

# Nandita Sahajpal

Department of Mathematics, University of Kentucky, Lexington, KY 40506, USA

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## Education

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### University of Kentucky

DOCTOR OF PHILOSOPHY IN MATHEMATICS

- *Advisor:* David B. Leep, PhD
- *Research Area:* Algebraic Number Theory
- *Thesis Topic:* On Rational Zeros of a System of two Quadratic Forms over a Number Field
- *Minor:* Combinatorics, Numerical Analysis, and Topology
- Expected, May 2020

Lexington, KY

August 2014 - PRESENT

### University of Kansas

MASTER OF ARTS IN MATHEMATICS

Lawrence, KS

August 2011 - May 2014

### Indian Institute of Technology Madras

MASTER OF SCIENCE IN MATHEMATICS

- *Advisor:* S. A. Choudum, PhD
- *Thesis Title:* Incidence Matrices and Interval Graphs

Chennai, India

August 2008 - May 2010

### Panjab University

BACHELOR OF SCIENCE (HONORS) IN MATHEMATICS

- *Minor:* Philosophy and Statistics

Chandigarh, India

August 2006 - May 2009

## Research Experience

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### PhD Project

*Rational Zeros of a System of Two Quadratics Forms over a Number Field*

Ongoing

Lexington, KY, U.S.A

University of Kentucky

### Capstone - Project IMA Math to Industry Bootcamp IV

*Deblending Seismic Signals from Simultaneous Sources.*

July, 2019

Minneapolis, MN, U.S.A

University of Minnesota

### IMA Math to Industry Bootcamp IV

*Detecting Methane Leaks in a Natural Gas Plant.*

July, 2019

Minneapolis, MN, U.S.A

University of Minnesota

### Qualifying Exam

*Simultaneous Quadratic Forms over C.D.V Field of Characteristic different from 2*

April, 2017

University of Kentucky

Lexington, KY

### Master's Thesis

*Incidence Matrices and Interval Graphs*

May, 2010

IIT Madras

Chennai, India

## Select Presentations

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### West Coast Number Theory Conference

*Zeros of a System of two Quadratic Forms over a Number Field*

Pacific Grove, CA, U.S.A

December 18, 2019

### IMA Math to Industry Bootcamp IV

*Detecting Methane Leaks in a Natural Gas Plant.*

University of Minnesota

Minneapolis, MN, U.S.A

July 23, 2019

### Number Theory Seminar

*On Quadratic Forms over Commutative Rings*

University of Kentucky

Lexington, KY, U.S.A

March, 2019

### Number Theory Seminar

On Rational Zeros of Quadratic Forms  
University of Kentucky

Lexington, KY, U.S.A  
October, 2018

### MA 764, Final Presentation

On Quadratic Residue codes, Golay Codes  
University of Kentucky

Lexington, KY, U.S.A  
April, 2017

### Mathematics Department Qualifying Exam

On Simultaneous Quadratic Forms over C.D.V. Fields of Characteristic Different from 2  
University of Kentucky

Lexington, KY  
April, 2017

### Complex Analysis Seminar

On Conformal Equivalence of Annuli  
University of Kansas

Lawrence, KS  
April, 2014

### Master's Defense

On Incidence Matrices and Interval Graphs  
Indian Institute of Technology Madras

Chennai, India  
April 2010

### Graduate Student Seminar

On Matrices of Zeros and Ones  
Indian Institute of Technology Madras

Chennai, India  
October 2009

## Teaching Experience

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### University of Kentucky

GRADUATE TEACHING ASSISTANT

Lexington, KY  
Aug, 2014 – PRESENT

#### • Primary Instructor

- MA 322, Matrix Algebra Spring 2020
- MA 201, Math for Elementary School Teachers Fall 2019
  - \* Instructed two sections with 30 students per section.
  - \* Developed course learning objectives.
  - \* Used to the flipped classroom approach
  - \* Developed and Supervised group projects to foster teamwork.
  - \* Developed quizzes and exams and evaluated student performance by grading.
  - \* Maintained continuous course communication and individualized feedback through Canvas Learning Management System
- MA 109, College Algebra Fall 2016, Spring 2017, Summer 2018
  - \* Instructed two sections with 35 students per section.
  - \* Developed lesson plans and quizzes.
  - \* Implemented engaging, group-based class activities tailored to learning objectives and student understanding
- MA 113, Calculus I (Distance Learning Course) Summer 2017
  - \* Used the Canvas Learning Management System to instruct a class of 60 students.
  - \* Held virtual office hours via Piazza and set up Skype meeting to provide one to one assistance to the students.
- MA 162, Finite Mathematics Summer 2016
  - \* Instructed a class of 15 students.
  - \* Developed lecture notes, assignments, quizzes and exams.

