

Subhadip Dey

Tata Institute of Fundamental Research
Homi Bhabha Road, Colaba, Mumbai 400005

mathweb.tifr.res.in/~subhadip/
subhadip@math.tifr.res.in

ACADEMIC APPOINTMENTS

Reader (tenure-track), Tata Institute of Fundamental Research, Mumbai	2025 - current
Postdoctoral Fellow , Max Planck Institute for Mathematics in the Sciences, Leipzig	2024 - 2025
Gibbs Assistant Professor , Yale University	2020 - 2024

EDUCATION

Ph.D in Mathematics University of California, Davis Advisor: Michael Kapovich Thesis: <i>Discrete isometry groups of symmetric spaces of noncompact type</i>	2015 - 2020
Master of Mathematics, with distinction Indian Statistical Institute, Bangalore Centre	2013 - 2015
Bachelor of Mathematics (Honours) Indian Statistical Institute, Bangalore Centre	2010 - 2013

RESEARCH INTERESTS

Discrete subgroups of Lie groups, Geometric group theory, Manifolds of non-positive curvature

PUBLICATIONS

Preprints

1. S. Dey, H. Oh, *Fractal failures of Ratner rigidity in higher rank geometry*. [[arxiv:2509.17915](https://arxiv.org/abs/2509.17915)]
2. S. Dey, K. Tsouvalas, *Anosov representations of amalgams*. [[arxiv:2504.21802](https://arxiv.org/abs/2504.21802)]
3. S. Dey, D. M. Kim, H. Oh, *Ahlfors regularity of Patterson-Sullivan measures of Anosov groups and applications*. [[arxiv:2401.12398](https://arxiv.org/abs/2401.12398)]

Published/Accepted

4. S. Dey, H. Oh, *Deformations of Anosov subgroups: limit cones and growth indicators*
J. Lond. Math. Soc., 112(3):e70280, 2025 [[arxiv:2411.04020](https://arxiv.org/abs/2411.04020)]
5. S. Dey, B. Liu, *Rigidity of convex co-compact diagonal actions*
Groups Geom. Dyn., to appear [[arxiv:2408.03462](https://arxiv.org/abs/2408.03462)]
6. S. Dey, S. Hurtado, *Remarks on discrete subgroups with full limit sets in higher rank Lie groups*. **Int. Math. Res. Not. IMRN**, 2025(17):rnaf268, 2025 [[arxiv:2405.10209](https://arxiv.org/abs/2405.10209)]
7. S. Dey, Z. Greenberg, J.M. Riestenberg, *Restrictions on Anosov subgroups of $\mathrm{Sp}(2n, \mathbb{R})$*
Trans. Amer. Math. Soc., 377(10):6863–6882, 2024 [[arxiv:2304.13564](https://arxiv.org/abs/2304.13564)]
8. S. Dey, M. Kapovich, *Klein-Maskit combination theorem for Anosov subgroups: Amalgams*
J. Reine Angew. Math. (Crelle), 819:1–43, 2025 [[arxiv:2301.02354](https://arxiv.org/abs/2301.02354)]
9. S. Dey, *On Borel Anosov subgroups of $\mathrm{SL}(d, \mathbb{R})$*
Geom. Topol., 29(1):171–192, 2025 [[arxiv:2208.02109](https://arxiv.org/abs/2208.02109)]
10. S. Dey, B. Liu, *Complex hyperbolic Kleinian groups of large critical exponents*
J. Differential Geom., 128(3):1027–1036, 2024 [[arxiv:2205.05127](https://arxiv.org/abs/2205.05127)]

11. S. Dey, M. Kapovich, *Klein-Maskit combination theorem for Anosov subgroups: free products* **Math. Z.**, 305(2):35, 2023 [[arxiv:2205.03919](#)]
12. S. Dey, M. Kapovich, *A note on complex-hyperbolic Kleinian groups* **Arnold Math. J.**, 6(3-4):397–406, 2020 [[arxiv:2001.04012](#)]
13. S. Dey, M. Kapovich, *Patterson-Sullivan theory for Anosov subgroups* **Trans. Amer. Math. Soc.**, 375(12):8687–8737, 2022 [[arxiv:1904.10196](#)]
14. S. Dey, M. Kapovich, B. Liu, *Ping-pong in Hadamard manifolds* **Münster J. Math.**, 12(2):453–471, 2019 [[arxiv:1806.07020](#)]
15. S. Dey, M. Kapovich, B. Leeb, *A combination theorem for Anosov subgroups* **Math. Z.**, 293(1-2):551–578, 2019 [[arxiv:1805.07374](#)]
16. S. Dey, *Spherical Metrics with Conical Singularities on 2-Spheres* **Geom. Dedicata**, 196(1):53–61, 2018 [[arxiv:1704.04823](#)]

