Kerala School of Mathematics
Kozhikode 673571, Kerala, India

📱 *+91 8900 148 444*
✉ *avowmix@gmail.com*
🌐 *aritrabho.github.io*
✉ *aritra@ksom.res.in*

[ID] [R^G] [8]

Aritra Bhowmick

Employment

July 2025 – Present
Visiting Assistant Professor, *Kerala School of Mathematics*, Kozhikode

May 2024 – July 2025
NBHM Postdoctoral Fellow, *Indian Institute of Science*, Bangalore
Mentor: Prof. Ved Datar

April 2023 – May 2024
NBHM Postdoctoral Fellow, *Indian Institute of Science Education and Research, Kolkata*
Mentor: Prof. Somnath Basu

February 2022 – March 2023
IISER-K Postdoctoral Fellow, *Indian Institute of Science Education and Research, Kolkata*
Mentor: Prof. Somnath Basu

Education

June 2015 – January 2022
Ph.D. in Mathematics, *Indian Statistical Institute, Kolkata*
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, Jin-ichi Itoh, Sachchidanand Prasad. *Hausdorff Stability of the Cut Locus Under C^2-Perturbations of the Metric.* arXiv:2503.19413 (communicated)

○ Aritra Bhowmick, Sachchidanand Prasad. *Distance from a Finsler Submanifold to its Cut Locus and the Existence of a Tubular Neighborhood.* arXiv:2411.01185 (communicated)

○ Aritra Bhowmick, Sachchidanand Prasad. *On the Focal Locus of Submanifolds of a Finsler Manifold.* arXiv:2409.02643 (communicated)

○ 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 (communicated)

○ 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

Research Interests

- Differential geometry: cut locus in (sub)Riemannian and Finslerian 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

2025	Instructor in Topology course for 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 Thiru-vananthapuram

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

2024 Discussion Meeting on Zero Mean Curvature Surfaces at ICTS Bangalore

2024 Inter IISER-NISER Mathematics Meet at IISER Thiruvananthapuram

2024 Begnal 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

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, Jupyter
- Python, JavaScript, C/C++, C#

References

Prof. Mahuya Datta	Professor, Theoretical Statistics and Mathematics Unit, Indian Statistical Institute, Kolkata. mahuya.isi@gmail.com
Dr. Somnath Basu	Associate Professor, Department of Mathematics and Statistics, Indian Institute of Science Education and Research, Kolkata. somnath.basu@iiserkol.ac.in
Prof. Jin-ichi Itoh	Professor, School of Education, Sugiyama Jogakuen University, Nagoya, Japan. j-itoh@sugiyama-u.ac.jp
Dr. Samik Basu	Associate Professor, Theoretical Statistics and Mathematics Unit, Indian Statistical Institute, Kolkata. samikbasu@isical.ac.in