



# Sandip Samanta

*Integrated PhD In Mathematics, IISER Kolkata*

*"Good things come to people who wait, but better things come to those who go out and get them."*

## Education

- 2021 **Integrated PhD, IISER Kolkata**, Mohanpur, Nadia.  
4th Year, Current CGPA-9.14/10
- **Research area:** Algebraic topology
  - **Supervisor:** Dr. Somnath Basu
- 2018 **B.Sc(Math Honours)**, Kharagpur College (Vidyasagar University), Inda, Kharagpur.  
Hons. Percentage-81.8%
- 2015 **Higher Secondary, Nirmal Hriday Ashram C.C. High School**, Midnapore.  
Percentage-85.8% (West Bengal Council of Higher Secondary Education)
- 2013 **Secondary, Charkaboni High School**, Charkaboni.  
Percentage-84.4% (West Bengal Board of Secondary Education)

## Awards

- 2021 **PMRF, Integrated PhD 4th year.**  
Selected under Prime Minister's Research Fellows Scheme, May 2021
- 2018 **Gold Medalist, Bachelor of Science (Hons.).**  
Ranked first in order of merit among the successful candidates of B.Sc (Hons.) examination in Mathematics.
- 2018 **Sukumari Gupta Smriti Puraskar, Bachelor of Science (Hons.).**  
Awarded for securing highest marks amongst all successful candidates in all honours examination in Arts, Science & commerce.

## Projects Undertaken

- 2019-2021 **IPhD Projects, under Dr. Somnath Basu, IISER Kolkata.**
- Cohomology Ring of Complex Grassmannian
  - Schubert Cells Structure of Complex Grassmannian
  - Morse Theory on Complex Grassmannian
  - Reeb's Theorem using Morse Theory
- 2020 **Trace Theorems in Sobolev Spaces (Report), under Dr. Rajib Dutta, IISER Kolkata**  
(Semester project in PDE and Distribution Theory).
- 2020 **Closed Orientable Surfaces of Genus atleast 2 Admit Metrics Of Constant Negative Curvature (Report), under Dr. Somnath Basu, IISER Kolkata** (Semester Project in Riemannian Geometry).

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## Talks

- 2018 **Hypocycloid and Trace of Special Unitary Matrices (Seminar)**, IISER Kolkata, under Dr. Somnath Basu, IISER Kolkata.
- 2021 **Introductory workshop on GeoGebra**, Coordinator and Resource person.  
Online

## Courses

Algebra	Linear Algebra, Groups, Rings, Fields, Commutative Algebra, Lie Algebra
Topology and Geometry	Topology, Geometry of Curves and Surfaces, Algebraic Topology, Differential Geometry, Riemannian Geometry
Analysis	Multivariable Analysis, Measure Theory, Functional Analysis, Fourier Analysis, Complex Analysis, Numerical Analysis, Vector Analysis
Miscellaneous	Graph Theory, ODE, PDE and Distribution Theory, Probability and Statistics, Statics and Dynamics, Modelling

## Teaching Experience

- 2020 Autumn Semester **Teaching Assistant in Analysis I**, 2nd year Undergraduate, IISER Kolkata.  
Conducted weekly Tutorial Sessions and evaluated Quizzes and Assignments  
• **Instructor:** Dr. Soumya Bhattacharya
- 2021 spring Semester **Teaching Assistant in Analysis II**, 2nd year Undergraduate, IISER Kolkata.  
Conducted weekly Tutorial Sessions and evaluated Assignments  
• **Instructor:** Dr. Sushil Ghorai
- 2021 Autumn Semester **Teaching Assistant in Linear Algebra I**, 2nd year Undergraduate, IISER Kolkata.  
Conduct weekly Tutorial Sessions and evaluate Quiz  
• **Instructor:** Dr. Somnath Basu

## Area of Interests

Algebraic Topology	Homotopy theory, $A_\infty$ spaces and algebra.
Differential Topology	Morse Theory, Vector Bundles.

## Declaration

I hereby declare that the above mentioned information is correct up to my knowledge and I bear the responsibility for the correctness of the above mentioned particular.

Place : IISER Kolkata

Date : November 10, 2021

*Sandip Samanta*