Debanjana Kundu

Curriculum Vitae

PERSONAL DETAILS

Birth	January 6, 1993
Address	Department of Mathematics, University of Toronto
Phone	(+1) 437-344-2592
Mail	dkundu@math.toronto.edu

EDUCATION

Class X 2008

CBSE (India)

98.6% (Mathematics 99, Science 99, English 93)

Class XII 2010

CBSE (India)

93.2% (Mathematics 98, Chemistry 95, Physics 91, English 94)

(Top 1% in both class X and class XII.)

BS-MS Dual Degree 2010-2015

Indian Institute of Science Education and Research, Mohali, India

CGPA 9.7

MA PhD 2015-present

University of Toronto, Toronto, Canada

CGPA NA

PUBLICATIONS/ PREPRINTS

1. Perfect Powers that are Sums of Squares of an AP (with V. Patel)
   pre-print available on arXiv, submitted

2. Growth of Fine Selmer Groups in Infinite Towers
   pre-print available upon request, submitted

3. Growth of p-Fine Selmer Groups and p-Fine Shafarevich-Tate Group in $\mathbb{Z}/p\mathbb{Z}$-Extensions
   pre-print available upon request, submitted

4. On the Relation between Classical Iwasawa $\mu = 0$ Conjecture and Coates-Sujatha Conjecture A
   pre-print available upon request, submitted

5. On an Analogue of Kida's Formula for Fine Selmer Groups
   pre-print available upon request, submitted

6. Structure of Fine Selmer Groups in p-adic Lie Extensions (with R. Sujatha)
   pre-print available upon request, submitted

7. Beyond Endoscopy via Trace Formula for $\mathrm{GL}(2, F)$ (with M. Emory, M. Espinosa-Lara, T.A. Wong) *in progress*

FELLOWSHIPS

INSPIRE Fellowship 2010-2015
Department of Science and Technology, Government of India

JNCASR Summer Fellowship 2012
JNCASR, India

DAAD WISE Scholarship 2013
Germany

IAS Summer Fellowship (not availed) 2013
Indian Academy of Sciences, India

MITACS Globalink Research Internship 2014
Canada

Rhodes Scholarship finalist (top 18) class of 2015
Oxford University, UK

TIFR VSRP Fellowship 2015
TIFR, India

BIGS Scholarship for Graduate Studies (not availed) 2015-2018
Hausdorff Center for Mathematics, Bonn, Germany

MITACS Graduate Fellowship 2015 - 2018
Canada

Vivekananda Graduate Award for International Students 2018 - 2019
University of Toronto

General Motors Women in Mathematics and Science Award 2019 - 2020
University of Toronto

SEMINARS/ PRESENTATIONS

Introduction to Game Theory Aug 2012
Mathematics Club, IISER Mohali

27 Lines on a Cubic Nov 2013
Department Colloquium, IISER Mohali

Proofs of Quadratic Reciprocity April 2014
Department Colloquium, IISER Mohali

Linear Groups- Malcev's Theorem and Selberg's Lemma April 2014
IISER Mohali

Principal L-Functions of the Linear Group August 2016
Department of Math, University of Toronto

Understanding the Rank Distribution Conjecture Nov 2016
Graduate Seminar, Department of Math, University of Toronto

What is an Elliptic Curve? April 2017
Graduate Seminar, Department of Math, University of Toronto
Summer Learning Seminar on Modular Forms Summer 2017
Graduate Seminar, Department of Math, University of Toronto
Summer Learning Seminar on Galois Cohomology Summer 2017
Graduate Seminar, Department of Math, University of Toronto
Introduction to Automorphic Forms and Langlands Program Sep 2017
Graduate Seminar, Department of Math, University of Toronto
Learning Seminar on Classical Iwasawa Theory Sep-Dec 2017
Graduate Seminar, Department of Math, University of Toronto
Learning Seminar on Beyond Endoscopy 2017-18
Graduate Seminar, Department of Math, University of Toronto
Learning Seminar on Etale Cohomology Winter 2018
Graduate Seminar, Department of Math, University of Toronto
Learning Seminar on Complex Multiplication Fall 2018
Graduate Seminar, Department of Math, University of Toronto
Fun with Tilings Fall 2018
Graduate Seminar, Department of Math, University of Toronto
Learning Seminar on p-adic Lie Groups Summer 2019
Graduate Seminar, Department of Math, University of Toronto
Möbius Functions and Number Theory Summer 2019
Math Camp, Department of Math, University of Toronto
Iwasawa Theory of Fine Selmer Groups January 2020
Invited talk, QVNTS, Montreal

CONFERENCES, WORKSHOPS AND SUMMER SCHOOLS

GANITA Conference, The Fields Institute June 13-16, 2016
participant

Summer Graduate School, MSRI July 11-22, 2016
Summer school on Introduction to Character Theory and the McKay Conjecture.

