

# CURRICULUM VITA

Tian An Wong  
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## 1. Education

### Ph.D.—Mathematics

City University of New York (CUNY) Graduate Center, NY  
Advisor: Dr. Carlos Moreno

September 2016

### B.A.—Mathematics

Vassar College, NY

May 2011

## 2. Teaching and Research Interests

- [1] Representation Theory
- [2] Number Theory
- [3] Statistics

## 3. Employment History

### Assistant Professor

Department of Mathematics and Statistics  
University of Michigan - Dearborn, Dearborn, Michigan

Sep 2020 to present

### Visiting Assistant Professor

Department of Mathematics and Statistics  
Smith College, Northampton, MA

Jul 2018 to Jun 2020

### Postdoctoral Fellow

Department of Mathematics  
University of British Columbia, Vancouver, BC, Canada

Jan 2019 to May 2019

### Postdoctoral Research Fellow

Department of Mathematics  
Indian Institute for Science Education and Research, Pune, India

Feb 2017 to Jun 2018

### Postdoctoral Research Fellow

Max Planck Institute for Mathematics, Bonn, Germany

Sep 2016 to Jan 2017

## 5. Honors and Awards

- [1] 2023–2024, Anti-Racism Research & Community Impact Faculty Fellow, National Center for Institutional Diversity (NCID), University of Michigan
- [2] 2023–2024, Public Engagement Faculty Fellow, University of Michigan
- [3] 2022, AMS-PUI Faculty Travel Grant, \$2100

[4] 2021–2022, Project NexT Fellow, Mathematical Association of America

[5] 2017 Oberwolfach Leibniz Fellow, Mathematisches Forschungsinstitut Oberwolfach

## 6. Scientific and Professional Societies Memberships

American Mathematical Society (AMS)

National Association of Mathematicians (NAM)

## 7. Teaching Activities

### a) Chronology of Teaching Assignments at the University of Michigan Dearborn for Past 6 Years.

Term	Course Number	Course Title	Cr. Hrs	Num. of Students
W'24	MATH 116-005	Calculus II	4	32
	MATH 116-007	Calculus II	4	32
F'23	MATH 116-005	Calculus II	4	33
	MATH 228-003	Differential equations with linear algebra	3	28
	MATH 395-001	Elementary Number Theory	3	10
W'23	MATH 116-003	Calculus II	4	26
	MATH 4000-001	Capstone in Mathematics	3	8
	MATH 499-003	Independent Study	3	1
F'22	MATH 116-007	Calculus II	4	25
	MATH 395-001	Elementary Number Theory	3	8
W'22	MATH 131-001	Contemporary Mathematics	4	30
	MATH 395-001	Introduction to Cryptography	3	28
	MATH 399-001	Independent Study	2	1
F'21	MATH 131-001	Contemporary Mathematics	4	28
	MATH 395-001	Elementary Number Theory	3	7
W'21	MATH 116-007	Calculus II	4	28
F'20	MATH 115-001	Calculus I	4	31
	MATH 116-003	Calculus II	4	29
	MATH 116-006	Calculus II	4	29

### b) Curriculum Development

*Winter 2023, Capstone in Mathematics.* Topics in Mathematics and Society: Developed curriculum by combining material from many resources, presented in an accessible format for advanced undergraduate mathematics majors, that also leverages their preparation and background. Topics so far have covered classic social choice theory, including basics of game theory, and complex networks from the perspective of random graphs. The remainder of the semester focuses on more concrete applications of mathematics in society such as gerrymandering, causality, and segregation.

*Fall 2020, Calculus I and II.* Transition to online learning during pandemic, Applied teaching tools and ideas from current research in education to optimize students' experience in virtual learning. Methods such as providing constant instructor feedback and instructor presence, alternative assessment methods i.e., mastery-based/specifications grading as both a means of encouraging student involvement in learning and also the mitigation of academic dishonesty.

