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Work Experience

- July 2022 - **Associate Professor**
Indian Institute of Science Education and Research (IISER) Bhopal
- 2012 - 2022 **Assistant Professor**
Indian Institute of Science Education and Research (IISER) Bhopal
- 2008 - 2012 **Research Assistant (Part-time/Full-time)**
Purdue University, West Lafayette, IN
- 2005 - 2012 **Teaching Assistant**
Purdue University, West Lafayette, IN

Education

- 2005 - 2012 **Ph.D. in Mathematics**
Purdue University, West Lafayette, IN
ADVISOR: Prof. Marius Dădărlat
THESIS: *Invariants of Continuous fields of C^* -algebras*
- 2003 - 2005 **M.Sc. in Mathematics**
Indian Institute of Technology Madras, Chennai
ADVISOR: Prof. S.H. Kulkarni
THESIS: *Positive Operators on Riesz Spaces*
- 2000 - 2003 **B.Sc. in Mathematics**
University of Madras, Chennai

Books

- 2023 **Functional Analysis**
PUBLISHER: *Cambridge University Press*
RELEASE: *June 2023*
ISBN-13: *978-1009243902*

2022 Adaption of I.N. Herstein's *Topics in Algebra*
PUBLISHER: *Wiley India Pvt Ltd.*
RELEASE: *February 2022*
ISBN-13: *978-9354641688*

Research

Research Interests

Operator Algebras and their K-theory

Publications & Preprints

- 2024 Rokhlin Dimension and Inductive Limit Actions on AF-algebras (with Sureshkumar M)
(*Under Review*)
<https://arxiv.org/abs/2405.17380>
- 2023 Rokhlin Dimension: Permanence Properties and Ideal Separation (with Sureshkumar M)
(*to appear in Groups, Geometry and Dynamics*)
<https://arxiv.org/abs/2305.06675>
- 2023 K-stability of AT-algebras (with Apurva Seth)
(*Journal of Mathematical Analysis and Applications Vol 52, Issue 2 (2023)*)
<https://doi.org/10.1016/j.jmaa.2022.126957>
- 2023 Rational K-stability of Continuous $C(X)$ -algebras (with Apurva Seth)
(*Journal of the Australian Mathematical Society, 115 (1) (2023), p. 119-144*)
<https://doi.org/10.1017/S144678872200009X>
- 2022 Rokhlin Dimension and Equivariant Bundles
(*Journal of Operator Theory 87:2 (2022), p. 487-509*)
<https://doi.org/10.7900/jot.2020oct27.2314>
- 2021 Homotopical Stable Ranks for certain C^* -algebras associated to groups (with Anshu Nirbhay)
(*Studia Mathematica 261 (2021), p. 307-328*)
<https://doi.org/10.4064/sm200601-17-11>
- 2020 AF-algebras and Rational Homotopy Theory (with Apurva Seth)
(*New York Journal of Mathematics 26 (2020), p. 931-949*)
<https://nyjm.albany.edu/j/2020/26-40p.pdf>
- 2020 K-stability of Continuous $C(X)$ -algebras (with Apurva Seth)
(*Proc. Amer. Math. Soc. 148 (2020), p. 3897-3909*)
<https://doi.org/10.1090/proc/15035>

- 2019 Homotopical Stable Ranks for Certain C^* -algebras
(*Studia Mathematica* 247 (3) (2019), p. 299-328)
<https://doi.org/10.4064/sm180222-6-5>
- 2018 Roots of Dehn Twists about Multicurves (with Kashyap Rajeevsarathy)
(*Glasgow Mathematical Journal* 60 (3) (2018), p. 555-583)
<https://doi.org/10.1017/S0017089517000283>
- 2014 E-theory for $C[0,1]$ -algebras with finitely many singular points (with Marius Dădărlat)
(*Journal of K-Theory* 13 (2) (2014), p. 249-274)
<https://doi.org/10.1017/is013012029jkt252>

Projects & Funding

- 2020 - 2023 SERB MATRICES Grant MTR/2020/000385
TITLE: *Nonstable K-theory for C^* -algebras*
AMOUNT: ₹ 6,60,000/-
- 2016 - 2019 SERB (DST) Grant YSS/2015/001060
TITLE: *Classification of Continuous Fields of C^* -algebras*
AMOUNT: ₹ 15,24,600/-