#### • Recitation Leader

- MA 114, Calculus II Spring 2019
- MA 114, Calculus II, Math Excel Section\*\* Spring 2018
- MA 113, Calculus I, Math Excel Section\*\* Fall 2017
- MA 123, Business Calculus Fall 2015
- MA 114, Calculus II Spring 2015
- MA 123, Business Calculus Fall 2014
  - \* Led review discussions on lecture material
  - \* Graded and provided feedback on quizzes and homework assignments.
  - \* Prepared sample problems and worksheets.
  - \* Fostered a positive and collaborative learning environment.

#### • Grader

- MA 214, Calculus IV Fall 2018

\*\* Math Excel is an intensive approach to the standard calculus sequence in which students spend extra time each week working on enriching exercises in small groups to enhance problem solving. The sessions are led by a workshop leader along with undergraduate assistants \*\*

## University of Kansas

GRADUATE TEACHING ASSISTANT

Lawrence, KS  
Aug, 2011 – July, 2014

### • Primary Instructor

- Math 105, Excursions in Mathematics
- Math 115, Calculus I
- Math 115, Calculus I
- Math 115, Calculus I
- Math 104, Pre-Calculus
- Math 102, Intermediate Algebra
- Math 102, Intermediate Algebra

Summer 2015  
Fall 2013  
Summer 2013  
Spring 2013  
Fall 2012  
Spring 2012  
Fall 2011

### • Grader/Tutor

- Math 590, Linear Algebra, Grader
- Math 791, Abstract Algebra, Grader
- Math 121, Calculus I, Tutor
- Math 122, Calculus II, Tutor

Summer 2014  
Spring 2014  
Spring 2014  
Spring 2014

## Outreach & Service

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### Inclusive Community Lunches

LEAD ORGANIZER

Lexington, KY  
August 2019 – April 2020

### Lexington High School Math Circle

CIRCLE LEADER

Lexington, KY  
January 2020

### University of Kentucky–Graduate Council

GRADUATE STUDENT REPRESENTATIVE, FALL 2019

Lexington, KY  
August 2019

### University of Kentucky–Department of Mathematics

FIRST YEAR GRADUATE STUDENT MENTOR, 2019-2020

Lexington, KY  
August 2019

### University of Kentucky–Graduate Student Congress

INSTITUTIONAL AFFAIRS OFFICER, ELECTED POSITION

Lexington, KY  
August 2019 – May 2020

- My responsibilities as the IAO is to oversee the Institutional Research (IRC) and Institutional Advocacy Committees(IAC). I'm also responsible for coordinating between the different projects that IAC and IRC work on like organizing the Mental Health Awareness Week (Fall 2019), Cultural Diversity Month (Spring 2020) and Graduate Students Satisfaction Surveys.

### University of Kentucky–Association for Women in Mathematics(UK-AWM)

PRESIDENT

Lexington, KY  
August 2018 – May 2019

- Our Chapter at the University of Kentucky is the recipient of the National AWM Chapter Award for Community Outreach 2018-2019
- I created a new website for the Student Chapter of AWM at the University of Kentucky
- My colleague Julianne Vega(Vice-President) and I received the UK-Graduate Student Congress's Community and Belongingness Pillar Award for conducting the Inclusive Community Lunches as a part of the initiatives for the UK-AWM Student Chapter

### Inclusive Community Lunches

CO-ORGANIZER

Lexington, KY  
August 2018 – April 2020

- Co-organized and co-led monthly luncheons focusing on topics related to diversity and inclusion
- Received the UK-Graduate Student Congress's Community and Belongingness Pillar Award for conducting the Inclusive Community Lunches as a part of the initiatives for the UK-AWM Student Chapter
- Received the Year of Equity Initiative Grant to continue this initiative.

### University of Kentucky Math Department Graduate Student Council

FACULTY APPOINTEE

Lexington, KY  
August 2018 – May 2019

### University of Kentucky Graduate Student Congress

INTERNAL AFFAIRS COMMITTEE MEMBER

Lexington, KY  
May 2018 – May 2019

- Co-organizer for the first Graduate, Professional, & Postdoc Mental Health Awareness Week
- Co-author for the Graduate Student Financial Wellness, Quality of Life, and First Year Graduate Student Surveys

### University of Kentucky Graduate Student Congress

INCLUSION AND DIVERSITY IN STEM ADVOCATE

Lexington, KY  
August 2018 – May 2019

## Kentucky Educational Television

WINTER PLEDGE DRIVE VOLUNTEER

Lexington, KY

December 2, 2018

## University of Kentucky Association for Women in Mathematics

SECRETARY

Lexington, KY

August 2017 - July 2018

## Julia Robinson Math Festival for Middle School Students

ORGANIZATION COMMITTEE MEMBER

Lexington, KY

November 4, 2017

## Prakriti, Indian Institute of Technology

VOLUNTEER FOR WILDLIFE CLUB

Chennai, India

August 2008 - May 2010

## Competitive Awards, Grants & Honors

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### American Mathematical Society Travel Grant

\$ 500 TRAVEL GRANT TO ATTEND JMM 2020

2019

### Association for Women in Mathematics-Standing Position:Student Chapter President

AWM STUDENT CHAPTER AWARD FOR COMMUNITY OUTREACH

The purpose of the award is to highlight and reward a student chapter for its outstanding engagement with the local community by highlighting women in mathematics or by demonstrating the power and fascination of mathematics.