PIMS Summer School, UBC Vancouver July 27-30 2016
Summer School on Representation Theory of Finite Groups

Fields Medal Symposium, The Fields Institute November 1-4, 2016
participant

Montreal-Toronto Workshop in Number Theory, CRM Montreal December 8-9 2016
Workshop on Mock Modular Forms

5 Day Workshops at BIRS, Banff July 2-7 2017
Workshop on Diophantine Approximation and Algebraic Curves

Summer Graduate School, MSRI Jul 24-Aug 4, 2017
Summer school on Automorphic Forms and Langlands Program

AIM Workshop, San Jose December 4-8 2017
Workshop on Functoriality and the Trace Formula

Montreal-Toronto Workshop in Number Theory, CRM Montreal January 13-14 2018

Workshop on Unitary Shimura Varieties

Arizona Winter School, Tucson — March 3-7 2018

Winter school on Iwasawa Theory

PIMS Focus Period, UBC Vancouver — March 25-29 2018

Focus Period on Representations in Arithmetic

Upstate Number Theory Conference, SUNY Buffalo — April 28-29 2018

Young Researchers Conference

Strength in Numbers, Queen's University — May 11-12 2018

Graduate Student Conference, Contributed talk

CTNT Summer School, University of Connecticut — May 28- June 3 2018

Summer School and Conference

CNTA Conference, Universite Laval — July 9-13 2018

Contributed talk

Montreal-Toronto Workshop in Number Theory, CRM Montreal — March 22-24 2019

Workshop on p-adic Hodge Theory

John H. Barrett Memorial Lectures, University of Tennessee — May 28-30 2019

participant

Analytic & Combinatorial Number Theory, UIUC — June 06-09 2019

Contributed talk

SOGMSC, University of Guelph — June 17 2019

Contributed talk

Boston University-Keio University Workshop — June 24-28 2019

Contributed talk

PAlmetto Number Theory Seminar (PANTS) XXXII — September 21-22 2019

Invited talk

Maine-Quebec Number Theory Conference — October 5-6 2019

Contributed talk

MAAIM, Emory University — November 1-3 2019

Contributed talk

CMS Mini-Course on Iwasawa Theory — December 6-9 2019

Co-organizer with R. Sujatha

TEACHING ASSISTANCE EXPERIENCE (UNIVERSITY OF TORONTO)

MAT223 (Linear Algebra) — Fall/Winter 2015 – 16

Instructor: Mr. Sean Uppal

MAT235 (Multivariable Calculus) — Fall/Winter 2018 – 19

Instructor: Dr. Nara Jung

MAT237 (Multivariable Calculus) — Summer 2016, Fall/ Winter 2018 – 19

Instructor: Dr. Tyler Holden, Prof. Robert Gerrard

MAT240 (Linear Algebra for Math Specialists) — Fall 2016; Fall 2017

Instructor: Prof. Eckhard Meinrenken

MAT246 (Concepts in Abstract Math) — multiple times

Instructor: Dr. J Korman, Dr. H Soheil, Prof. F Murnaghan, Dr. D. Burbulla

MAT247 (Linear Algebra II for Math Specialists) — Winter 2018

Instructor: Prof. Stephen Kudla

MAT315 (Elementary Number Theory) — Winter 2020

Instructor: Prof. Henry Kim

MAT336 (Elements of Analysis) — Winter 2017

Instructor: Dr. H Soheil

MAT401 (Polynomial Equations and Fields) — Summer 2017

Instructor: Dr. Jonathan Korman

TEACHING EXPERIENCE (UNIVERSITY OF TORONTO)

MAT188 (Linear Algebra) — Fall 2018

Course Coordinator: Dr. Dietrich Burbulla

MAT136 (Calculus II) — Winter 2019

Course Coordinator: Dr. Sarah Mayes-Tang

MAT136 (Calculus II) — Summer 2019

Course Coordinator along with Daniel Le and Abhishek Oswal

EXTRA-CURRICULAR ACTIVITIES

Manthan — 2011 - 2012

I was the editor-in-chief of Manthan, the IISER Mohali students' magazine.

Annual Science Day, IISER Mohali — Feb 2012

I was a part of the organzing committee of the Annual Science Day at IISER Mohali where we organized several quizzes, an elocution competition and displayed several scientific phenomena for school students in the tri-city (Chandigarh, Panchkula, Mohali).

Mathematics Club, IISER Mohali — 2012 - 2015

I was an active member of the student-run Mathematics Club and over the years had given talks (to mathematical and general audience) on varied areas of mathematics. I was also an active member of the Annual Mathematics Weekend where we organized quizzes, mathematical treasure hunts, mathematical dumb charades and various other such activities.

Opportunity Cell, IISER Mohali — 2013 - 2015

I was the student coordinator of the institute Opportunity Cell. Our main aim was to provide information and guidance related to summer/ winter internships, PhD positions and research oriented jobs.

Outreach Committee, IISER Mohali — 2013 - 2015

I was a student volunteer of the institute Outreach Committee and had made several presentations. Our main focus was to introduce topics of current scientific research to

school teachers (of the Punjab Government school system) and bring out the connection between learning science and doing science.

MGSA, UofT September 2016 - present

I am a member of the Mathematics Graduate Students' Association, in particular I am a Graduate Planning Committee representative. For the academic year 2018-19, I was appointed the treasurer.

Math Outreach, UofT Winter 2018/ Winter 2019

I am a mentor for the outreach mentor-ship program. I mentored Anna Krokhine for her research project on graph theory and combinatorics in 2018. In 2019, I mentored Maya Bozzo-Rey on her project on Benford's Law.

Women in Math, Toronto Chapter 2019-Present

Female graduate students from schools in and around the Greater Toronto Area have come together for WiM, Toronto Chapter. I am a part of the core team and a mentor for incoming graduate students.

SKILLS

Languages	Bengali (mother tongue) English (fluent) Hindi (fluent)
Software	LaTeX

REFERENCES

Available upon request