Mentorship

PhD Students

- 2024 - Agaja Narayanan
- 2022 - Sureshkumar M
- 2018 - 2022 Apurva Seth
THESIS TITLE: *Nonstable K-theory for C^* -algebras*
- 2017 - 2021 Anshu
THESIS TITLE: *Homotopical Stable Ranks for C^* -algebras*

BS-MS Project Students

- 2023-24 Sarthak Dash
PROJECT TITLE: *Composition Operators*
- 2023-24 Sanjeet Kumar Sahoo
PROJECT TITLE: *Choquet Theory*
- 2022-23 Yashvardhan Singh

	PROJECT TITLE: <i>Spectral Theorem for Normal Operators</i>
2021-22	Adarsh Tayade
	PROJECT TITLE: <i>C*-Algebras of Amenable Groups</i>
2020-21	Lalatendu Keshari Nayak
	PROJECT TITLE: <i>Compact and Fredholm Operators</i>
2019-20	Sreshta V
	PROJECT TITLE: <i>Topological Degree and Fixed Point Theorems</i>
2017-18	Maya Verma
	PROJECT TITLE: <i>Complex Topological K-theory</i>
2016-17	Shubham Namdeo
	PROJECT TITLE: <i>The Peter-Weyl Theorem</i>
2015-16	Vishnu Iyer
	PROJECT TITLE: <i>Fredholm Operators</i>
2014-15	Sudhanshu Shrivastava
	PROJECT TITLE: <i>Amenable Groups</i>

Post-Doctoral Researchers

2024 -	Bharat Talwar
2023 - 2024	Lav Kumar Singh

Teaching Experience

Courses at IISER Bhopal

Sem II, 2023-24	MTH 202 : Probability and Statistics
Sem I, 2023-24	MTH 311 : Advanced Linear Algebra
Sem II, 2022-23	MTH 308 : Combinatorics and Graph Theory
Sem I, 2022-23	MTH 503 : Functional Analysis
Sem II, 2021-22	MTH 304 : General Topology
Sem II, 2020-21	MTH 603 : Real Analysis
Sem I, 2020-21	MTH 311 : Advanced Linear Algebra
Sem II, 2019-20	MTH 614 : Functional Analysis
Sem I, 2019-20	MTH 101 : Calculus of One Variable*

Sem II, 2018-19	MTH 510 : Operator Theory and Operator Algebras
Sem II, 2018-19	MTH 202 : Probability and Statistics (Tutor)
Sem I, 2018-19	MTH 301 : Group Theory*
Sem II, 2017-18	MTH 304 : General Topology*
Sem I, 2017-18	MTH 503 : Functional Analysis*
Sem II, 2016-17	MTH 410 : Representation Theory*
Sem II, 2016-17	MTH 102 : Linear Algebra (Tutor)
Sem I, 2016-17	MTH 401 : Fields and Galois Theory*
Sem II, 2015-16	MTH 202 : Probability and Statistics
Sem I, 2015-16	MTH 503 : Functional Analysis*
Sem I, 2015-16	MTH 101 : Calculus of One Variable (Tutor)
Sem II, 2014-15	MTH 510 : Operator Theory and Operator Algebras
Sem II, 2014-15	MTH 202 : Probability and Statistics* (Tutor)
Sem I, 2014-15	MTH 401 : Fields and Galois Theory*
Sem I, 2014-15	MTH 201 : Multi-Variable Calculus* (Tutor)
Sem II, 2013-14	MTH 302 : Modules*
Sem II, 2013-14	MTH 202 : Probability and Statistics* (Tutor)
Sem I, 2013-14	MTH 301 : Groups and Rings*
Sem I, 2013-14	MTH 101 : Calculus of One Variable* (Tutor)
Sem II, 2012-13	MTH 404 : Measure and Integration
Sem I, 2012-13	MTH 101 : Calculus of One Variable*

*: Received a letter of appreciation from Director, IISER Bhopal for exemplary teaching.