TEACHING EXPERIENCE

As the Instructor of Record

Yale

Graduate courses

- 526: Introduction to Differentiable Manifolds *Fall 2023*
- 719: Introduction to Anosov Subgroups (topic course) *Fall 2022*
- 544a: Algebraic Topology *Fall 2020 & 2022*

Undergraduate courses

- 225: Linear Algebra *Spring 2023 & 2024*
- 240: Advanced Linear Algebra *Spring 2022*
- 120b: Vector Calculus *Spring & Fall 2021*

UC Davis

Undergraduate courses

- 108: Introduction to Abstract Mathematics *Summer 2018*
- 21B: Calculus *Summer 2017*
- 16B: Short Calculus *Summer 2016*

As a Teaching Assistant

- *MSRI program*: “Random and arithmetic structures in topology” *June 10-21, 2019*
(organizers: Alex Furman & Tsachik Gelander)
- *UC Davis (2015-2020)*: Short Calculus (16B & 16C), Calculus (21A, 21B & 21C), Linear Algebra (22A), Real Analysis (125B, 127A & 127B), Euclidean Geometry (141), Introduction to Abstract Mathematics (108).

AWARDS AND FELLOWSHIPS

- UC Davis Dissertation Year Fellowship, UC Davis *2019 - 2020*
- Graduate Program Fellowship *2015 - 2018 & Spring 2019*
Department of Mathematics, UC Davis
- Math department travel award, UC Davis *2019*
- Alice Leung Scholarship, Department of Mathematics, UC Davis *2018*
- NBHM Scholarship, Department of Atomic Energy, Govt. of India *2010 - 2013*
- Visiting Students’ Research Programme, TIFR, Mumbai *Summer 2013*
- Summer Research Fellowship, Indian Academy of Sciences *Summer 2012*
- Indian National Mathematical Olympiad (INMO) *2010*

INVITED TALKS

Seminars

- *Colloquium, Ashoka University Nov 18, 2025
- Colloquium, Tata Institute of Fundamental Research Oct 16, 2025
- Geometry Seminar, MPI Leipzig Apr 15, 2025
- Groups, Dynamics & Topology seminar, Jagiellonian University Jan 29, 2025
- Group Actions, Geometry and Dynamics, Yale Nov 11, 2024
- Colloquium, Tata Institute of Fundamental Research Mar 21, 2024
- Group Actions, Geometry and Dynamics, Yale Feb 26, 2024
- Topology seminar, Michigan State University Feb 20, 2024
- Group Actions, Geometry and Dynamics, Yale Feb 5, 2024
- Geometry seminar, U. Michigan, Ann Arbor Sep 22, 2023
- Geometry & Topology seminar, CUNY Graduate Center Sep 12, 2023
- Geometric Group Theory and Topology Seminar, Tufts Apr 4, 2023
- Group Actions, Geometry and Dynamics, Yale Mar 27, 2023
- Geometry Seminar, U. Virginia Oct 18, 2022
- Geometry & Topology seminar, New Mexico State University Oct 14, 2022
- Group Actions and Dynamics Seminar, Yale Sep 26, 2022
- Topology/Geometry Seminar, Rutgers Apr 12, 2022
- Geometry Topology Seminar, Georgia Tech Jan 31, 2022
- Geometry & Topology Seminar, Yale Dec 8, 2020
- Random Geometry Seminar, Tata Institute of Fundamental Research Dec 7, 2020
- Dynamics Seminar, UW Madison Nov 11, 2020
- Group Actions and Dynamics Seminar, Yale Nov 2, 2020
- Geometry/Topology Seminar, UC Davis Apr 28, 2020
- Number Theory Seminar, Rutgers Jan 28, 2020
- Student-Run Research Seminar, UC Davis Nov 12, 2019
- Groups and Dynamics Graduate Seminar, U. Illinois, Chicago Oct 29, 2019
- Geometry, Topology and Dynamics Seminar, U. Illinois, Chicago Oct 28, 2019
- Geometry Seminar, U. Virginia Oct 14, 2019
- Student-Run Geometry/Topology Seminar, UC Davis Dec 7, 2017

