Sriharsha Indukuri

Graduate Student · Mathematics

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Education

Washington University in St.Louis — *St.Louis, Missouri*

Ph.D. Mathematics — *August 2024 - present*

- Advisor: Prof. Xiang Tang

Indian Institute of Technology, Bombay — *Mumbai, Maharashtra*

Ph.D. Mathematics — *August 2023 - May 2024*

- Prime Minister's Research Fellow
- NPTEL PMRF Teaching Assistant

National Institute of Science Education and Research — *Bhubaneswar, Orissa*

Integrated M.Sc. Mathematics — *July 2018 - May 2023*

- Master's Thesis Advisor: Dr. Sutanu Roy
- CGPA : 8.71 (out of 10)
- Minor: Computer Science

Research Interests

Broad interests: Operator Algebras, Geometry, Topology, and K-Theory.

Seminar Courses / Research Projects

Asymptotics of Weyl's Law , Fall 2023 (https://arxiv.org/abs/2407.05274)

Weyl's law describes the asymptotic behavior of eigenvalues of the Laplacian on a compact Riemannian manifold. We are investigating whether the remainder term can be improved for a certain class of Riemannian manifolds.
(joint work with Ritwik Mukherjee, Anupam Pal Choudhury)

Topological K-Theory, Fredholm Operators and their Index , Fall 2022 - Spring 2023, (Master's Thesis)

Definition of complex K-Theory of topological spaces and how it extends to an arbitrary C^*-algebra, Bott Periodicity, bounded Fredholm Operators on a separable Hilbert space, their index and how they relate to the K-theory of a topological space through a result known as the Atiyah-Janich theorem

Introduction to Hilbert C^*-Modules , Spring 2022

Studied a generalization of Hilbert Spaces called Hilbert Modules and their properties and a description of the Multiplier Algebra of a C^*-algebra using the Hilbert module structure of the C^*-algebra.

Fourier Analysis of Functions on S^1, $\mathbb{R}$ and Finite Abelian Groups , Fall 2021

Introduced to Fourier Series of periodic functions, Fourier transform of real-valued functions on $\mathbb{R}$ and of functions defined on finite abelian groups; eventually led to the "Pontryagin Dual".

Achievements/Scholarships

2023	**Prime Minister's Research Fellowship (PMRF)**, Ministry of Human Resource Development, India
2023	**Best Master's Thesis (Mathematics), for thesis titled "Topological K-Theory and Beyond"**, School of Mathematical Sciences, NISER
2023	**Qualified GATE Mathematics**, Top 1 percentile in India
2022	**Qualified CSIR-UGC-NET in Mathematics for Junior Research Fellowship**, Top 1 percentile in India
2018	**JEE Advanced**, Top 5 percentile in India
2018-2023	**DISHA Scholarship**, Department of Atomic Energy, India
2015	**BSE International Finance Olympiad, Silver Medal**, Ranked in top 20 of the country and was invited to the Bombay Stock Exchange to participate in the finals

Teaching Experience

Fourier Analysis and Its Applications *NPTEL*
PMRF Teaching Assistant *Jan 2024 - April 2024*