Byron Chin

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ACADEMIC POSITIONS

Georgia Institute of Technology *2026-present*
Hale Visiting Assistant Professor, School of Mathematics
Postdoctoral Fellow, Algorithms and Randomness Center

EDUCATION

Massachusetts Institute of Technology *2021-2026*
Ph.D. Mathematics, advised by Elchanan Mossel

Princeton University *2017-2021*
A.B. Mathematics, with high honors

RESEARCH INTERESTS

Discrete Probability, Combinatorics, High-dimensional Statistics
↪ community detection, random graphs, phase transitions, large deviations, Markov chains

AWARDS

- NSF Graduate Research Fellowship *2021-2026*
- MIT Akamai Presidential Fellowship *2021*
- Best Independent Work – Princeton Statistics and Machine Learning *2021*
- Princeton Shapiro Prize for Academic Excellence *2019*

PAPERS

10. The random stable roommates problem typically has no solution.
with Marcus Michelen.
submitted. arXiv:2601.07612

9. Asymptotics for the harmonic descent chain and applications to critical beta-splitting trees.
with Anna Brandenberger, Elchanan Mossel.
under revision at *Annales Henri Lebesgue.* arXiv:2505.24821

8. Stochastic block models with many communities and the Kesten–Stigum bound.
with Elchanan Mossel, Youngtak Sohn, Alexander S. Wein.
submitted.
conference version in *Conference on Learning Theory (COLT 2025).* arXiv:2503.03047

7. Exact threshold and limiting distribution for non-linear Hamilton cycles.
submitted. arXiv:2411.13452

6. Matching algorithms in sparse stochastic block models.
with Anna Brandenberger, Nathan Sheffield, Divya Shyamal.
Analysis of Algorithms (AofA 2024). arXiv:2403.02140

5. Structure of lower tails in sparse random graphs.
Random Structures & Algorithms **67** (2025), e70028. arXiv:2312.12673

4. The power of an adversary in Glauber dynamics.
   with Ankur Moitra, Elchanan Mossel, Colin Sandon.
   Conference on Learning Theory (COLT 2024). arXiv:2302.10841

3. When will (game) wars end?
   with Manan Bhatia, Nitya Mani, Elchanan Mossel.
   The American Mathematical Monthly **133**(1) (2026), 35-46. arXiv:2302.03535

2. Optimal reconstruction of general sparse stochastic block models.
   with Allan Sly.
   Annales de l'Institut Henri Poincaré, to appear. arXiv:2111.00697
   Princeton SML Best Independent Work.

1. Optimal recovery of block models with q communities.
   with Allan Sly.
   arXiv:2010.10672

TALKS

Invited

- Georgia Tech Combinatorics Seminar — *February 2026*
  Exact threshold for nonlinear Hamilton cycles
- Georgia Tech Algorithms and Randomness Colloquium — *February 2026*
  Solvability of the random stable roommates problem
- Northwestern Probability Seminar — *October 2025*
  A few central limit theorems for critical beta-splitting trees
- Rocky Mountain Summer Workshop on Algorithms, Probability and Combinatorics — *June 2025*
  Stochastic block models with many communities and the Kesten–Stigum bound
- Richard P. Stanley Seminar in Combinatorics — *December 2024*
  Exact threshold for nonlinear Hamilton cycles
- MIT Probability Seminar — *May 2024*
  Structure of lower tails in sparse random graphs

Conference

- Northeast Probability Seminar 2025 — *November 2025*
  Stochastic block models with many communities and the Kesten–Stigum bound
- COLT 2025 — *July 2025*
  Stochastic block models with many communities and the Kesten–Stigum bound
- COLT 2024 — *July 2024*
  The power of an adversary in Glauber dynamics
- AofA 2024 — *June 2024*
  Matching algorithms in the sparse stochastic block model

Other

- Berkeley Student Probability Seminar — *February 2025*
  The power of an adversary in Glauber dynamics
- MIT Probability Group Meeting — *May 2024*
  Structure of lower tails in sparse random graphs
- MIT SPAMS — *April 2022*
  Reconstruction of the stochastic block model
- MIT Probability Group Meeting — *April 2022*
  Reconstruction of the stochastic block model

TEACHING

- 1553 Introduction to Linear Algebra (Georgia Tech), Instructor *Fall 2026*
- 18.600 Probability and Random Variables (MIT), TA/Recitation Leader *Fall 2024*

MENTORING/ORGANIZATION

- Co-organizer of MIT SPAMS graduate student seminar *2024*
- MIT Summer Program in Undergraduate Research (SPUR) mentor *2023*
- Princeton University Math Competition officer *2019*
- Co-founder of West Windsor Math Advancement Center *2016*

REVIEWING

Journals

- Probability Theory and Related Fields

Conferences

- COLT, ITCS