

## Education

2019-Present **Indian Institute of Science Education and Research, Kolkata**, *Department of Mathematics & Statistics*,  
Five-year integrated BS-MS Course, major in mathematics & minor in physics  
Current CGPA: 8.7

## Research work

### Geometric and Berezin quantization

Currently working under the supervision of Dr. Rukmini Dey (International Centre for Theoretical Sciences, Bengaluru) on my masters' thesis on the topic of geometric and Berezin quantization.

### Cohomology of graded Lie algebras

Selected for the MITACS Globalink 2023 summer research internship to work under the supervision of Dr. Martin Frankland (University of Regina, Canada). Wrote code to compute the cohomology groups of graded Lie algebras, and made direct contributions to the SageMath software (with code found [here](#) and [here](#).)

### Structure theory of Novikov algebras

Completed a project under the supervision of Dr. Amartya Goswami (University of Johannesburg) which generalizes Jacobson's structure theory of rings to non-associative (Novikov) algebras. Pre-print can be found [here](#).

## Coursework

### Some relevant coursework done as a graduate student

- Algebraic topology (Fundamental group, covering space theory, homology, cohomology)
- Differential geometry (Tangent spaces, integration, differential forms, connections, curvature)
- Quantum field theory (Canonical formalism, path integral formalism, renormalization theory)
- General relativity
- Functional analysis
- Ordinary & partial differential equations
- Commutative algebra

## Publications

### Selected publications

- Dwarkesh, Aditya (2022). *Wilderness & Civilization: A Phenomenological Perspective*. *Filosofie-Tijdschrift*, jr. 32, no. 2.
- Dwarkesh, Aditya & Voleti, Satbhav (2021). *Gödel's Incompleteness Theorems: An Interdisciplinary Review*. In: *Indian Science Cruiser*, Vol 35, No 4, pg 34-50.
- Dwarkesh, Aditya et. al (2020), *A Highschooler's Guide to GeV-Range Electromagnetism*, *The Physics Educator*, Vol. 02, No. 03.
- Dwarkesh, A. (2019). *'Fundamentality' as a Linguistic Paradigm and Linguistics as a Fundamental Paradigm*. In: Aguirre, A., Foster, B., Merali, Z. (eds) *What is Fundamental?*. The Frontiers Collection. Springer, Cham.

## Awards

- May 2018- **Beamline for Schools, European Council for Nuclear Research (CERN)**
- December 2018 ○ Beamline for Schools (BL4S) is a competition in which CERN, the European Organization for Nuclear Research, in Geneva, which invites teams of high-school students to propose a scientific experiment to be performed there.
- December 2018 ○ Secured a top spot and executed our experiment at the T9 beamline of Proton Synchrotron, where we attempted to heuristically reconstruct the Lorentz force equation based on the data gathered from our runs.
- December 2018 **Department of Atomic Energy, Government of India**
- December 2018 ○ Felicitated by Chairman of Bhabha Atomic Research Centre, K.N. Vyas.
- December 2018 ○ Awarded for extraordinary contribution in representing India at European Council of Physics (CERN) BL4S.

August 2017- **Foundational Questions Institute, (FQXi)**

- December 2017 ○ Participated and won a prize in FQXi's 2017 essay contest on the topic of 'What is Fundamental?'
- 2017 ○ Subsequently, the essay was published by Springer as part of a compendium of the winning essays in its 'Frontiers of Science' collection. Link to the [essay](#) and the [book](#).

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## Co-curricular Activities

### Teaching experience

- Teaching assistant for the 'Mathematical Methods II' course in Autumn 2023

April 2022 - **The Mohanpur Circle**

- Ongoing ○ Co-founded a philosophy discussion group which specializes in phenomenology
- Organised various public screenings and weekly discussions in order to generate interest and engagement in these areas

December 2021 **PhilSci India Winter School**

- 2021 ○ Participated as a student in a 5-day winter school program
- Attended talks given by various researchers on topics in the philosophy of science
- Gave a presentation on the last day based on one of the talks attended

June 2021 - **Institute of Philosophy, Zagreb, "In & Out—Questioning the Philosophical Canon"**

- July 2021 ○ Participated as a student and engaged with graduate students and esteemed lecturers in a [summer school](#) which focused on the origin and shortcomings of present-day philosophy's "canon"

2020 **Reading Project**

- Read texts on model theory, first-order logic and automata theory under the supervision of Dr. Mihir Chakraborty

August 2019 **RAD@home, Astronomy Collaboratory, India**

- Was selected to participate in a one day long training session intended to enable young undergraduate students to engage in astronomical observational research at a professional level
- Learned to make multi-wavelength astronomical images by accessing freely available archival data on NASA Skyview

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## Outreach

January 2024 **Department Day, Talk**

- A short talk I gave on my department day in 2024, offering a modern presentation of Noether's theorem. Slides for the same may be found [here](#).

April 2022 **Department Day, Poster Presentation**

- In collaboration with a friend, designed and presented a poster which explains Gödel's incompleteness theorems to the layman. Also found found [here](#).

July **Managing editor, Cogito - The Thought Capsule**, Student-run magazine

- 2020-March ○ Managing editor and occasionally contributing author for the college's official science communication magazine
- 2022 ○ Link to [website](#)

March 2019 **Invited lecturer, Raising a Mathematician (RAMTP)**, National Training Program

- Delivered invited lectures to the students for a day on an introduction to particle physics and helped demonstrate elementary but visually striking physics experiments such as Young's double slit.

2017 **The Eyries and Pyres of Thought, TED Organization**

- Started a newsletter in collaboration with the TED organization and my peers and contributed articles for three issues on the topic of Philosophy.

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## Extracurricular Activities

### 2023

- Wrote a short story published by PS Publishing in the eminent literary critic S.T. Joshi's anthology, *Black Wings VII*.

### 2022

- Gold medalist for a literary club event at IICM 2022, the inter-IISER cultural meet
- Event organiser in LEXIS 2.0, IISER Kolkata's official literary fest

### 2021

- Office bearer of IISER Kolkata's literary club

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## References

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