

# SAGNIK MUKHERJEE

**E-mail:** smukherjee@cmi.ac.in

**Contact:** +91 91632 97105

**Nationality:** Indian

## EDUCATION

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### Chennai Mathematical Institute

3 years (112 credits) B.Sc. Hons. in Mathematics & Computer Science

**August, 2019 - April, 2022**

**Total Grade:** 8.95 CGPA

**Grade in Mathematics:** 9.33 CGPA

### Barasat P.C.S. Govt. High School

**2009 - 2019**

West Bengal Board of Secondary Education, 2017

**Percentage:** 93.3%

**Position:** 8<sup>th</sup> in school (~120 students)

West Bengal Council of Higher Secondary Education, 2019

**Percentage:** 94.5%

**Position:** 5<sup>th</sup> in school (~140 students) and 1<sup>st</sup> in the Science stream (~60 students)

## RELEVANT COURSE-WORK

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CMI offers a 3 years, 112 credit B.Sc. in Mathematics and Computer Science. Till the 5<sup>th</sup> semester, I have credited and audited the 20 courses in Mathematics in which I learned the following topics;

- Linear algebra, Groups, Rings, Modules, Fields, Galois theory, Algebraic Number Theory<sup>grad</sup>.
- Real Analysis, Metric Space Topology, Analytic Number Theory, Complex Analysis, Measure theory and functional analysis<sup>grad</sup>.
- Commutative Algebra, Homological Algebra<sup>grad</sup>, Algebraic Curves and Riemann Surfaces<sup>grad</sup>
- Calculus, Differential Equations, Topology, Introduction to Manifolds<sup>grad</sup>

I also credited the following courses on Computer Science;

- Functional Programming (Haskell), Advanced Programming (Python), Object Oriented Programming, Discrete Mathematics,
- Design and Analysis of Algorithms, Theory of Computation, Lambda Calculus.

Additionally, I credited two courses on Physics;

- Classical Mechanics 1
- Classical Mechanics 2

## AWARDS

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### ShriRam Scholarship

**2019**

- Awarded by Chennai Mathematical Institute for performance in the Admission Test for B.Sc. Programme. Institution fee waiver and monthly stipend.

### DST INSPIRE Scholarship

**2019**

- Awarded by INSPIRE, a scholarship facility organized by Department of Science and Technology the Government of India, to student in top 1% in the West Bengal Board of Higher Secondary Examination.

## PAPERS

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(With T. Jaklitsch, T. C. Martinez, S. J. Miller) *Connections of Class Numbers to the Group Structure of Generalized Pythagorean Triples*. [arXiv:2112.03663](https://arxiv.org/abs/2112.03663). Submitted to a Journal.

## MENTORED RESEARCH & READING PROJECTS

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### Polymath Jr. REU

Research on *Number Theory*

June, 2021 - August, 2021

Mentor: Steven J. Miller

### Informal Reading Project

Reading Project on *Vector Bundle, Algebraic Topology*

June, 2021 - September, 2021

Mentor: A.Sawant

### Chennai Mathematical Institute

Reading Project on *Analytic Number Theory*

May, 2020 - July, 2020

Mentor: Purushottam Rath

## CONFERENCES AND DELIVERED TALKS

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### ICCGNFRT 2021

*Connections of Class Numbers to the Group Structure of Generalized Pythagorean Triples*

Kerala School of Mathematics (Virtual)

October, 2021

### Polymath Jr. Research Conference

*Connections of Class Numbers to the Group Structure of Generalized Pythagorean Triples*

Polymath Jr. Program (Virtual)

August, 2021

### Polymath Jr. Student Seminar

*The Furstenberg Topology and Infinitude of Primes*

Polymath Jr. Program (Virtual)

July, 2021

### Analytic Number Theory, Course Presentation

*Euler product for Dirichlet Series*

CMI (Virtual)

October, 2020

## TEACHING EXPERIENCE

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- Teaching Assistant for **Analysis-2** course, instructed by Sukhendu Mehrotra in 2021 Spring, and **Calculus** course, instructed by T.R.Ramadas in Fall 2021 at Chennai Mathematical Institute.
- Teaching at Ramanujan School of Mathematics from January-2020, for National Math Olympiad, various Undergraduate and Graduate Entrances of prestigious universities in India (ISI, CMI, TIFR etc.)

## LANGUAGES

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### Programming/Markup:

- $\text{\LaTeX}$  · C++ · Python · Haskell

### Written/Spoken:

- English (fluent) · Bengali (native) · Hindi (native)

## EXTRACURRICULAR ACTIVITY & OUTREACH PROGRAMS

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### Indian Classical Music:

- Practicing Hindustan Classical Music for more than 15 years. Performed in various prestigious music program.

### Crypt Crash Course

July, 2020

- Arranged 1-2 months virtual crash courses on several topics of Olympiad Mathematics for high school students at a minimal cost. Around 40 students completed this course. One of the students got selected in Indian National Mathematical Olympiad, 2020 and few others got selected in ISI-CMI entrance of 2020 and 2021