

Ipsita Datta

Curriculum Vitae

ETH Zürich, Department of Mathematics
Rämistrasse 101, 8092 Zürich, Switzerland
✉ ipsita.datta@math.ethz.ch
<https://people.math.ethz.ch/~dattai/>

Positions

- 2023- **Hermann-Weyl Instructor**, *ETH*, Zürich, Switzerland
2021-23 **Member**, *Institute for Advanced Study*, Princeton, USA

Education

- 2016-2021 **Ph.D.**, *Department of Mathematics, Stanford University*, Stanford, USA
Advisor : Prof. Yakov Eliashberg,
Thesis title: Lagrangian Cobordisms between Enriched Knot Diagrams
2014-2016 **M.Math.**, *Indian Statistical Institute*, Kolkata, India
First division with distinction
2011-2014 **B.Math. (Hons.)**, *Indian Statistical Institute*, Bangalore, India
Honours with distinction
2011 **Class 12 CBSE** , *Kendriya Vidyalaya IISc*, Bangalore, India
Ranked among top 1% in India
2009 **Class 10 CBSE**, *Kendriya Vidyalaya IISc*, Bangalore, India
Ranked among top 1% in India

Awards and Honors

- 2020-21 **Maryam Mirzakhani Graduate Fellowship**, *Stanford University*, California, USA
Summer **Visiting Students' Research Programme (VSRP)**, *School of Mathematics, Tata Institute of Fundamental Research*, Mumbai, India
2013
2011-2016 **INSPIRE Scholarship**, *Department of Science and Technology, Government of India*
2011 **Scored top 1% aggregate marks**, *Class 10 and Class 12 examinations conducted by Central Board of Secondary Education (CBSE)*, India

Preprints and Publications

- 2025 **Lagrangian Tangles: Floer Theory, Persistence, and Quantitative Invariants**, (with Joshua Sabloff), In Preparation
2025 **An Invitation to Obstruction Bundle Gluing through Morse Flow-lines**, (with Yuan Yao)
[arXiv:2510.10393](https://arxiv.org/abs/2510.10393), <https://arxiv.org/abs/2510.10393>

- 2025 **Non-Simple Knots in Contact 3-Manifolds**, (*with Tanushree Shah*)
arXiv:2510.02932, <https://arxiv.org/abs/2510.02932>
- 2023 **Weinstein Presentations for High-dimensional Antisurgery**, (*with Chindu Mohanakumar, Oleg Lazarev, and Angela Wu*), Algebraic & Geometric Topology, Volume 25 (2025), Issue 6, pp. 3707–3736
arXiv:2310.03133, <https://arxiv.org/abs/2310.03133>
- 2022 **Contact Homology and Higher Dimensional Closing Lemmas**, (*with Julian Chaidez, Rohil Prasad, and Shira Tanny*), Journal of Modern Dynamics, Volume 20, 2024, pp. 67-153
arXiv:2206.04738, <https://arxiv.org/abs/2206.04738>
- 2021 **Lagrangian Cobordisms between Enriched Knot Diagrams**, Symplectic Geometry, Vol 21 (2023) Issue no. 1, pp. 159-234
arXiv:2112.10015, <https://arxiv.org/pdf/2112.10015.pdf>
- 2020 **A Polyfold Proof of Gromov's Non-squeezing Theorem**, (*with Franziska Beckschulte, Irene Seifert, Anna-Maria Vocke, and Katrin Wehrheim*), Research Directions in Symplectic and Contact Geometry and Topology, 2021, eBook ISBN 978-3-030-80979-9, Print ISBN 978-3-030-80978-2, pp. 1-45
arXiv:2010.07248, <https://arxiv.org/abs/2010.07248>

Teaching experience

Theses supervision

- 2025 **Asaf Amitai**, *Masters thesis, ETH Zürich*
Thesis title: Morse-Bott Homology
- 2025 **Lizanne Traulsen**, *Bachelors thesis, ETH Zürich*
Thesis title: An almost strict n-category of Morse moduli spaces
ETH Zürich

Fall 2025 **Legendrian Contact Homology**, *Instructor*

Spr 2024 **Morse Homology**, *Instructor*

Stanford University

Win 2021 **Math 257A: Symplectic Geometry and Topology**, *Course assistant, Graduate Course*

Win 2021 **Math 243: Functions of Several Complex Variables**, *Course assistant, Graduate Course*

Sum 2020 **Math 53: Ordinary Differential Equations with Linear Algebra**, *Course assistant, Undergraduate Course*

Spr 2020 **Math 106: Applied Complex Analysis**, *Course assistant, Undergraduate Course*

