

Aritra Bhowmick

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Employment

- July 2025 – **Visiting Assistant Professor**, Kerala School of Mathematics, Kozhikode
Present
- May 2024 – **NBHM Postdoctoral Fellow**, Indian Institute of Science, Bangalore
July 2025 *Mentor: Prof. Ved Datar*
- April 2023 – **NBHM Postdoctoral Fellow**, Indian Institute of Science Education and Research,
May 2024 *Kolkata*
Mentor: Prof. Somnath Basu
- February 2022 – **IISER-K Postdoctoral Fellow**, Indian Institute of Science Education and Research,
March 2023 *Kolkata*
Mentor: Prof. Somnath Basu

Education

- June 2015 – **Ph.D. in Mathematics**, Indian Statistical Institute, Kolkata
January 2022 *Thesis: [Horizontal, Contact and Partially Horizontal Immersions in Fat Distributions](#)*
Supervisor: Prof. Mahuya Datta, Submitted: June 2021, Defended: May 2022
- 2013 – 2015 **M.Sc. in Mathematics**, Indian Institute of Technology, Kanpur
- 2010 – 2013 **B.Sc. in Mathematics**, Jadavpur University, Kolkata

Publications

- **Aritra Bhowmick**, Sachchidanand Prasad. *On the Focal Locus of Submanifolds of a Finsler Manifold*. [arXiv:2409.02643](#)
To appear in: Journal of Geometric Analysis
- **Aritra Bhowmick**, Jin-ichi Itoh, Sachchidanand Prasad. *Hausdorff Stability of the Cut Locus Under C^2 -Perturbations of the Metric*. [arXiv:2503.19413](#)
Journal of Mathematical Analysis and Applications, Vol 557, No. 2 (2026)
[DOI: 10.1016/j.jmaa.2025.130324](#)
- Somnath Basu, **Aritra Bhowmick**, Sandip Samanta. *On the James brace product: Generalization, relation to H -splitting of loop space fibrations & the J -homomorphism*.
[arXiv:2401.16206](#)
To appear in: Indiana University Mathematics Journal
- **Aritra Bhowmick**, Sachchidanand Prasad. *On the Cut Locus of Submanifolds of a Finsler Manifold*. [arXiv:2307.11045](#)
Journal of Geometric Analysis, Vol 34, No. 308 (2024)
[DOI: 10.1007/s12220-024-01751-1](#)

- **Aritra Bhowmick**. *The h -principle for maps transverse to bracket-generating distributions*. [arXiv:2205.04323](#)
Pacific Journal of Mathematics, Vol. 330 (2024), No. 2, 207–231
[DOI: 10.2140/pjm.2024.330.207](#)
- **Aritra Bhowmick**, Mahuya Datta. *Existence of Horizontal Immersions in Fat Distributions*. [arXiv:2007.02058](#)
International Journal of Mathematics, Vol. 34, No. 10, 2350056 (2023)
[DOI: 10.1142/S0129167X23500568](#)
- **Aritra Bhowmick**. *On Horizontal Immersions of Discs in Fat Distributions of Type $(4, 6)$* . [arXiv:2003.06565](#)
Journal of Topology and Analysis, Vol. 16, No. 1, pp. 125-153 (2021)
[DOI:10.1142/S1793525321500539](#)
- **Aritra Bhowmick**. *Stability of certain Engel-like distributions*. [arXiv:1808.07714](#)
Czechoslovak Mathematical Journal, Vol. 71, No. 3, pp. 765-784, (2021)
[DOI:10.21136/CMJ.2020.0093-20](#)

Preprints & Manuscripts in Preparation

- **Aritra Bhowmick**, Sachchidanand Prasad, Thomas Schick. *Intersection of the Cut and Focal Loci of a Submanifold*. (in preparation)
- **Aritra Bhowmick**, Sachchidanand Prasad. *Distance from a Finsler Submanifold to its Cut Locus and the Existence of a Tubular Neighborhood*. [arXiv:2411.01185](#) (communicated)

Research Interests

- Differential geometry: cut locus in (sub)Riemannian, Finslerian and Lorentzian geometry; h -principle of distributions; symplectic and contact geometry
- Algebraic topology: higher homotopy invariants; homotopy type of loop spaces; splitting of fibrations with a section

Teaching Experiences

- 2026 Instructor for the [Algebraic Topology II course](#) in the Integrated MSc-PhD program at KSoM
- 2025 Instructor for the [Topology course](#) in the Integrated MSc-PhD program at KSoM
- 2023 Tutor in [AIS Hochschild Homology](#), held at IISER Kolkata
- 2023 TA for Prof. Anandamohan Ghosh for the course MA1202 at IISER Kolkata
- 2022 TA for Prof. Amit Ghosal for the course MA2103 at IISER Kolkata
- 2019 Tutor in [AIS Homotopy Theory](#), held at ISI Kolkata
- 2019 TA for Prof. Samik Basu in Algebraic Topology course for M.Math at ISI Kolkata
- 2017 Tutor in [AIS \$h\$ -Principle](#), held at ISI Kolkata