### **c) Graduate/Undergraduate Student Supervision**

#### **Undergraduate Research Projects**

- [1] Winter 2024–Present, Chuka Ezeoke, Shivani Madhu, Zhalgas Tileumuratin. Research assistant.
- [2] Summer 2024, Francis Bahk, Alex Russell, Audrey Sarro. UM-Dearborn REU.
- [3] Winter 2022–Winter 2024, Dawson Kinsman. Research assistant.
- [4] Fall 2023–Winter 2024, Hadi Chaaban. Research assistant.
- [5] Summer 2023, Grandin Anderson, Peter Harrigan, Louisa Hoback, McKayah Pugh. UM-Dearborn REU.
- [6] Winter 2023, Sydni Uhlenberg. Capstone.
- [7] Winter 2023, Aaron Kuehn, Reed L'heureux. Research assistant.
- [8] Summer 2022, Stephen Bartell, Brenden Schlader, Abby Halverson, Siena Truex. UM-Dearborn REU.
- [9] Winter 2022, Timothy Batt. Independent research.
- [10] Summer 2021, Jacob Branch, Nicholas Berkopce, Rachel Heikinen, Caroline Nunn. UM-Dearborn REU.
- [11] Summer 2020, Zihan Miao and Anh Nguyen (Smith College).

### **d) Other Teaching Experiences**

Winter 2021, Introduction to Statistics, Bard Microcollege Holyoke

## ***8. Research Activities***

### **A. Publications**

#### **a) Papers Published or Accepted for Publication in Refereed Journals**

- [1] Klinger-Logan, K., Thalagoda, K., and **Wong, T.A.**, A Dedekind-Rademacher homomorphism for Bianchi groups. *J. Théor. Nombres Bordeaux*. (In press)
- [2] Bartell, S., Halverson, A., Schlader, B., Truex, S., and **Wong, T.A.**, The density of the graph of elliptic Dedekind sums. *Ramanujan Journal* (In press)
- [3] Johnson, J., McKenzie, T., and **Wong, T.A.**, Predictive policing: A mathematical primer. *Notices of the American Mathematical Society* (In press) doi.org/10.1090/noti2968

- [4] **Wong, T.A.**, A vertical Sato-Tate law for  $GL(4)$ . *Archiv der Mathematik* (In press) doi.org/10.1007/s00013-024-01996-w
- [5] Klinger-Logan, K. and **Wong, T.A.**, The equidistribution of elliptic Dedekind sums and generalized Selberg-Kloosterman sums. *Research in Number Theory* 10: 19 (2024).
- [6] **Wong, T.A.**, A weighted invariant trace formula. *Ann. Sci. Math. Quebec.* 48, 79–112 (2024).
- [7] **Wong, T.A.**, Zeroes of Rankin-Selberg L-functions and the trace formula. *J. Ramanujan Math. Soc.* 38, No.4 (2023) 1–11.
- [8] Miao, Z., Nguyen, A., and **Wong, T.A.**, Kronecker’s first limit formula for Kleinian groups. *Functiones et Approximatio.* 69 (2023), no. 1, 7–25.
- [9] E Asabor, E Lett, B Mosely, C Boone, S Sundaresan, **T Wong**, M Majumder. A Mixed Methods Assessment of Off-Duty Police Shootings in a Media-Curated Database, Health Services Research (2023) 58(Suppl. 2): 207-217.
- [10] Lodato, I., Shekatkar, S. M., and **Wong, T.A.**, On partial information retrieval: The unconstrained 100 prisoner problem. *Acta Informatica* 60, no. 2 (2023): 179-208.
- [11] **Wong, T.A.**, Diaz Eaton, C., Roca, R., and Rodriguez, N., Mathematics and society: towards critical mathematics research and education. *J. Humanist. Math.* 13 (2023), no. 2, 4–7.
- [12] Berkopce, N., Branch, J., Heikkinen, R., Nunn, C., and **Wong, T.A.**, The density of elliptic Dedekind sums. *Acta Arithmetica*, 205 (2022), no. 1, 33–40.
- [13] Dasher, A.S., Herrida, A., and **Wong, T.A.**, The three gap theorem and periodic functions. *Integers*, 22 (2022), Paper No. A21, 9 pp.
- [14] Gaur, Y. and **Wong T.A.**, Lattice points in vector-dilated algebraic polytopes. *JP Algebra and Number Theory*, 53.2 (2022): 165-174.
- [15] **Wong, T.A.** A note on mock automorphic forms and the BPS index. *Mathematical Notes*, (2021) 110(1), 273-282.
- [16] **Wong, T.A.** Universal Fourier expansions of Bianchi modular forms. *Int. J. Number Theory* 16 (2020), no. 4, 731–746.
- [17] **Wong, T.A.** On the balanced Voronoï formula for  $GLN$ . *Funct. Approx. Comment. Math.* 62 (2020), no. 1, 121–130.
- [18] **Wong, T.A.** Explicit formulas for the spectral side of the trace formula of  $SL(2)$ , *Acta Arith.* 195 (2020), 149-175.
- [19] Shekatkar, S. M.; **Wong, T.A.** Shifts of the prime divisor function of Alladi and Erdős. *Integers* 20 (2020), Paper No. A4, 8 pp.
- [20] Humphries, P.; Shekatkar, S. M.; **Wong, T.A.** Biases in prime factorizations and Liouville functions for arithmetic progressions. *J. Théor. Nombres Bordeaux* 31 (2019), no. 1, 1–25.
- [21] Flórez, J.; Karabulut, C.; **Wong, T.A.** Eisenstein cocycles over imaginary quadratic fields and special values of L-functions. *J. Number Theory* 204 (2019), 497–531.
- [22] González, O. E.; Kwan, C. H.; Miller, S. J.; Van Peski, R.; **Wong, T. A.** On smoothing singularities of elliptic orbital integrals on  $GL(n)$  and beyond endoscopy. *J. Number Theory* 183 (2018), 407–427.