Fall 2019 **Math 21: Calculus**, *Teaching assistant, Undergraduate Course*

- Sum 2019 **Math 115: Functions of a Real Variable**, *Course assistant, Undergraduate Course*
- Spr 2019 **Math 21: Calculus**, *Teaching assistant, Undergraduate Course*
- Fall 2018 **Math 19: Calculus**, *Course assistant, Undergraduate Course*
- Spr 2018 **Math 104: Applied Matrix Theory**, *Course assistant, Undergraduate Course*
- Fall 2017 **Math 51: Linear Algebra, Multivariable Calculus, and Modern Applications**, *Teaching assistant, Undergraduate Course*
- Spr 2016 **Math 20: Calculus**, *Course assistant, Undergraduate Course*
- Fall 2016 **Math 115: Functions of a Real Variable**, *Course assistant, Undergraduate Course*

Talks

- Oct 20, 2025 **Geometry of Lagrangian Tangles**, *Symplectic Geometry Seminar*, ETH Zürich
- Jan 22, 2025 **Doing Morse theory without Smale condition**, Chennai Mathematical Institute (CMI), Chennai
- Nov 13, 2024 **Obstructions to the existence of Lagrangians in 4-manifolds and how obstruction bundle gluing enters the stage**, *Geometry Seminar*, The University of Edinburgh, UK
- June 13, 2024 **Doing Morse theory without Smale condition**, International Centre for Theoretical Sciences, Bangalore
- June 12, 2024 **Doing Morse theory without Smale condition**, *Geometry and Topology seminar*, Department of Mathematics, IISc, Bangalore
- Dec 01, 2023 **Lagrangian cobordisms, enriched knot diagrams, and algebraic invariants**, *Symplectix seminar*, Institut Henri Poincaré, Paris
- Nov 13, 2023 **Lagrangian cobordisms, enriched knot diagrams, and algebraic invariants**, *Symplectic Geometry seminar*, ETH Zürich
- Mar 09, 2023 **Lagrangian cobordisms between enriched knot diagrams**, *Symplectic Geometry seminar*, Simons Center for Geometry and Physics, Stony Brook
- Feb 27, 2023 **What is Symplectic Geometry?**, *Bi-College Math/Stat Colloquium*, Department of Mathematics and Statistics, Haverford College, Haverford, Pennsylvania
- Feb 23, 2023 **What is a Pseudoholomorphic Curve?**, *What is...? seminar*, IAS, Princeton
- Feb 13, 2023 **Lagrangian cobordisms between enriched knot diagrams**, *USC Topology seminar*, University of Southern California, Los Angeles
- Jan 05, 2023 **Lagrangian cobordisms, enriched knot diagrams, and algebraic invariants**, *Indian Statistical Institute*, Kolkata

- Jan 03, 2023 **Introduction to Symplectic Geometry and Pseudoholomorphic Curves**, *Indian Statistical Institute*, Kolkata
- Nov 04, 2022 **Lagrangian Cobordisms, Enriched Knot Diagrams, and Algebraic Structures**, *Montreal/PU/IAS/Tel-Aviv/Paris Symplectic Zoominar*, Virtual
- Oct 21, 2022 **Lagrangian Cobordisms, Enriched Knot Diagrams, and Algebraic Structures**, *Symplectic Geometry, Gauge Theory, and Categorification seminar*, Columbia University, New York City
- Oct 13, 2022 **Lagrangian Cobordisms, Enriched Knot Diagrams, and Algebraic Structures**, *Symplectic Seminar*, MIT, Boston
- Sept 28, 2022 **Lagrangian Cobordisms, Enriched Knot Diagrams, and Algebraic Structures**, *Geometry and Topology Seminar*, Louisiana State University, Baton Rouge
- Sept 22, 2022 **(Algebraic) Invariants from Geometry**, *Short talks by Postdoctoral Members*, Institute for Advanced Study, Princeton
- Sept 02, 2022 **Lagrangian Cobordisms, Enriched Knot Diagrams, and Algebraic Structures**, *Western Hemisphere Virtual Symplectic Seminar*, Virtual
- Mar 23, 2022 **Lagrangian Cobordisms and Enriched Knot Diagrams**, *Geometry and Topology Seminar*, Indian Institute of Science, Virtual
- Feb 21, 2022 **Lagrangian Cobordisms and Enriched Knot Diagrams**, *Geometry and Topology Seminar*, University of Maryland, College Park
- Nov 16, 2021 **Lagrangian Cobordisms and Enriched Knot Diagrams**, *PACT Seminar*, Bryn Mawr College, Virtual, (two-part talk)
- Nov 23, 2021 **Lagrangian Cobordisms and Enriched Knot Diagrams**, *Institute for Advanced Study/Princeton University Joint Symplectic Seminar*, Princeton
- Nov 8, 2021 **Lagrangian Cobordisms and Enriched Knot Diagrams**, *Institute for Advanced Study/Princeton University Joint Symplectic Seminar*, Princeton
- Sept 23, 2021 **Lagrangian Cobordisms and Enriched Knot Diagrams**, *Short talks by Postdoctoral Members*, Institute for Advanced Study, Princeton
- Apr 19, 2021 **Obstructions to the existence of Lagrangians in $\mathbb{R}^4$** , *Geometry, Topology, and Categorification seminar*, University of Southern California, Virtual
- Nov 18, 2020 **Obstructions to the existence of Lagrangians in $\mathbb{R}^4$** , *Heidelberg Symplectic Geometry Seminar*, Virtual
- Conference and Workshop Talks
- June 17, 2024 **What is Symplectic Geometry?**, *Popular talk in Summer School for Women in Mathematics and Statistics*, International Centre for Theoretical Sciences, Bangalore
- June 03-08, 2024 **Floer homology and Arnold Conjecture (Minicourse, 6 hours)**, *NCMW - Holomorphic and Topological Methods in Symplectic Geometry (2024)*, Indian Statistical Institute, Kolkata
- Aug 26, 2023 **Minicourse on Gromov-Witten Invariants**, *Precourse at Workshop on Symplectic Field Theory 10*, Humboldt Universität, Berlin