Department of Mathematics-  
University of Kentucky

2019

### Department of Mathematics- University of Kentucky

ED ENOCHS GRADUATE SCHOLARSHIP IN ALGEBRA, FALL 2019

The Enochs Graduate Scholarship honors Professor Emeritus Ed Enochs and is given to an outstanding graduate student or students that are working the area of algebra.

Kentucky, USA

2019

### Department of Mathematics- University of Kentucky

SUMMER RESEARCH FELLOWSHIP, SUMMER 2019

Awarded to graduate students for making progress towards research during the summer

Kentucky, USA

2019

### CFP-University of Kentucky

YEAR OF EQUITY INITIATIVE GRANT, 2019-2020

This was a \$ 400 grant that was awarded to continue Inclusive Community Lunches as a part of "The Year of Equity: Reflecting on Diversity and Inclusion at UK 70 Years After Desegregation"

Kentucky, USA

2019

### Graduate Student Congress-University of Kentucky

COMMUNITY AND BELONGINGNESS PILLAR AWARD, 2019

Awarded to students that contribute significantly toward creating a sense of community for graduate students by supporting their growth, challenging viewpoints, and building lasting relationships.

Kentucky, USA

2019

### Indian Institute of Technology Madras

MERIT SCHOLARSHIP, 2009-2010

Chennai, India

2009

### Panjab University

UNIVERSITY GOLD MEDAL, JANUARY 2009

Awarded for standing first in Bsc (Hons) Mathematics

Chandigarh, India

2009

### Panjab University

HEMRAJ MEMORIAL SILVER MEDAL, JANUARY 2009

Awarded for standing first in a Bachelor's Program

Chandigarh, India

2009

## Conferences and Workshops

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### West Coast Number Theory Conference

Pacific Grove, CA, USA

December 16 - December 21, 2019

### Workshop Sage Days 103

FONTBONNE UNIVERSITY

St. Louis, USA

August 7 - August 9, 2019

### **IMA Math to Industry Bootcamp**

UNIVERSITY OF MINNESOTA

*Minnesota, USA*

*June 24- August 2, 2019*

### **Fq14-Finite Fields and their Applications**

SFU HARBOUR CENTRE

*Vancouver, CA*

*June 3 - 7, 2019*

### **Summer School in Mathematics, ALGAR 2018**

UNIVERSITY OF ANTWERP

*Antwerpen, Belgium*

*July 2-6, 2018*

### **Summer School in Number Theory, CTNT 2018**

UNIVERSITY OF CONNECTICUT

*Storrs, CT, USA*

*May 28-June 3, 2018*

### **Midwest Women in Mathematics Symposium**

PURDUE UNIVERSITY

*West Lafayette, IN, USA*

*April, 2018*

### **Algebra, Geometry and Combinatorics (ALGECOM-16)**

UNIVERSITY OF MICHIGAN

*Ann Arbor, MI, USA*

*March, 2018*

### **Palmetto Number Theory Series (PANTS-XXIX)**

CLEMSON UNIVERSITY

*Clemson, SC, USA*

*December, 2017*

### **Palmetto Number Theory Series (PANTS-XXVIII)**

UNIVERSITY OF TENNESSEE

*CKnoxville, TN, USA*

*September, 2017*

### **Palmetto Number Theory Series (PANTS-XXVII)**

UNIVERSITY OF TENNESSEE

*Knoxville, TN, USA*

*Sept. 16-17, 2017*

### **Algebra, Geometry and Combinatorics (ALGECOM-14)**

PURDUE UNIVERSITY

*West Lafayette, IN, USA*

*October, 2018*

### **Mathematics Training and Talent Search Programme, Level II**

RESEARCH INSTITUTE OF EDUCATION

*Mysore, India*

*May-June, 2009*

## **Academic Research References**

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### **Professor**

DR. DAVID LEEP  
(859) 257- 6813

*University of Kentucky*

*leep@uky.edu*

### **Professor**

DR. HEIDE GLUESING-LUERSSEN  
(859)-257-6796

*University of Kentucky*

*heide.gl@uky.edu*

## **Teaching References**

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### **Faculty Lecturer**

DR. ERICA WHITAKER  
(859) 257-6792

*University of Kentucky*

*ewhitaker@uky.edu*

### **Faculty Lecturer**

DR. KATHERINE PAULLIN  
(859) 257-8836

*University of Kentucky*

*katherine.paullin@uky.edu*

## **Industry References**

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## Senior Researcher

DR. YANHUA YUAN  
(609) 937-9186

*ExxonMobil, Princeton, New Jersey*

*yanhuay01@gmail.com*

## Professional Memberships

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- American Mathematical Society
- Association for Women in Mathematics
- Mathematical Association of America
- Alumni Association, IIT Madras, India