Dr. Indrajit Ghosh | Curriculum Vitae

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Indian Institute of Technology Kanpur, Uttar Pradesh 208 016, India
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Research Interests

Operator Algebras, von Neumann Algebras, Affiliated Operators, Properly Infinite Factors, C^*-Algebras, Subfactor Theory.

Academic Appointments

Department of Mathematics, Indian Institute of Technology Kanpur — **Kanpur, India**
Institute Postdoctoral Fellow — *Mar 2026 – Present*
Mentor: **Prof. Keshab Chandra Bakshi**

Department of Mathematics, Indian Institute of Technology Madras — **Chennai, India**
Postdoctoral Researcher — *Nov 2025 – Feb 2026*
Mentor: **Prof. Kunal Krishna Mukherjee**
Topic: Operator-theoretic characterization of properly infinite von Neumann algebras.

Education

Theoretical Statistics and Mathematics Unit, Indian Statistical Institute (ISI) — **Bangalore, India**
Doctor of Philosophy (Ph.D.) in Mathematics — *Jul 2019 – Oct 2025*
Thesis: *On Algebraic Aspects and Functoriality of the Set of Unbounded Operators Affiliated with a von Neumann Algebra*
Advisor: Prof. Soumyashant Nayak
Defended: October 15, 2025 • *Awarded:* February 17, 2026

Department of Pure Mathematics, University of Calcutta — **Kolkata, India**
Master of Science (M.Sc.) in Pure Mathematics — *2016 – 2018*

Barasat Government College, West Bengal State University — **Barasat, India**
Bachelor of Science (B.Sc. Hons.) in Mathematics — *2013 – 2016*
First Class Honours in Mathematics.

Honors, Awards & Fellowships

- **Subhash Bhatt Award** (2026), *Indian Mathematical Society (IMS)*.
  Awarded for the research paper *"Algebraic Aspects and Functoriality of the Set of Affiliated Operators"* published in *International Mathematics Research Notices* (IMRN, 2024).
- **NBHM Ph.D. Research Fellowship** (2019), *National Board for Higher Mathematics*, Department of Atomic Energy, Government of India (`Ref. 0203/11/2019-R&D-II/9261`).
- **CSIR-UGC NET Junior Research Fellowship (JRF)** in Mathematical Sciences (Dec 2018), *Council of Scientific and Industrial Research (CSIR)*, Government of India.
- **Graduate Aptitude Test in Engineering (GATE)** in Mathematics (2019), *Government of India*.
- **Junior Research Fellowship (JRF) Offers** (2019): *Indian Statistical Institute (ISI Bangalore)* [accepted], *IIT Madras*, and *IISER Bhopal*.

Publications & Research Output

Peer-Reviewed Journal Articles

[1] **I. Ghosh** and S. Nayak, *Algebraic aspects and functoriality of the set of affiliated operators*, **International Mathematics Research Notices (IMRN)**, Vol. 2024, Issue 21 (Nov 2024), pp. 13525–13562.
DOI:10.1093/imrn/rnae203 | arXiv:2311.16170
Recipient of the Subhash Bhatt Award (2026) by the Indian Mathematical Society.

Preprints & Submitted Manuscripts

[2] **I. Ghosh** and S. Kumar, *Distances Between von Neumann Subalgebras: Spin Models, Commuting Squares, and Free Group Factors*, submitted, arXiv preprint (33 pages), Sep 2026.
arXiv:2609.34856

[3] **I. Ghosh** and S. Kumar, *Kadison–Kastler Distance and Interior Angle for Masas: Connections with Entropy and Probabilistic Index*, submitted, arXiv preprint (28 pages), Sep 2026.
arXiv:2609.38206

[4] K. C. Bakshi and **I. Ghosh**, *Regularity for Subfactors*, submitted, arXiv preprint (18 pages), Sep 2026.
arXiv:2609.10118

[5] **I. Ghosh** and S. Kumar, *A Complete Characterization of Cartan Inclusions of Finite Dimensional C^*-algebras*, submitted, arXiv preprint (16 pages), Aug 2026.
arXiv:2608.11711

[6] K. C. Bakshi, **I. Ghosh**, and S. Kumar, *A Complete Characterization of Regular Inclusions of Finite Dimensional C^*-algebras*, submitted, arXiv preprint (21 pages), Aug 2026.
arXiv:2608.04572

[7] **I. Ghosh** and K. K. Mukherjee, *An Operator Theoretic Characterization of Properly Infinite von Neumann Algebras*, preprint, Feb 2026.

