

Wei-Lun Tsai

Curriculum Vitae

Department of Mathematics
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Employment

2020 – present **Research Postdoctoral Fellow**, *University of Virginia*.

Mentor: Professor [Ken Ono](#)

2013 – 2014 **Research Assistant**, *Institute of Mathematics, Academia Sinica*.

Mentor: Professor [Chia-Fu Yu](#)

Education

2015 – 2020 **Ph.D. in Mathematics**, *Texas A&M University*.

Thesis Title: *The distribution of Fourier coefficients of weak Maass forms*

Advisor: Professor [Riad Masri](#)

GPA: 4.0/4.0

2007 – 2012 **B.S. & M.Sc. in Mathematics**, *National Taiwan University*.

Advisor: Professor [Ki-Seng Tan](#)

Research Interests

Automorphic forms, elliptic curves, L -functions, number fields, and partitions with a focus on statistical questions related to these topics.

Publications

1. **On the nonvanishing of central values and derivatives of modular L -functions in families of quadratic twists**, (with A. Burungale and K. Ono), in preparation.
2. **Tamagawa products of elliptic curves over \mathbb{Q}** , (with M. Griffin, and K. Ono), *Quarterly Journal of Mathematics* (Oxford), [Sir Michael Atiyah Memorial Issue] **72**, Issue 4, 1517-1543, (2021).
3. **Even values of Ramanujan's tau-function**, (with J. S. Balakrishnan, and K. Ono), *La Matematica*, **1**, 394-403 (2022).
4. **Heights of points on elliptic curves over \mathbb{Q}** , (with M. Griffin, and K. Ono), *Proceedings of the American Mathematical Society*, **149**, 5093-5100, (2021).
5. **Distributions of hook lengths in integer partitions**, (with M. Griffin, and K. Ono), submitted for publication.
6. **Limiting Betti distributions of Hilbert schemes on n point**, (with M. Griffin, K. Ono, and L. Rolin), *Canadian Mathematical Bulletin*, in press.

7. **Variants of Lehmer's speculation for newforms**, (J. S. Balakrishnan, W. Craig, and K. Ono), submitted for publication.
8. **The asymptotic distribution of traces of weak Maass forms**, (with N. Khaochim and R. Masri), *Mathematika*, (2021).
9. **AGM and jellyfish swarms of elliptic curves**, (with M. Griffin, K. Ono, and N. Saikia), *American Mathematical Monthly*, in press.
10. **Quadratic twists of elliptic curves and class numbers**, (with M. Griffin, and K. Ono), *Journal of Number Theory*, (2021).
11. **Computing Stark units as special Gamma values**, (with A. Barquero-Sanchez and R. Masri), *Research in Number Theory*, (2021).
12. **Asymptotic distribution of the partition crank**, (with A. Hamakiotes and A. Kriegman), *The Ramanujan Journal*, (2021).
13. **Effective bounds for traces of singular moduli**, (with H. Ellers, M. Kenney and R. Masri), *Journal of Number Theory*, **212** (2020).
14. **Nonvanishing of Hecke L -functions and Bloch-Kato p -Selmer groups**, (with A. Iannuzzi, B. D. Kim, R. Masri, A. Mathers and M. Ross), *Mathematical Research Letters*, **26** (2019), no. 4.
15. **An effective bound for the partition function**, (with N. Khaochim and R. Masri), *Research in Number Theory*, (2019), **5**:14.
16. **Equidistribution of Fourier coefficients of integral weight Maass-Poincaré series**, (with R. Masri), submitted for publication.
17. **Equidistribution of Fourier coefficients of half-integral weight Maass-Poincaré series**, (with R. Masri), preprint available upon request.
18. **Malle's conjecture for $G \times A$, with $G = S_3, S_4, S_5$** , (with R. Masri, F. Thorne, and J. Wang), submitted for publication.

Mentoring

- Summer 2022 **Mentor**, *Summer REU*, The University of Virginia.
- Summer 2021 **Mentor**, *Summer REU*, The University of Virginia.
- Summer 2020 **Mentor**, *Summer REU*, The University of Virginia.
- Summer 2019 **Graduate Student Mentor**, *Summer REU*, Texas A&M University.
- Spring 2019 **Mentor**, *Directed Reading Program*, Texas A&M University.
- Fall 2018 **Mentor**, *Directed Reading Program*, Texas A&M University.
- Summer 2018 **Graduate Student Mentor**, *Summer REU*, Texas A&M University.
- Summer 2017 **Graduate Student Mentor**, *Summer REU*, Texas A&M University.

Teaching Experience

- Fall 2022 **Instructor**, *Calculus III*, University of Virginia.

- Summer 2022 **Instructor**, *A Survey of Calculus II*, University of Virginia.
- Spring 2022 **Instructor**, Graduate Course on *Commutative Algebra*, University of Virginia.
- Fall 2021 **Instructor**, *Calculus III* (two sections), University of Virginia.
- Spring 2021 **Instructor**, *Survey of Algebra*, University of Virginia.
- Spring 2021 **Recitation Instructor**, *Basic Real Analysis*, University of Virginia.
- Fall 2020 **Instructor**, *Calculus III*, University of Virginia.
- Fall 2020 **Recitation Instructor**, *Calculus III*, University of Virginia.
- Fall 2019 **Teaching Assistant**, *Engineering Mathematics I*, Texas A&M University.
- Fall 2018 **Instructor**, *Mathematical Concepts–Calculus*, Texas A&M University.
- Summer 2018 **Instructor**, *Complex Analysis–Qualifying Exam*, Texas A&M University.
- Fall 2017 **Teaching Assistant**, *Engineering Mathematics I*, Texas A&M University.
- Spring 2017 **Teaching Assistant**, *Engineering Mathematics I*, Texas A&M University.
- Fall 2016 **Teaching Assistant**, *Engineering Mathematics I*, Texas A&M University.
- Spring 2016 **Teaching Assistant**, *Engineering Mathematics II*, Texas A&M University.

Selected Talks

- February 7, 2022 Number Theory Seminar, Boston University.
- January 28, 2022 Number Theory Seminar, University of Cologne.
- November 19, 2021 Number Theory Seminar, National Center for Theoretical Sciences-NCTS.
- April 7, 2021 Number Theory Seminar, Vanderbilt University.
- March 19, 2021 Number Theory Seminar, University of Virginia.
- November 30, 2020 Number Theory Seminar, Washington State University.
- April 13, 2019 Southern Regional Number Theory Conference, Louisiana State University.
- April 4, 2019 Number Theory Seminar, University of Wisconsin – Madison.
- March 27, 2019 Number Theory Seminar, Texas A&M University.
- June 1, 2018 CTNT 2018 Conference, University of Connecticut.
- March 20, 2018 32th Automorphic Forms Workshop, Tufts University.
- February 28, 2018 Number Theory Seminar, Texas A&M University.

Referee Service

Annales mathématiques du Québec

Expositiones Mathematicae

Houston Journal of Mathematics

Proceedings of the American Mathematical Society (4 times + 1 quick opinion)

Research in the Mathematical Sciences

Research in Number Theory (4 times)

Taiwanese Journal of Mathematics

Honors and Awards

- 2021 **Visiting Scientist**, *Max Planck Institute for Mathematics*, August, 2021.
- 2015-2020 **Graduate Teaching Assistantship**, *Texas A&M University*.
- 2012 **Outstanding Teaching Assistant Award**, *National Taiwan University*.