## **b) Papers Submitted for Publication in Refereed Journals**

- [23] Dawson, K. and **Wong, T.A.**, The homological persistence of police violence: analysis and limitations. (Under review)
- [24] **Wong, T.A.**, A weighted stable trace formula <https://arxiv.org/abs/2105.08759> (Under review)
- [25] Emory, M., Espinosa Lara, M., Kundu, D., and **Wong, T.A.**, Beyond endoscopy via Poisson Summation for  $GL(2,K)$  <https://arxiv.org/abs/2404.10139> (Under review)
- [26] Dawson, K., Chaaban, H., Ramjee, D., Majumder, M., Koumpias, A., and **Wong, T.A.**, Causal analysis of a gunshot detection system: Evaluation of ShotSpotter in Detroit. (Under review)

## **c) Conference Proceedings (refereed by paper)**

- [27] Dawson, K., and **Wong, T. A.**, Proactive policing as reinforcement learning. In K. Maughan, R. Liu, and T. F. Burns, eds., *The First Tiny Papers Track at International Conference on Learning Representations (ICLR) 2023 Tiny Papers @ ICLR 2023*, Kigali, Rwanda, May 5, 2023.

## **f) Presentations**

- [28] **Wong, T.A.**, “Introduction to the Langlands Program,” 36<sup>th</sup> Automorphic Forms Workshop, May 2024, Oklahoma State University
- [29] **Wong, T.A.**, “The Mathematics of Policing: Theory and Applications,” NAM-SIAM-AMS Special Session on Quantitative Justice, January 2024, Joint Mathematics Meeting
- [30] **Wong, T.A.**, “Prehomogeneous vector spaces and the Arthur-Selberg trace formula,” Number Theory Seminar, November 2023, Kansas State University
- [31] **Wong, T.A.**, “Proactive policing as reinforcement learning,” Data Science and AI Summit, November 2023, University of Michigan, Ann Arbor
- [32] **Wong, T.A.**, Number theory seminar, August 2023, National University of Singapore.
- [33] **Wong, T.A.**, “What is... Beyond Endoscopy?,” Community Building in the Langlands Program, August 2022, Hausdorff Institute for Mathematics.
- [34] **Wong, T.A.**, “Policing police networks,” Interdisciplinary Network Analysis Methods for Analyzing Social Systems workshop, July 2022, ICERM.
- [35] **Wong, T.A.**, Institute for Mathematics and Democracy, May 2022, Wellesley College. (virtual)
- [36] **Wong, T.A.**, Arithmetic Groups and 3-Manifolds Conference, May 2022, Max Planck Institute for Mathematics, Bonn, Germany. (virtual)
- [37] **Wong, T.A.**, RTG Seminar on Number Theory, April 2022, University of Michigan-Ann Arbor
- [38] **Wong, T.A.**, “Prehomogeneous vector spaces and the Arthur-Selberg trace formula,” Mathematics Department Colloquium, October 2021, Southern Illinois University, Carbondale, IL (virtual)

- [39] **Wong, T.A.**, “New result on elliptic Dedekind sums,” Number Theory Seminar, August 2021, University of Sheffield, UK. (virtual)
- [40] Lodato, I., Shekatkar, S., and **Wong, T.A.**, “Variations of a parallel search game,” CASL Faculty Research Slam, UM-Dearborn, October 30, 2020, Dearborn, MI. (virtual)
- [41] **Wong, T.A.**, “Number theory, Cryptography, and We: From DLP to NSA to BLM,” Math Club, UM-Dearborn, December 9, 2020, Dearborn, MI. (virtual)
- [42] **Wong, T.A.**, “Can Mathematics Be Antiracist?” Mathematics Colloquium/First-Year Experience, November 5, 2020, Dearborn, MI. (virtual)