Invited Conference & Seminar Talks

South Asian University — **New Delhi, India**
92nd Annual Conference of The Indian Mathematical Society (IMS 2026) — *Dec 23 – 26, 2026*

Department of Mathematics, Indian Institute of Science Education and Research (IISER) — **Bhopal, India**
IISER Bhopal Operator Theory and Operator Algebras Meet 2026 (OTOAM 2026) — *Sep 18 – 19, 2026*

Theoretical Statistics and Mathematics Unit, Indian Statistical Institute (ISI) — **Delhi, India**
Young Mathematicians in Operator Algebras (YMOA 2025) — *Mar 24 – 28, 2025*

Contributed Conference Presentations

Manipal Institute of Technology — **Bengaluru, India**
41st Annual Conference of Ramanujan Mathematical Society (RMS 2026) — *Jul 02 – 05, 2026*

Department of Mathematics, University of Southern Denmark — **Odense, Denmark**
*Young Mathematicians in C^*-Algebras (YMC*A 2025)* — *Jul 21 – 25, 2025*

VMCC, Indian Institute of Technology Bombay — **Mumbai, India**
Conference on Operator Algebra and Related Topics (COART 2025) — *Feb 24 – 28, 2025*

Platinum Jubilee Auditorium, Indian Statistical Institute — **Bangalore, India**
PDF-RS Annual Symposium 2025 — *Jan 29 – 31, 2025*

Theoretical Statistics and Mathematics Unit, ISI Bangalore — **Bangalore, India**
Workshop on Completely Positive Maps — *Jan 15 – Apr 29, 2024*

Theoretical Statistics and Mathematics Unit, ISI Delhi — **Delhi, India**
Young Mathematicians in Operator Algebras (YMOA 2024) — *Feb 26 – Mar 02, 2024*

Department of Mathematics, CUSAT — **Kerala, India**
International Conference on Spectral and Approximation Theory (ICSAT 2023) — *Nov 27 – 30, 2023*

Conferences, Advanced Schools & Workshops Attended

Indian Statistical Institute — **Delhi, India**
Young Mathematicians in Operator Algebras — *Apr 12 – 18, 2026*

University of Southern Denmark — **Odense, Denmark**
*Young Mathematicians in C^*-Algebras (YMC*A 2025)* — *Jul 21 – 25, 2025*

Indian Statistical Institute — **Delhi, India**
Young Mathematicians in Operator Algebras — *Mar 24 – 28, 2025*

IIT Bombay — **Mumbai, India**
Conference on Operator Algebra and Related Topics (COART 2025) — *Feb 24 – 28, 2025*

Indian Statistical Institute — **Bangalore, India**
Noncommutative Mathematics and Applications (NCMA) — *Oct 24 – 26, 2024*

Indian Statistical Institute — **Delhi, India**
Young Mathematicians in Operator Algebras — *Feb 26 – Mar 02, 2024*

CUSAT — **Kerala, India**
International Conference on Spectral and Approximation Theory (ICSAT) — *Nov 27 – 30, 2023*

IIT Bombay — **Mumbai, India**
Conference on Functional Analysis and Related Topics (CFART 2023) — *Feb 21 – 25, 2023*

International Centre for Theoretical Sciences (ICTS) — **Bangalore, India**
Ergodic Theory and Dynamical Systems — *Dec 05 – 16, 2022*

Banach Center, IMPAN — **Warszawa, Poland (Online)**
Baby Steps Beyond the Horizon — *Aug 29 – Sep 02, 2022*

Teaching Experience & Academic Mentoring

IIT Kanpur — **Kanpur, India**
Teaching Assistant – *MTH112M: Applications of Calculus* (with Prof. D. Sen, Prof. A. Pal) — *Sep 2026 – Present*

IIT Kanpur — **Kanpur, India**
Teaching Assistant – *MTH111M: Calculus I* (with Prof. A. Kuber, Prof. V. S. Chandel) — *Jul 2026 – Sep 2026*

ISI Bangalore — **Bangalore, India**
Teaching Assistant – *Optimization* (BMAT3, 3rd Year B.Math., with Prof. S. Nayak) — *Jan 2025 – Apr 2025*

ISI Bangalore — **Bangalore, India**
Lecturer – *Workshop on Completely Positive Maps* (with G. Maiti, Prof. S. Nayak) — *Jan 2024 – Jun 2024*

ISI Bangalore — **Bangalore, India**
Teaching Assistant – *A Course in Harmonic Analysis* (BMAT3, with Prof. S. Nayak) — *Jan 2024 – Apr 2024*

ISI Bangalore — **Bangalore, India**
Teaching Assistant – *Analysis of Several Variables* (BMAT2, with Prof. M. Joseph) — *Aug 2023 – Nov 2023*

ISI Bangalore — **Bangalore, India**
Teaching Assistant – *Complex Analysis I* (BMAT3, with Prof. M. Joseph) — *Aug 2022 – Nov 2022*

ISI Bangalore — **Bangalore, India**
Teaching Assistant – *Functional Analysis* (MMAT1, 1st Year M.Math., with Prof. S. Nayak) — *Jan 2022 – Apr 2022*

ISI Bangalore — **Bangalore, India**
Teaching Assistant – *Optimization* (BMAT2, with Prof. S. Nayak) — *Sep 2021 – Dec 2021*

Academic References

Prof. Soumyashant Nayak (Ph.D. Thesis Advisor)
Associate Professor, Theoretical Statistics & Mathematics Unit, ISI Bangalore
soumyashant@isibang.ac.in
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Prof. Keshab Chandra Bakshi (Postdoctoral Host / Mentor)
Associate Professor, Department of Mathematics, IIT Kanpur
bakshi@iitk.ac.in
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Prof. Kunal Krishna Mukherjee (Postdoctoral Mentor)
Professor, Department of Mathematics, IIT Madras
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