Courses at Purdue University

Fall 2011	MA 503 : Abstract Algebra (Tutor)
Spring 2011	MA 220 : Introduction to Calculus
Spring 2011	MA 553 : Introduction to Abstract Algebra (Grader)
Spring 2010	MA 220 : Introduction to Calculus
Spring 2009	MA 224 : Introductory Analysis II
Spring 2008	MA 139 : Mathematics for Elementary Teachers III
Fall 2007	MA 223 : Introductory Analysis I
Summer 2007	MA 223 : Introductory Analysis I

Spring 2007	MA 153 : Algebra and Trigonometry I
Fall 2006	MA 166 : Analytic Geometry and Calculus II (Tutor)
Spring 2006	MA 162 : Plane Analytic Geometry and Calculus II (Tutor)
Fall 2005	MA 261 : Multivariate Calculus (Tutor)

Other Teaching

June 2024	Measure Theory (<i>Advanced Foundation School (AFS-II), IISER Bhopal</i>)
June 2023	K-theory for C^* -algebras (<i>NCM School on Function Spaces, Operator Theory, and Operator Algebras, BITS Goa</i>)
Summer 2021	K-theory for C^* -algebras (<i>Summer Internship Course, IISER Bhopal</i>)
July 2019	K-theory for C^* -algebras (<i>NCM School on Operator Algebras, IISER Bhopal</i>)
Dec 2018	Complex Analysis (<i>Advanced Foundation School (AFS-I), IISER Bhopal</i>)
Dec 2014	Galois Theory (<i>Winter School, IISER Bhopal</i>)
May 2014	Measure Theory (Level II) (<i>Mathematics Training and Talent Search (MTTS) Programme, REI Mysore</i>)

Achievements & Awards

2024	Distinguished Teacher Award at IISER Bhopal (for MTH311)
2020	Distinguished Teacher Award at IISER Bhopal (for MTH101)
2009	Graduate Student Award for Outstanding Teaching from Purdue
2008	Teaching Assistant Peer Mentor in the Maths Department at Purdue
2007	Outstanding Graduate Instructor Award from the Maths Department at Purdue

Talks & Conferences

Invited Talks

Oct 2023	Expander Graphs and Groups (<i>MTTS Curry Leaf (online)</i>)
Feb 2023	Rokhlin Dimension and Equivariant Bundles (<i>IIT Bombay</i>)
Dec 2022	Korovkin's Theorem (<i>IWM Workshop, VNIT Nagpur</i>)
Dec 2020	Rokhlin Dimension and Equivariant Bundles (<i>35th RMS Conference</i>)
Dec 2020	Rokhlin Dimension for Group Actions (<i>WOTOA Seminars</i>)
July 2020	Stable Ranks of C^* -algebras and Rokhlin actions (<i>I/NISER Webmeet</i>)

Jan 2020	Nonstable K-theory for C*-algebras (<i>NISER Bhubaneswar</i>)
Dec 2018	Connected Stable Ranks of C*-algebras (<i>ISI Bangalore</i>)
Jan 2018	Homotopical Stable Ranks of C*-algebras (<i>NISER Bhubaneswar</i>)
Oct 2017	General Stable Rank for C*-algebras (<i>IIT Bombay</i>)
Feb 2017	Dimension Functions and the Radius of Comparison for C*-algebras (<i>IMSc Chennai</i>)
Sept 2014	Classification of Continuous Fields of C*-algebras (<i>IMSc Chennai</i>)
Dec 2013	E-theory for Continuous fields of C*-algebras (<i>IISc Bangalore</i>)
June 2013	Classification of $C(X)$ -algebras (<i>IIT Kanpur</i>)
May 2012	Continuous fields of C*-algebras (<i>IISER Bhopal</i>)
Jan 2012	E-theory for Continuous Fields of C*-algebras (<i>AMS JMM, Boston</i>)

Conferences & Workshops Organized

July 2019	NCM Workshop on Operator Algebras, Quantum Groups and Non-commutative Geometry 2019 (<i>IISER Bhopal</i>)
March 2014	Conference on Harmonic Analysis and Operator Theory (<i>IISER Bhopal</i>)

