



Name: SIDDHARTHA BANERJEE

Designation: ASSISTANT PROFESSOR (ON CONTRACT) IN MATHEMATICS

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Biographical Sketch

I have completed my Bachelor in Mathematics from S.A. Jaipuria College under Calcutta University. I have done my Masters in Mathematics from Jadavpur University. I am currently pursuing Ph.D. degree under the joint supervision of Prof. Sujit Kumar Sardar of Mathematics Department, Jadavpur University, and Dr. Abhishek Mukherjee Associate Prof. of Kalna College. My areas of interest are Algebras, Fields, Knots, Graphs.

Areas of Specialisation and Research

In mathematics, racks and quandles are algebraic structures featuring binary operations that mirror the Reidemeister moves used to manipulate knot diagrams. While crucial for deriving knot invariants, they also stand as independent mathematical constructs. A quandle, specifically, formalizes the properties of conjugation in a group.

We study simpler invariants that can be derived by counting homomorphisms from a knot quandle to a fixed quandle. Racks generalize quandles, allowing for the representation of twisted ribbons in topology. We have studied quandles arising from rings and modules.

Teaching Experience

I have taught in Jadavpur University to Engineering students mathematics.

Publications

Article published in Peer-reviewed journals

(2025) On some new oriented Singquandles and their shadows, Abhishek Mukherjee, Sujit Kumar Sardar, and Siddhartha Banerjee, Journal of Knot Theory and Its Ramifications <https://doi.org/10.1142/S0218216525500506>