

# Robert Dicks

<https://math.illinois.edu/directory/profile/rdicks2>

## Education

- B.S., Mathematics, Emory University, Atlanta, GA, May, 2018. *Summa Cum Laude*.
- M.S., Mathematics, Emory University, Atlanta, GA, May, 2018.
- Ph.D., Mathematics, University of Illinois, Urbana, IL. Expected: May, 2023.  
Advisor: Scott Ahlgren.

## Publications and Preprints

1. E. Alwaise, R. Dicks, J. Friedman, L. Gu, Z. Harner, H. Larson, M. Locus, I. Wagner, and J. Weinstock, *Shifted distinct-part partition identities in arithmetic progressions*. Annals of Combinatorics, 21 (2017), 479-494.
2. T. Cotron, R. Dicks, and S. Fleming, *Asymptotics and congruences for partition functions which arise from finitary permutation groups*. Research in Number Theory, 2 (2016), 20.
3. T. Cotron, R. Dicks, and S. Fleming, *Congruences between word lengths statistics for finitary alternating and symmetric groups*. Arch. Math. (Basel), 109 (2017), 201-214.
4. R. Dicks, *A higher weight analogue of Ogg's theorem on Weierstrass points*. Int. J. Number Theory 17 (2021), no. 5, 1155-1162.
5. R. Dicks, *Congruences for level 1 cusp forms of half-integral weight*. Proc. Amer. Math. Soc. 149 (2021), no. 11, 4623-4638.
6. R. Dicks, *Weight 2 CM newforms as  $p$ -adic limits*. Ramanujan J. 58 (2022), no. 4, 1321-1332.
7. C. Albert, O. Beckwith, I. Demetoglu, R. Dicks, J. Smith, and J. Wang *Integer partitions with large Dyson rank*. submitted, <https://arxiv.org/abs/2203.08987>
8. R. Dicks, *Congruence relations for  $r$ -colored partitions*. submitted, <https://arxiv.org/abs/2206.05449>
9. S. Ahlgren, N. Andersen, and R. Dicks *The Shimura lift for the eta multiplier*. in preparation.

## Lectures and Conference Talks

- January 2017. Asymptotics and Congruences For Partition Functions which Arise from Finitary Permutation Groups. AMS Special Session on Partition Theory and Related Topics (Beamer Talk), Joint Mathematics Meetings, Atlanta GA.
- June 2017. Composition of Belyi Pairs and their Monodromy Groups. CAARMS 23 Conference (Poster Talk), Ann Arbor, Michigan.
- June 2017. Composition of Belyi Pairs and their Monodromy Groups. CAARMS 23 Conference (Beamer Talk), Ann Arbor, Michigan.
- July 2017. Cartographic Groups of Regular Toroidal Graphs. Indiana Undergraduate Mathematics Research Conference (Beamer Talk), Purdue University, West Lafayette, IN.
- July 2017. Cartographic Groups of Regular Toroidal Graphs. Talk at the MAA MathFest Conference (Beamer Talk) Chicago, Illinois.
- March 2019. Geometric Ideas in Number Theory. Talk in the UIUC Graduate Geometry and Topology seminar.
- December 2020. The Geometry of Modular Forms. Talk in the UIUC Graduate Geometry and Topology seminar.
- May 2021. 3-Manifolds and Number Theory. Talk in the UIUC Graduate Geometry and Topology seminar.
- July 2021. Modular curves, Ogg's theorem, and Modular forms. Virtual talk in the PRiME Algebraic Geometry REU.
- December 2021. Arithmetic Applications of Modular Forms. Graduate colloquium talk.
- February 2022. An Introduction to  $p$ -adic Analysis. Talk in the UIUC Graduate Analysis seminar

- March 2022. Congruence Relations for  $r$ -Colored Partitions. Talk in 34th Automorphic Forms Workshop
- April 2022. Congruence Relations for  $r$ -Colored Partitions. Talk in the UIUC number theory seminar
- September 2022. Congruences for Level 1 Cusp Forms of Half-integral Weight Talk in the Clemson Number Theory and Algebraic Geometry seminar
- September 2022. Congruence Relations for  $r$ -Colored Partitions and related topics Talk in the 2022 Palmetto Number Theory Series

### **Teaching and Grading**

- Fall 2018. Teaching Assistant, Calculus II (ranked as excellent).
- Spring 2019. Teaching Assistant, Calculus I (Biocalculus section).
- Fall 2019. Teaching Assistant, Calculus III (ranked as excellent).
- Spring 2020. Teaching Assistant, Calculus III.
- Fall 2020. Grader, Linear Algebra and Honors Linear Algebra.
- Spring 2021. Teaching Assistant, Calculus III.
- Fall 2021. Teaching Assistant, Calculus III.
- Fall 2022. Teaching Assistant, Calculus II

### **Undergraduate Research Experience**

- Emory Number Theory and Arithmetic Geometry REU 2015
- Emory Number Theory and Arithmetic Geometry REU 2016
- Purdue PRiME Algebraic Geometry REU 2017

### **Undergraduate Awards**

- Spring 2017. Emory Math Department Chair's Award for Achievement.
- June 2017. Best Undergraduate Poster talk at the CAARMS 23 Conference.
- April 2018. Trevor Evans Award.

### **Fellowship Support**

- Fall 2018-Spring 2021. Graduate College Fellowship .
- Fall 2018-Spring 2023. Sloan Fellowship.
- Spring 2022 Bateman Fellowship.
- Spring 2023. Department Fellowship.

### **Other Activities**

- Spring 2019. Arizona Winter School participant in the study group for Michael Hopkins on Lubin-Tate spaces.
- Spring 2021. Graduate Team Leader for undergraduate research at the Illinois Geometry Lab, Arithmetic Properties of Partition Ranks.
- Spring 2021. Graduate Student Assistant for the Arizona Winter School for Alex Barrios: A Friendly Introduction to the Theory of Modular Forms.
- Spring 2022 Arizona Winter School participant in the study group for Aaron Pollack on Modular Forms on Exceptional Groups.