## **B. Research Grants**

### **a) Awarded Research Grants**

- [1] 2024–2025, “Assessing Surveillance and Reimagining Public Safety in Detroit,” Public Engagement Faculty Fellowship, \$16,000
- [2] 2022–2024, “LEAPS-MPS: Elliptic Dedekind sums, Eisenstein cocycles, and  $p$ -adic  $L$ -functions,” **Wong, T.A.** (PI), LEAPS-MPS, National Science Foundation, \$121,754
- [3] 2023, AMS-PUI Faculty Travel Grant, \$2310
- [4] 2022, UM-Dearborn CASL Student Faculty Mentored Research Grant, \$700
- [5] 2022, UM-Dearborn FY23 Research Assistant Grant, \$750
- [6] 2022, UM-Dearborn CASL Research Support Program, \$800
- [7] 2022, University of Michigan Arts Initiative, co-PI, \$18,310
- [8] 2021, UM-Dearborn Faculty Research Publication and Dissemination Grant, 330 USD
- [9] 2016 Number Theory Foundation, \$500

### **b) Awarded Instructional, Software and Equipment Grants**

- [10] 2021, Hub Affiliates Program, UM-Dearborn, \$3000
- [11] 2021, UM-Dearborn Faculty Research Publication and Dissemination Grant, \$300
- [12] 2020, Redesigning, Evaluating, and Assessing Creativity Tasks (REACT) Calculus Fellow, sponsored by NSF DUE Grant Nos. 1836369 & 1836371, \$1500

### **c) Pending Grant Applications**

- [13] “Analysis in automorphic forms and  $L$ -functions,” \$350,483, Wong, T.A. (PI) National Science Foundation, 2025-2027.

## **9. Service Activities**

### **a) University Service**

#### **University-wide Committees**

- [1] N/A

#### **Campus-wide Committees**

Approved by the Faculty Senate April 9, 2007

- [2] F'20–W'21, Faculty Task Force, “Increasing faculty involvement in enrollment management and recruitment”

### **College (CASL, CECS, COE, SOM) Committees**

- [3] F'23–Present, First Year Experience Committee

### **Departmental Committees**

- [4] F'21–Present, Department of Mathematics and Statistics Colloquium organizer, UM-Dearborn  
[5] S'21, Lecturer III search committee, Department of Mathematics and Statistics  
[6] F'20–W'21, Department Meeting Minute Taker, Department of Mathematics and Statistics

## **b) Professional Activities**

### **Peer Reviewer**

- [7] Science China Mathematics; Ramanujan Journal; Canadian Mathematical Bulletin; Bulletin of the London Math Society; Journal of Number Theory; Mathematical Reviews, Zentralblatt Math Open

### **Grant Reviewer**

- [8] 2023 NSF Grant review panelist  
[9] 2022 NSF Grant review panelist  
[10] 2021 NSF Grant review panelist

### **Mentorship**

- [11] Association for Women in Mathematics (AWM) Mentor Network. Abby Kaye, Skidmore '21; Henrietta Martha, High School

### **Journal Editorship**

- [12] 2024–2025, Guest co-editor, Special Issue on Quantitative Justice, La Matematica  
[13] 2022–2023, Guest co-editor, Special Issue on Mathematics and Society, Journal of Humanistic Mathematics

### **Sessions/Conferences Organized and /or Chaired**

- [14] May 2022, Beyond Endoscopy Mini-Conference, Fields Institute, University of Toronto  
[15] March 2021, American Mathematical Society (AMS) Sectional Meeting 2021, Virtual session, Recent Developments in Automorphic Representations, Co-organizer  
[16] October 2021, Rethinking Number Theory 2, Project Leader

Approved by the Faculty Senate April 9, 2007

- [17] S'22 & S'23, Co-organizer, Computational and Mathematical Advances at the Data Science and Social Justice Frontier, ICERM

**d) Other Services**

- [18] 2019–present, Editor, Inclusion/Exclusion blog, American Mathematical Society
- [19] S'21, Inside-Out Prison Exchange Program Instructor Training
- [20] Feb 2022, Presenter, The Mathematics of Policing, Criminology and Criminal Justice Collective, UM-Dearborn
- [21] May 2022, Organizer, Police Violence Reading Group, Electronic Conference On Teaching Statistics (eCOTS)