Conferences

- *Homogeneous Dynamics and Anosov Representations, SLMath Apr 20-26, 2026
- *Conference on Geometry & Dynamics, TIFR Nov 10-14, 2025
- Hyperbolic manifolds in dimensions 4 (and more), CRM in Montreal, Canada (*canceled due to visa reasons*) Sep 8-12, 2025
- Actions on graphs and metric spaces, Cambridge University (A conference in honor of Misha Kapovich) Sep 1-5, 2025
- Teichmüller Theory and Beyond, Seoul National University (*canceled due to visa reasons*) Feb 17-21, 2025
- 20 years Anosov representations
Max Planck Institute for Mathematics in the Sciences, Leipzig Oct 9-11, 2024
- *Mishafest: A day honoring Misha Kapovich*
Part of the BIRS-CMO workshop “Knots, Surfaces, and 3-manifolds” Jun 15, 2023
- AMS Sectional Meeting, Cal State, Fresno, CA (*canceled*) May 3, 2020
- Discrete Subgroups of Lie Groups, BIRS, Banff, Canada (*canceled*) Dec 8-13, 2019
- Grad Student Conference in Algebra, Geometry, and Topology, Temple Jun 1-2, 2019
- Redbud Topology Conference: Lightning talks section, U Oklahoma Apr 26-28, 2019
- Graduate Student Topology and Geometry Conference (GSTGC), UIC Apr 8, 2018
- Bay Area Differential Geometry Conference, UC Davis Apr 15, 2017

SHORT-TERM VISITS

- *SLMath (Program: Geometry and Dynamics for Discrete Subgroups of Higher Rank Lie Groups) *Jan 20-May 22, 2026*
- Institut Henri Poincaré (Program: Higher Rank Geometric Structures) *May 12-Jun 6, 2025*
- Institut des Hautes Études Scientifiques (IHES) *Mar 3-7, 2025*
- Yale University *Nov-Dec 2024*

CONFERENCES AND WORKSHOPS PARTICIPATION

- Groups and Geometry School, Alfrd Renyi Institute of Mathematics, Budapest, Hungary *Mar 31-Apr 4, 2025*
- Nice Winter School, Université Côte d'Azur, Nice, France *Jan 9-17, 2025*
- Moving to higher rank: from hyperbolic to Anosov (A conference in honor of Dick Canary), Cetraro, Italy *Jul 15-19, 2024*
- Knots, Surfaces, and 3-manifolds, BIRS-CMO workshop, Oaxaca *Jun 11-16, 2023*
- GTiNY - Geometric Topology in New York, Columbia University *Jun 2-4, 2023*
- Dynamics, Rigidity and Arithmetic in Hyperbolic Geometry, ICERM *May 15-19, 2023*
- Ergodic geometry, number theory and Margulis legacy Univ. of Chicago *Jun 12-15, 2022*
- Computational Aspects of Discrete Subgroups of Lie Groups, ICERM *Jun 14-18, 2021*
- Riemann surfaces and their moduli spaces, U Utah *Feb 7-9, 2020*
- Geometry and Analysis - Pansu's Fest, Oxford *Sep 23-27, 2019*
(also presented a poster)
- Groups, geometries, and spaces in honour of A. Iozzi, ETH Zürich *Jan 22-25, 2019*
- Texas Geometry and Topology Conference, Rice U *Nov 9-11, 2018*
- Geometry and Topology of 3-manifolds, OIST, Okinawa, Japan *May 25-28, 2018*
- Low-Dimensional Topology Workshop 2018, UCLA *Jan 3-5, 2018*
- No Boundaries Conference, U Chicago *Oct 27-29, 2017*
- Grad Student Conference in Algebra, Geometry, and Topology, Temple *Jun 3-4, 2017*
- Gauge Theory and Categorification, UCLA *Mar 6-10, 2017*
- Joel Fest, UC Berkeley *May 20-22, 2016*
- ATMW Analysis and Geometry, TIFR-CAM, Bangalore *Jan 6-10, 2014*

SERVICES

- *Co-organizer:*
 - *"Surface Group Representations" in *Thematic Programme on Surface Group Representation and Analytic Group Theory*, LMSI Mumbai, July 1 - December 18, 2026
 - Geometry and Topology Seminar at Brown and Yale (GATSBY), 2023 - 2024
 - Geometry and Topology seminars, Yale, 2022 - 2024
- *Mentoring:*
 - 2022: "Geometry and dynamics in $\mathbb{H}^2 \times \mathbb{H}^2$ " group in the Yale SUMRY program, (jointly with Or Landesberg)
 - 2020: Anshul Guha on a research project (A. Guha, *A new bound on odd multicrossing numbers of knots and links*, J. Knot Theory Ramifications, 31(02), 2250008, 2022)
- *Member:*
 - Admission Committee, Graduate Program in Mathematics, Yale, 2024
 - Board of Studies, School of Sciences, Woxsen University, India, 2023 - 2025
- *Refereed:*

- Bull. Lond. Math. Soc.
- Contemporary Mathematics
- Ergodic Theory Dynam. Systems
- Geom. Topol.

- Int. Math. Res. Not. IMRN
- Math. Ann.
- Math. Res. Lett.
- Michigan Math. J.

- *Quick opinions:*

- Amer. J. Math.
- J. Éc. polytech. Math.
- J. Lond. Math. Soc.

- J. Reine Angew. Math. (Crelle)
- Proc. Lond. Math. Soc.

PERSONAL INFORMATION

Nationality: Indian

Languages: English (fluent), Bengali (native)