polytopes, Combinatorial Theory, 2025.

Geometric bijections between spanning subgraphs and orientations of a graph, Journal of the London Mathematical Society, 2023.

The rotor-routing torsor and the Bernardi torsor disagree for every non-planar ribbon graph, Electronic Journal of Combinatorics, 2021.

The equality cases for the inequalities of Oppenheim and Schur for positive semi-definite matrices, with Xiaodong Zhang. Czechoslovak Mathematical Journal, 2009.

SELECTED TALKS	<p>FPSAC 2024 (the 36th International Conference on Formal Power Series and Algebraic Combinatorics), <i>A framework unifying some bijections for graphs and its connection to Lawrence polytopes</i>, Ruhr-Universität Bochum, Germany.</p> <p>2024 Workshop on (Mostly) Matroids, <i>Lawrence polytopes and some invariants of a graph</i>, the Institute for Basic Science, Daejeon, South Korea.</p>		
OTHER TALKS	<p>Spring 2021, Brandeis Math department's Graduate Student Seminar.</p> <p>Fall 2021, Brandeis Combinatorics Seminar.</p> <p>Fall 2021, Cornell Combinatorics and Discrete Geometry Seminar.</p> <p>Fall 2021, Dartmouth Combinatorics Seminar.</p> <p>Fall 2021, Georgia Tech Graph Theory Seminar.</p> <p>Spring 2022, Discrete Math Seminar at UMass Amherst.</p> <p>Fall 2022, Algebra Seminar at Georgia Tech.</p> <p>Fall 2022, UC Davis ADM Seminar.</p> <p>Fall 2022, Combinatorics Seminar at Georgia Tech.</p> <p>Fall 2022, Brandeis Combinatorics Seminar.</p> <p>Fall 2024, Combinatorics Seminar at University of Washington.</p> <p>Spring 2025, Algebra Seminar at Georgia Tech.</p>		
TEACHING EXPERIENCE	<p>At Brandeis University</p> <p>Fall 2017 Teaching Assistant, Honors Linear Algebra</p> <p>Spring 2018 Teaching Assistant, Introduction to Real Analysis, Part II</p> <p>Fall 2018 Lecturer, Techniques of Calculus (b)</p> <p>Spring 2019 Teaching Assistant, Introduction to Proofs</p> <p>Fall 2019 Lecturer, Techniques of Calculus (a)</p> <p>Spring 2020 Lecturer, Techniques of Calculus (b)</p> <p>Fall 2020 Teaching Assistant, Geometry of Manifolds</p> <p>Spring 2021 Teaching Assistant, Introduction to Algebra, Part II</p> <p>Fall 2021 Teaching Assistant, Topology I</p> <p>At Georgia Tech</p> <p>Fall 2022 Lecturer, Applied Combinatorics</p> <p>Spring 2023 Lecturer, Intro Discrete Math</p> <p>Fall 2023 Lecturer, Applied Combinatorics</p> <p>Spring 2024 Lecturer, Intro Discrete Math</p> <p>Fall 2024 Lecturer, A Second Course on Linear Algebra</p> <p>Spring 2025 Lecturer, Multivariable Calculus</p> <p>Fall 2025 Lecturer, Applied Combinatorics</p> <p>Fall 2025 Lecturer, Foundations of Mathematical Proof</p>		
OTHER EXPERIENCE	2017-2018	Brandeis Univ.	Tutor in the department's evening tutoring program, which serves undergraduate students taking calculus.
	2019	Brandeis Univ.	Minor Exam. Topic: Hodge Theory in Combinatorics Advisor: An Huang
	2020	Brandeis Univ.	Coach of Simon Huynh in the Teaching Apprenticeship Program.
	2021	Brandeis Univ.	Co-organizer of Brandeis Combinatorics Seminar.
	2023-2025	Georgia Tech.	Organizer of the Algebra Seminar.

HONORS, AWARDS AND SCHOLARSHIPS	Summer 2021	Harold Levine Endowed Fellowship Fund (at Brandeis)
	Spring 2022	Jerome Levine Thesis Prize (Awarded annually by the Brandeis Mathematics Department to recognize an outstanding Ph.D. dissertation.)
	Spring 2023	Student Recognition of Excellence in Teaching: Spring Semester 2023 CIOS Honor Roll (at Georgia Tech)
	Fall 2025	AMS-Simons Travel Grant