

Thao T. Do

CONTACT INFORMATION

MIT Department of Mathematics
Cambridge, MA
2-231D
thaodo@mit.edu

RESEARCH INTERESTS

Extremal Combinatorics, Discrete Geometry, Incidence Geometry, Probabilistic and Polynomial Methods in Combinatorics.

EDUCATION

Massachusetts Institute of Technology

Ph.D., Mathematics, 2014–2019 (expected)
◦ Advisor: Larry Guth

Stony Brook University

B.S., Mathematics, 2014

HONORS AND AWARDS

Simons Foundation Fellowship, MIT, Fall 2018
Levinson Fellowship, MIT, Summer 2016.
Ida M.Green Fellowship, MIT, Summer 2015.
Provost Award, Stony Brook University, 2014.
Math Department Best Student Award, Stony Brook University, 2014.
Honorable mention, Alice T. Schafer prize, 2013.
Honorable mention, William L. Putnam Math Competition, 2012 & 2013.
Silver medal, IMO, 2008.

TEACHING AND MENTORING

Massachusetts Institute of Technology

Teaching Assistant

18.02 Multivariable Calculus, F17.
18.03 Differential equation, S17.
18.821 Project lab in Maths, F16.

Mentor

Direct Reading Program, 2015 & 2017.
RSI, 2016, one student was Siemens Regional Semi-finalist and Regeneron Scholar.
PRIMES, 2015, three students were Siemens Regional Finalists, one student was David-sonn fellow.

Stony Brook University

Teaching Assistant

MAT125 Calculus I, F11.

Math and Science Summer Program

Co-founder and Academic Head Mentor

Co-founded and co-organized a math and science summer camp for high school students in Vietnam, 2016–now.

Submitted

1. T.Do. A note on the largest bipartite subgraph in point-hyperplane incidence graphs. arXiv:1810.01551
2. T.Do. Nondegenerate spheres in four dimensions. arXiv: 1810.01043
3. T. Do. A. Sheffer, A general incidence bound in R^d and related problems. arXiv: 1806.04230.
4. T.Do. Representation complexity of semi-algebraic graphs. arXiv: 1709.08259.
5. T. Do. Extending Erdős-Beck theorem to higher dimensions. arXiv: 1607.00048.
6. J. Asplund, A. Hamm, T.Do and V. Jain. On the k -planar local crossing number. arXiv: 1804.02117.

Published

7. T.Do. Zarankiewicz's problem for semi-algebraic hypergraphs. *Journal of Combinatorial Theory, Series A*. Volume 158 (2018), 621 – 642.
8. J. Asplund, T. Do, A. Hamm, L. Szekely, L. Taylor, Z. Wang, The k -planar crossing number of random graphs and random regular graphs. *Discrete Applied Math*. Volume 247 (2018), 419-422.
9. P. Demontigny, T. Do, A. Kulkarni, S. Miller, D. Moon, U. Varma. Generalizing Zeckendorf's theorem to f -decompositions. *Journal of Number Theory*. Volume 141(2014), 136 – 158.
10. T. Do, A. Kulkarni, S. Miller, D. Moon and J. Wellens. Sums and differences of correlated random sets. *Journal of Number Theory*. Volume 147(2015), 44 – 68.
11. T. Do, A. Kulkarni, S. Miller, D. Moon, J. Wellens and J. Wilcox. Sets characterized by missing sums and differences in dilating polytopes. *Journal of Number Theory*. Volume 157 (2015), 123 – 153.
12. P. Demontigny, T. Do, A. Kulkarni, S. Miller, U. Varma. A generalization of Fibonacci far-difference representations and Gaussian behavior. *Fibonacci Quarterly*. Volume 52 (2014), no. 3, 247 – 273.

In Preparation

13. A. Carney, T. Do, J. Hallett, X. Huang, Y. Jiang, Q. Sun, B. L. Weiss, E. Wells, Y. Xia and M. Zieve. Diophantine Equations Involving Dickson Polynomials.
14. T. Do, J. Hallett, Y. Jiang, B. Weiss, E. Wells, and M. Zieve. On the Diophantine Equation $f(x) = g(y)$, I: The irreducible case.
15. T. Do, M. Zieve. On a Question of Lyubich and Minsky on Laminations in Complex Dynamics.
16. T. Do, K. Kallal, M. Lipman, F. Wang, M. Zieve. Equal compositions of rational functions.
17. T. Do, W. Fu, E. Griffin, B. Myers, D. Neftin, R. Prabhu, C. Sprunger, K. Winsor, Y. Wu, Y. Yeo, H. Zhu and M. Zieve. On the Hurwitz existence problem for branched covers of surfaces..

RECENT TALKS

ACO seminar, Carnegie Mellon University, Dec 2018.
 Combinatorics Seminar, University of California, San Diego, Nov 2018.
 Geometry Seminar at Courant Institute, New York University, Sep 2018.
 Combinatorics Seminar at University of British Columbia, Mar 2018.
 Pure math graduate student seminar at MIT, Mar 2018.
 Discrete Math Seminar at Brown University, Nov 2017.
 Combinatorics Seminar at Brandeis University, Nov 2017.
 AMS Sectional Meeting at SUNY Buffalo, Sep 2017.
 Combinatorics seminar at MIT, April 2017.
 Applied math graduate student seminar at MIT, Apr 2016.
 Applied math graduate student seminar at MIT, Oct 2015.

Garden State Undergraduate Math Conference, April 2014.
Hudson River conference for undergraduates, Oct 2013.
AMS sectional meeting at Temple University, Oct 2013.
Young Math Conference, Aug 2013.

OTHER ACTIVITIES	<ul style="list-style-type: none">◦ NSF-CBMS Conference on Additive Combi. from a Geo. Viewpoint, USC, May 2018.◦ Workshop on extremal probs in combi geo, BIRS, Feb 2018.◦ Joints Math Meetings, San Diego, Jan 2018.◦ Summer grad school on Positivity Questions in Geometric Combinatorics, MSRI, Jul 2017.◦ Math Research Community workshop on Beyond Planarity: Crossing Numbers of Graphs, Utah, Jun 2017.◦ Discrete and Comput. Geo. 30 years conference, Ascona, Jun 2016.◦ SMALL, Williams College, Jul-Aug 2013.◦ Women in Math program, IAS, May 2013.◦ Joints Math Meetings, San Diego, Jan 2013.◦ REU, Univ of Michigan, Jul-Aug 2012.
PROFESSIONAL SERVICE	Organizer of the Simple Person Applied Math Seminar at MIT. Referee for Discrete & Comput Geo; Fibonacci Quarterly.
LAST UPDATED	Nov 1, 2018