Conferences & Workshops Attended

June 2023	NCM Workshop on Function Spaces, Operator Theory, and Operator Algebras (<i>BITS, Goa</i>)
Feb 2023	Conference on Functional Analysis and Related Topics (<i>IIT Bombay</i>)
Dec 2022	IWM Regional Workshop (<i>VNIT Nagpur</i>)
Dec 2020	35 th Annual Ramanujan Math Society Conference (<i>Online - Organized by Central University, Rajasthan</i>)
July 2020	IISER/NISER Webmeet (<i>Online - Organized by IISER Mohali</i>)
Jan 2020	Noncommutative Geometry and Applications 2020 (<i>NISER Bhubaneswar</i>)
Dec 2018	Recent Advances in Operator Theory and Operator Algebras 2018 (<i>ISI Bangalore</i>)
Jan 2018	Conference on Quantum Groups and NonCommutative Geometry (<i>NISER Bhubaneswar</i>)
Oct 2017	Conference on Functional Analysis 2017 (<i>IIT Bombay</i>)
Feb 2017	Non-Commutative Analysis 2017 (<i>IMSc Chennai</i>)
Dec 2016	School on K-Theory and its Applications (<i>ISI Bangalore</i>)

Dec 2016	Recent Advances in Operator Theory and Operator Algebras 2016 (<i>ISI Bangalore</i>)
Dec 2014	Recent Advances in Operator Theory and Operator Algebras 2014 (<i>ISI Bangalore</i>)
Dec 2013	International Workshop on Operator Theory and its Applications 2013 (<i>IISc, Bangalore</i>)
Jan 2012	AMS Joint Mathematics Meeting (<i>Boston</i>)
Oct 2011	9th Annual East Coast Operator Algebras Symposium (<i>Purdue</i>)
2008 - 2012	Wabash Modern Analysis Seminar (<i>Wabash College</i>) (4 times a year)
2008 - 2012	Wabash Annual Miniconference (<i>IUPUI Indianapolis</i>)
Summer 2009	Focused Semester on KK-Theory (<i>University of Münster, Germany</i>)
Oct 2008	6th Annual East Coast Operator Algebras Symposium (<i>Penn State</i>)

Administration & Service

At IISER Bhopal

2024 -	Member, Department Faculty Affairs Committee, Math Department
2022 - 2024	Head, Department of Mathematics
2022	Convener, M.Sc. Selection Committee, Mathematics Department
2021 - 2022	Member, Teaching & Learning Committee, Center for Science & Society
2021	Convener, Organizing Committee, Math Dept In-House Symposium
2021	Convener, PhD Selection Committee, Mathematics Department
2020	Convener, PhD Analysis Comprehensive Exam Committee, Math Dept
2020	Member, M.Sc. Program Committee, Math Department
2020	Convener, Math Learning Centre Committee, Math Department
2014 - 2020	Member, IPhD Selection Committee, Math Department (Many times)
2020 - 2022	Convener, Analysis Group, Math Department
2020	Member, Institute Online Diploma Committee
2020	Member, Institute Academic Committee
2020 - 2022	Member, Ranking Committee
2018	Convener, Organizing Committee, Math Dept In-House Symposium
2018	Convener, PhD Selection Committee, Mathematics Department
2017	Convener, PhD Analysis Comprehensive Exam Committee, Math Dept

2017 - 2020	Convener, Math Department Post-Graduate Committee
2017	Convener, Organizing Committee, Math Dept In-House Symposium
2017	Panel Member, KVPY Interviews
2015 - 2019	Local Coordinator, GIAN Program
2015	Convener, PhD Selection Committee, Mathematics Department
2012 - 2020	Member, PhD Selection Committee, Math Department (Many times)
2014 - 2020	Nodal Officer, Global Ranking Systems
2013	Convener, PhD Selection Committee, Math Department
2014	Local Coordinator, KVPY Interviews
2012 - 2014	Faculty-in-Charge, Career Development Centre
2013	Local Coordinator, KVPY Interviews
2012 - 2015	Chairperson, Council of Wardens

At Purdue

2009 - 2010	Organized the Student Operator Algebras Seminar at Purdue
2009, 2010	Assisted in the Orientation Program for Teaching Assistants at Purdue
2008 - 2009	Graduate Student Representative of the Maths Department at Purdue

Refereeing & Reviewing

2023	Topology and its Applications
2022	Rocky Mountain Journal of Mathematics
2021	Journal of Operator Theory
2021	Studia Mathematica
2019	Journal of the Ramanujan Mathematical Society
2019	Springer Publishing, India
2018	Banach Journal of Mathematical Analysis
2020 -	AMS MathSciNet Reviews
2018 -	ZbMath Reviews

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