Invited Talks

- 2024 [Fibration with a Section and \$H\$ -Splitting of the Looped Total Space](#) at International Conference on Differential Geometry and Topology

- 2024 [h-Principle for Maps Transverse to Bracket-Generating Distributions](#) at Knots, Graphs, and Groups online seminar
- 2024 [Cut Locus in Finsler Geometry](#) at Bengal Topology Circle Meeting, IISER Kolkata
- 2023 [Fibration with a Section and H-Splitting of the Looped Total Space](#) at 38th Annual Conference of RMS, IIT Guwahati
- 2023 [h-Principle for Horizontal and Transverse Immersions](#) at Bengal Topology Circle 2023, TCG CREST
- 2022 [h-Principle and the Immersion Theory](#) at IINMM 2022, IISER kolkata

Contributed Talks

- 2024 [Cut Locus of a Submanifold of a Finsler Manifold](#) at IINMM 2024, IISER Thiruvananthapuram
- 2023 [h-Principle for transverse maps](#) at IISER Kolkata DMS In-House Symposium
- 2019 [Bracket Generating Distributions and Horizontal Curves](#) at ISI Kolkata Graduate Seminar
- 2018 [Some Distribution on Manifolds and their Properties](#) at ISI Kolkata Graduate Seminar
- 2018 [The Rigidity Problem for Stable Spaces](#) at ISI Kolkata Topology Seminar
- 2018 [Realization problem for the group of self-homotopy equivalences](#) at ISI Kolkata Topology Seminar
- 2017 [h-Principle and its application](#) at ISI Kolkata Graduate Seminar
- 2015 [Nielsen-Schreier Theorem](#) at ISI Kolkata Graduate Seminar

Seminars and Workshops Attended

- 2025 [NCMW: Recent advances in stable homotopical computations](#) at IIT Roorkee
- 2024 [Discussion Meeting on Zero Mean Curvature Surfaces](#) at ICTS Bangalore
- 2024 [Inter IISER-NISER Mathematics Meet](#) at IISER Thiruvananthapuram
- 2024 [Bengal Topology Circle Meeting](#) at IISER Kolkata
- 2023 [Dualities in Topology and Algebra](#) at ICTS Bangalore
- 2023 [DMS In-House Symposium](#) at IISER Kolkata
- 2023 [Bengal Topology Circle Meeting](#) at TCG CREST
- 2022 [Inter IISER-NISER Mathematics Meet](#) at IISER Kolkata
- 2019 [Topology of manifolds and Representation theory](#) at ISI Kolkata
- 2019 [AIS Homotopy Theory](#) at ISI Kolkata
- 2018 [Young Topologists' Meet](#) at CMI
- 2018 [NCMW Contact and Symplectic Geometry](#) at IISER Bhopal
- 2017 [AIS h-Principle](#) at ISI Kolkata
- 2017 [Differential Geometry and PDEs](#) at IIT Kanpur
- 2017 [ATMW Differential Geometry](#) at IISER Pune
- 2016 [ATMW Algebraic Structures on Manifolds](#) at ISI Kolkata
- 2016 [AIS Algebraic Topology](#) at NEHU Shillong

2016 **AIS Differential Geometry** at IIT Bombay

Academic Visits

January 2026 Visited Dr. Sachchidanand Prasad at IIIT Delhi for a week.
December 2019 Visited Prof. Adi Adimurthi at TIFR CAM, Bangalore for a week.
December 2018 Visited Prof. Dheeraj Kulkarni at IISER Bhopal for 2 weeks.

Honors and Awards

2015 **Shailja Srivastava Award** for the meritorious non-doctoral student entering in final year in Mathematics and Scientific Computing.
2015 **General Proficiency Medal** for the best academic performance in the MSc Programme in Mathematics
2010 – 2015 **INSPIRE Scholarship for Higher Education** during B.Sc and M.Sc.

Computer Skills

- \LaTeX , typst, Jupyter
- Python, JavaScript, C/C++, C#

References

Prof. Mahuya Datta Professor, Theoretical Statistics and Mathematics Unit,
Indian Statistical Institute, Kolkata, India.
mahuya.isi@gmail.com

Dr. Somnath Basu Associate Professor, Department of Mathematics and Statistics,
Indian Institute of Science Education and Research, Kolkata.
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Prof. Thomas Schick Professor, Mathematisches Institut,
Universität Göttingen, Göttingen, Germany.
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Prof. Jin-ichi Itoh Professor, School of Education,
Sugiyama Jogakuen University, Nagoya, Japan.
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Dr. Samik Basu Associate Professor, Theoretical Statistics and Mathematics Unit,
Indian Statistical Institute, Kolkata, India.
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