

Samir Panja

POST DOCTORAL FELLOW · STATISTICS AND MATHEMATICS UNIT

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Education

Indian Institute of Technology Bombay

Mumbai, India

PHD MATHEMATICS

2017 - 2023

- Advisor: Bata Krishna Das

Indian Institute of Technology Kanpur

Kanpur, India

MASTER OF SCIENCE IN MATHEMATICS

2014 - 2016

Vidyasagar University (Kharagpur College)

Midnapore, West Bengal, India

BACHELOR OF SCIENCE IN MATHEMATICS

2011 - 2014

Experiences

- JANUARY, 2024 - PRESENT Post Doctoral Fellow
Statistics and Mathematics Unit
Indian Statistical Institute Bangalore Center, Bangalore, India
MENTOR: JAYDEB SARKAR
- JULY - DECEMBER, 2023 Institute Post Doctoral Fellow
Department of Mathematics
Indian Institute of Technology Bombay, Mumbai, India
MENTOR: BATA KRISHNA DAS
- APRIL - JULY, 2023 Research Associate
Department of Mathematics
Indian Institute of Technology Bombay, Mumbai, India
MENTOR: BATA KRISHNA DAS

Area of Specialization

Mathematics: FUNCTIONAL ANALYSIS, COMPLEX ANALYSIS, OPERATOR THEORY, FUNCTION THEORY

Publications and Preprints

- M. Bhattacharjee, B.K. Das, R. Debnath, and **S. Panja**, Dilations and operator models of \mathcal{W} -hypercontractions, *Complex Anal. Oper. Theory* 17 (2023), no. 2, Paper No. 22.
- B.K. Das and **S. Panja**, *Isometric dilation and Sarason's commutant lifting theorem in several variables*, Canadian Journal of Mathematics (to appear), arXiv:2301.09153.
- **S. Panja**, *Factorization of Toeplitz operators*, New York Journal of Mathematics 29 (2023), 848 - 873.
- H. Ahmed, B.K. Das, and **S. Panja**, *de Branges-Rovnyak spaces which are complete Nevanlinna-Pick spaces*, Journal of Geometric Analysis 35 (2025), no. 2, Paper No. 61.

- Sneha B., N. Bala, **S. Panja**, and J. Sarkar, *Lifting and invariant subspaces of Hankel operators*, Publicacions Matemàtiques (to appear), arXiv:2408.13753.
- M. Bhattacharjee, B.K. Das and **S. Panja**, *Factorization of ω -hypercontractions*, Preprint.
- S. Barik, **S. Panja**, and J. Sarkar, *Commutant lifting theorem and Beurling-Lax-Halmos theorem on non-commutative setting*, Preprint.

Awards and Fellowships

- 2023 **Post Doctoral Fellowship**, National Board for Higher Mathematics (NBHM)
- 2017 **Ph. D. Scholarship**, National Board for Higher Mathematics (NBHM)
- 2017 **Ph. D. Scholarship**, Council of Scientific and Industrial Research (CSIR) NET

Conference Talks

- JANUARY, 2025 On “**Which de Branges-Rovnyak Spaces have Complete Nevanlinna-Pick Property?**”, PDF-RS Annual Symposium 2025, Indian Statistical Institute Bangalore Center, India
- MARCH, 2024 On “**Isometric Dilation and Commutant Lifting of Operator Tuples with Defect Zero**”, Conference on National Conference on Operator Theory and Function Spaces, Shiv Nadar University, India
- FEBRUARY, 2023 On “**Isometric Dilation and Sarason’s Commutant Lifting Theorem in Several Variables**”, Conference on Functional Analysis and Related Topics, Department of Mathematics, IIT Bombay, India
- SEPTEMBER 2022 On “**Dilations and Operator Models of \mathcal{W} -hypercontractions**”, International Workshop on Operator Theory and its Applications (IWOTA) at University of Agriculture in Krakow, Poland

Conferences and Workshops Attended

- JANUARY, 2026 Workshop on Noncommutative Analysis and Probability, Department of Mathematics, Indian Institute of Science, Bangalore, India
- FEBRUARY, 2025 Conference on Operator Algebra and Related Topics, Department of Mathematics, IIT Bombay, India
- JANUARY, 2025 PDF-RS Annual Symposium 2025, Indian Statistical Institute Bangalore Center, India

- OCTOBER, 2024 Noncommutative Mathematics and Applications (NCMA), Indian Statistical Institute, Bangalore, India
- MARCH, 2024 National Conference on Operator Theory and Function Spaces, Shiv Nadar University, India
- FEBRUARY, 2023 Conference on Functional Analysis and Related Topics, Department of Mathematics, IIT Bombay, India
- SEPTEMBER 2022 International Workshop on Operator Theory and its Applications (IWOTA) at University of Agriculture in Krakow, Poland
- JULY-DECEMBER 2021 Focus Program on Analytic Function Spaces and Their Applications (Online) at Fields Institute, Canada
- DECEMBER 2019 ATM School workshop on “OPERATOR THEORY” at IIT Kanpur, India
- OCTOBER 2019 Conference on Functional Analysis at IIT Bombay, India

Conferences and Workshops Organized _____

- FEBRUARY, 2023 Conference on Functional Analysis and Related Topics, Department of Mathematics, IIT Bombay, India

Instructor at Indian Statistical Institute _____

- AUTUMN 2024 B Math 3rd year at ISI Bangalore Centre, **Course** : FUNCTION SPACES

Teaching Assistantship at Indian Institute of Technology _____

- SPRING 2018 B.tech 2nd year at IIT Bombay, **Course** : INTRODUCTION TO NUMERICAL ANALYSIS
- AUTUMN 2018 B.tech 1st year at IIT Bombay, **Course** : CALCULUS
- AUTUMN 2019 B.tech 1st year at IIT Bombay, **Course** : LINEAR ALGEBRA
- SPRING 2019 B.tech 1st year at IIT Bombay, **Course** : ORDINARY DIFFERENTIAL EQUATION

- SPRING 2020 B.tech 2nd year at IIT Bombay, **Course** : INTRODUCTION TO NUMERICAL ANALYSIS
- AUTUMN 2020 M.Sc 1st year at IIT Bombay, **Course** : REAL ANALYSIS, ASI
- JUNE 2023 Advanced Instructional School (AIS) at BITS Pilani Goa Campus, **Course** : FUNCTION SPACES, OPERATOR THEORY AND OPERATOR ALGEBRAS
- SPRING 2023 Teaching assistance for B.tech 1st year course at IIT Bombay
Course : CALCULUS

Languages

English, Bengali, Hindi

Computer Skills

LANGUAGE : C++, Python
GRAPHICS AND DESIGN : Latex, Excel, Word, HTML, CSS

References

Dr. Bata Krishna Das
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Department of Mathematics

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Prof. Jaydeb Sarkar
Professor
Statistics and Mathematics Unit

Indian Statistical Institute Bangalore Centre
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Prof. Tirthankar Bhattacharyya
Professor
Department of Mathematics

Indian Institute of Science, Bangalore
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