Hannah Burson

CONTACT
INFORMATION

School of Mathematics, University of Minnesota
Minneapolis, MN 55455
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EMPLOYMENT

University of Minnesota, Minneapolis, MN   2020-present
Postdoc

EDUCATION

University of Illinois, Urbana, IL

Ph.D. Mathematics, August 2020
Advisor: Bruce Berndt

St. Olaf College, Northfield, MN

B.A. Mathematics, May 2013
Participant, Budapest Semesters in Mathematics, Spring 2012

PUBLICATIONS

5. *Copartitions*, joint with Dennis Eichhorn, Annals of Combinatorics, (to appear).

4. *On a partition identity of Lehmer*, joint with Cristina Ballantine, Amanda Folsom, Chi-Yun Hsu, Isabella Negrini, and Boya Wen, Discrete Mathematics, (2022).

3. *Refined counting of core partitions into d-distinct parts*, joint with Simone Sisneros-Thiry and Armin Straub, Electronic Journal of Combinatorics, (2021).

2. *Combinatorics of two second order mock theta functions*, International Journal of Number Theory, (2021).

1. *A bijective proof of a false theta function identity from Ramanujan's lost notebook*, Annals of Combinatorics, (2019).

PREPRINTS

5. *On the parity of the number of (a, b, m)-copartitions of n*, joint with Dennis Eichhorn, Submitted, ArXiv: 2201.04247.

4. *Mock theta functions and related combinatorics*, joint with Cristina Ballantine, Amanda Folsom, Chi-Yun Hsu, Isabella Negrini, and Boya Wen, Submitted, ArXiv: 2202.03329.

3. *On the positivity of infinite products connected to partitions with even parts below odd parts and copartitions*, joint with Dennis Eichhorn, (in preparation).

2. *Integer partitions corresponding to numerical semigroups,* joint with Hayan Nam and Simone Sisneros-Thiry, (in preparation).

1. *A Schur q-Lucas Lemma,* joint with Victor Reiner, (in preparation).

ORGANIZING
EXPERIENCE

Co-organizer AMS Special Session on Experimental Mathematics in Number Theory and Combinatorics, Southeastern Sectional Meeting, Gainesville, FL. (November 2019)

SEMINAR AND
COLLOQUIUM
TALKS

Combinatorics Seminar, University of Minnesota (October 2022).

Partitions Seminar, Online (April 2022).

Combinatorics Seminar, University of Minnesota (March 2021).

Number Theory Seminar, Vanderbilt University (September 2020).

Linfoot Number Theory Seminar, University of Bristol (May 2019).

Algorithmic Combinatorics Seminar, Research Institute for Symbolic Computing at Johannes Kepler University Linz (April 2019).

Colloquium, Rose-Hulman Institute of Technology (September 2018).

Graduate Student Number Theory Seminar, University of Illinois (September 2018).

Algebra, Combinatorics, and Number Theory Seminar, Depaul University (February 2018).

Graduate Student Number Theory Seminar, University of Illinois (October 2017).

CONFERENCE TALKS

Special Session on Quadratic Forms, Modular Forms, and Applications, Joint Mathematics Meetings (January 2023).

Special Session on The Intersection of Number Theory and Combinatorics, AMS Sectional Meeting (September 2022).

Special Session on Partition Theory and Related Topics, Joint Mathematics Meetings (April 2022).

Special Session on Experimental Mathematics in Number Theory and Combinatorics, AMS Sectional Meeting (November 2021).

Special Session on Partition Theory and q-Series, Joint Mathematics Meetings (January 2020).

Special Session on Partition Theory and Related Topics, AMS Sectional Meeting (November 2019).

Minisymposium on Developments in q-Series and the Theory of Partitions, International Symposium on Orthogonal Polynomials, Special Functions and Applications (July 2019).

Analytic and Combinatorial Number Theory: The Legacy of Ramanujan (June 2019).

Special Session on Experimental Mathematics in Number Theory, Analysis, and Combinatorics, AMS Sectional Meeting (March 2019).

Special Session on Partition Theory and Related Topics, Joint Mathematics Meetings (January 2019).

INTEGERS Conference (October 2018).

Combinatory Analysis (June 2018)

Conference of Research Workers in Animal Diseases (December 2015)

POSTER PRESENTATIONS

AWM Poster Session, Joint Mathematics Meetings (January 2018).

TEACHING EXPERIENCE

University of Minnesota

MATH 5705, Enumerative Combinatorics	Fall 2022
MATH 5248, Cryptology and Number Theory	Spring 2021, Fall 2021, Spring 2022
Math 1271, Calculus I	Fall 2020, Fall 2021

University of Illinois

Math 347, Fundamental Mathematics	Fall 2019*
Math 220, Calculus	Fall 2018*, Spring 2016, Fall 2014*
Math 181, A Mathematical World	Spring 2018†
Math 115, Preparation for Calculus	Fall 2017
Math 241, Calculus III	Fall 2016
Math 221, Calculus I	Fall 2015*
Math 231, Calculus II	Spring 2015*

* Appeared on list of teachers ranked as excellent by their students
† Instructor of Record

MENTORING
EXPERIENCE

Mentor, Combinatorics and Algebra REU, University of Minnesota
   ∘ Enumeration of $(s, s + k)$-core partitions into distinct parts.   Summer 2022
Paper: The maximum hook length of d-distinct simultaneous core
partitions. By Ethan Pesikoff, Benjamin Przybocki, and Janabel Xia,
Submitted, ArXiv: 2209.09973

Senior Capstone Mentor, University of Minnesota
   ∘ Centrality of the Wikipedia link network   Spring 2022
   ∘ Python Cryptological Algorithms Implementations and Run-   Spring 2021
time Assessments

Team Leader, Illinois Geometry Lab, University of Illinois
   ∘ Alexa, make my home smart and frugal   Fall 2019
   ∘ Scaling limits for random weight matchings on a hexagonal   Fall 2018
lattice

GRANTS AND
AWARDS

MSRI Summer Research in Mathematics: Enumerating Numerical Semigroups through Integer Partitions (2022).

Ruth V. Shaff and Genevie I. Andrews Fellowship, University of Illinois (2017 & 2020).

University Fellowship, University of Illinois (2019).

Departmental TA Instructional Award, University of Illinois (2017).

List of Teachers Ranked Excellent by their Students, University of Illinois (Fall 2014, Spring 2015, Fall 2015, Fall 2018, & Fall 2019).

Sonya Kovalevsky Award, St. Olaf College (2013).

SERVICE AND
OUTREACH

Co-organizer, Math TA Training, University of Illinois (Summer 2019).

Chair, Math Department TA Teaching Awards, University of Illinois (Fall 2018).

TA Mentor, Merit Program for Emerging Scholars, University of Illinois (Fall 2018, Fall 2019).

Registration Advisor, Merit Program for Emerging Scholars, University of Illinois (Summer 2016, Summer 2019)

Vice President, Association for Women in Mathematics, University of Illinois (2017-2018).

Treasurer, Association for Women in Mathematics, University of Illinois (2015-2017).

Instructor, Summer Illinois Math Camp, University of Illinois (Summer 2017)

Assistant Instructor, Summer Illinois Math Camp, University of Illinois (Summer 2016)

REFEREE EXPERIENCE Research in Number Theory, Ramanujan Journal, Discrete Mathematics, Journal of Ramanujan Mathematical Society, European Journal of Combinatorics, International Journal of Number Theory, Note di Mathematica