

Samprit Ghosh

Curriculum Vitae

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Basic Information

Name Samprit Ghosh
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Homepage <https://www.math.toronto.edu/samprit/>

Education

2017 - **PhD Student**, *Department of Mathematics*, University of Toronto
Supervisor : Prof. V. Kumar Murty. Expected completion : May, 2023.
2016–2017 **MSc in Mathematics**, *University of Toronto*.
2014–2016 **MSc in Mathematics**, *Indian Institute of Technology, Bombay*.
2011–2014 **BSc in Mathematics**, *Ramakrishna Mission Residential College, Narendrapur*.
Affiliated to University of Calcutta .

Research Interests

Number Theory
Arithmetic Geometry
Applications in Cryptography, Privacy and Security of Data

Publications and Research Projects

Current

1. Thesis in preparation. Focus : Study of higher *Euler-Kronecker constants*.
2. *Minimal subfields of Elliptic curves*, submitted. (pre-print available).
3. *Moments of Higher derivatives of the logarithmic derivative of Dirichlet L-functions*, paper in preparation (pre-print available).
4. *Factorization in the semigroup of L-functions and Artin's Conjecture*, paper in preparation.

2020 Research assistant in **Smart Villages** project, under Prof. V. Kumar Murty.
Focus : Encryption and privacy concerns of health related data.

2017 **Masters Project** titled *Class Field theory*
Supervisor : Prof. Kumar Murty

2015-16 **Undergraduate thesis** titled *Topics in Algebraic Curves*
Supervisor : Prof. Sudhir R Ghorpade

- 2015 Research Experiences for Undergraduates (REU) program funded by NSF, USA & IUSSTF at Louisiana State University.
Project title : *L-Functions of the Picard Family of Curves*
Supervisor : Prof. Jerome W. Hoffman
- 2013 Interdisciplinary undergraduate Project at JBNSTS
Project title : *Closed Orbits in Central Potential with Perturbations*
Supervisor : Dr. Sobhan Sounda, Presidency University, Kolkata.

Teaching Experience

Course Instructor

- MAT401 **Polynomial Equations and Fields** : Summer 2022, 2023
MAT246 **Concepts in Abstract Mathematics** : Summer 2021 (online)
MAT223 **Linear Algebra I** : Fall 2019, Summer 2020 (online).
This course was taught in "Active Learning" style.
MAT136 **Calculus II** : Fall 2020 (online), Fall 2021
This course was taught in "Active Learning" style.
MAT135 **Calculus I** : Winter 2023

Course Coordinator

- MAT136 **Calculus II** : Fall 2021

Teaching Assistantships

- MAT401 Polynomial Equations and Fields : Summer 2018, 2019
MAT315 Introduction to Number Theory : Fall 2018, Winter 2019, 2020, 2022
MAT301 Groups and Symmetries : Fall 2017, Summer 2019
MAT247 Algebra II : Winter 2021
MAT240 Algebra I : Fall 2022
MAT223 Linear Algebra : Fall 2016, Winter and Summer 2017
MAT188 Linear Algebra : Fall 2017
MAT185 Linear Algebra for Engineers : Winter 2018

Awards and Fellowships

- 2022 Doctoral Completion Award, School of Graduate Studies, University of Toronto.
2019 Arts & Science Program-level Fellowship, UofT.
2017 Arts & Science Alumni and Friends Graduate Scholarship, UofT.
2016 **Institute Silver Medal** for 1st rank holder in the department, IIT Bombay.
2015 **S N Bose Scholarship**, sponsored by *Indo-US Science and Technology Forum* for a summer research project in USA.
2014 **Institute Gold Medal**, for 1st rank holder in the department, Ramakrishna Mission Residential College, University of Calcutta.

- 2014 **NBHM : National Board of Higher Mathematics MA-MSc Scholarship** sponsored by Govt. of India
- 2014 All India Rank 1 in **Madhava Mathematics Competition**.
- 2012 **INSPIRE : "Innovation in Science Pursuit for Inspired Research"** Fellowship sponsored by *Department of Science and Technology, Govt. of India*.
- 2012 **JBNSTS : Jagadis Bose National Science Talent Search** Scholarship.

Invited talks, Conferences and Summer schools

- 2022 Fields Medal Symposium organized by *The Fields Institute, Toronto*
- 2019 Invited as a speaker in *Smart Villages* conference organized by *The Fields Institute for Research in Mathematical Sciences, Toronto*. [Talk title/abstract](#)
- 2019 Encrypted Search conference organised by ICERM, Brown University, USA.
- 2018 *Strength in numbers* conference organized by Dept of Math. and Stat., Queen's University, Kingston, Canada.
- 2018 Connecticut Summer school in Number Theory organized by University of Connecticut, USA
- 2018 CTNT 2018 conference organized by University of Connecticut, USA.
- 2018 *Smart Villages* conference organized by *The Fields Institute for Research in Mathematical Sciences, Toronto*
- 2016 Fields Medal Symposium organized by *The Fields Institute, Toronto*
- 2015 **Advanced Instructional School** on Analytic Number Theory, at KIIT University. Organised by National Centre for Mathematics, IIT Bombay and TIFR Mumbai.
- 2015 *REU*, summer school organized by Louisiana State university, USA

Miscellaneous Activities and Interests

- 2020-21 Student member, *Graduate Courses Committee*, Department of Mathematics, University of Toronto.
- 2021 Volunteer at Isha Foundation for the University Outreach program. Organize free events on yoga, breathing practices, mindfulness meditation etc for University students.
- 2020 Volunteer **Mentor** to a high school student, part of the **Outreach Program** of Department of Mathematics, University of Toronto.
- 2019-20 Student member, *Graduate Courses Committee*.
- 2019 Learning seminar on *Introduction to Abelian Varieties*.
- 2018 Learning seminar on *Post-quantum cryptography : Isogeny Graphs*.
- 2017 Learning seminar on *Expander Graphs*.
- 2017 Learning seminar on *Class field Theory and Hilbert's 12th Problem*.
- 2015-16 Leader of 'Question and Answer Team' of the (regional) **Mathematics Olympiad 2016** organized by IIT Bombay.
- 2015 Organizer of Advanced Linear Algebra graduate student seminars, IIT Bombay.

Languages Bengali (Native), English (Fluent), Hindi (Fluent), Sanskrit (Intermediate).

(prog.) Python, C++, SageMath, MATLAB, L^AT_EX

Other I have 6 years of experience in playing *Tabla*.

Interests I have developed a keen interest in Indian Philosophy, especially the school of Vedanta. I practice meditation regularly.

Volunteering I volunteer for the <https://www.consciousplanet.org> . One of our current major projects is to bring awareness towards soil degradation and bring worldwide policy changes. #savesoil

References

Teaching

1. **Prof. Joe Repka**, Professor, Associate Chair (Undergraduate), *University of Toronto*. email : repka@math.toronto.edu
2. **Dr. Jason Siefken**, Assistant Professor (Teaching Stream), *University of Toronto*. email : siefkenj@math.toronto.edu
3. **Dr. Jonathan Korman**, Assistant Professor, *University of Toronto*. email : jkorman@math.toronto.edu

Research

1. **Prof. V. Kumar Murty**, Professor and Director, *The Fields Institute for Research in Mathematical Sciences, University of Toronto*. email : murty@math.toronto.edu
2. **Prof. Jacob Tsimmerman**, Professor, *University of Toronto*. email : jacobt@math.toronto.edu
3. **Prof. Arul Shankar**, Professor, *University of Toronto*. email : arul.shnkr@gmail.com