- Sept 09, 2022 **Obstructions to the Existence of Lagrangian Cobordisms**, *Connections Workshop: Floer Homotopy Theory*, MSRI, Berkeley
- Feb 23, 2022 **Quantitative Heegaard Floer cohomology and the Calabi invariant [CGHMSS] Part III: Background on Heegaard-Floer**, *Special Year Seminar - Math - Topics in Geometry*, Institute for Advanced Study
- Dec 06, 2020 **Obstructions to the existence of Lagrangians in $\mathbb{R}^4$** , *Tech Topology Conference*, Georgia Institute of Technology, Virtual, (5 min Lightning Talk)
- Sept 20, 2020 **Gluing a Morse flow line to itself III**, *Obstruction Bundle Gluing Learning Seminar*, Virtual, Organizers: Jo Nelson (Rice) and Jacob Rooney (Simons Center)
- Mar 9, 2019 **Manifolds and Invariants**, *GenerationSci Conference*, Stanford, USA
- May 27, 2018 **Spectral Sequences**, *Kylerec Workshop*, Leavenworth, WA, USA
- May 6, 2018 **Spectral Sequences**, *Kylerec West Coast Pre-Workshop*, Stanford, USA
- Student Seminar Talks at Stanford University
- Sum 2020 *Thurston–Bennequin Number*
- Win 2020 *Coxeter–Dynkin Diagrams*
- Fall 2019 *Proof of Riemann–Roch Theorem*
- Spr 2019 *Capacities for Lagrangian Cobordisms from Generating Families*
- Win 2019 *Operations on Sheaves and Constructible Sheaves*
- Fall 2018 *Fukaya Categories and the Simplest Example of Mirror Symmetry*
- Spr 2018 *Symplectic Homology*
- Win 2018 *Brieskorn Manifolds*
- Fall 2017 *Cobordism Maps on Heegaard–Floer Homologies*
- Spr 2017 *Introduction to Topological Field Theories*
- Fall 2016 *Boundaries of δ -Hyperbolic Groups*

Conferences and workshops attended

- July 2025 **Oberwolfach Workshop - Dynamische Systeme**, MFO, Oberwolfach, Germany
- June 2025 **CIME School - Symplectic Dynamics and Topology**, Cetraro, Italy
- Feb 2025 **CAST 2025**, Institut Fourier, Grenoble, France
- June 2024 **NCMW - Holomorphic and Topological Methods in Symplectic Geometry (2024)**, Indian Statistical Institute, Kolkata, India
- Feb 2024 **CAST 2024**, Ruhr-Universität, Bochum
- Aug 2023 **Workshop on Symplectic Field Theory 10**, Humboldt Universität, Berlin
- Sept 2022 **Introductory Workshop: Floer Homotopy Theory**, MSRI, Berkeley
- Sept 2022 **Connections Workshop: Floer Homotopy Theory**, MSRI, Berkeley

- Aug 2022 **SYNC Early Career Workshop**, University of California Davis
- Nov 2021 **Workshop on the h-principle and Beyond**, Institute for Advanced Study, Princeton
- Dec 2020 **Tech Topology Conference**, Georgia Institute of Technology, Virtual
- Fall 2020 **Obstruction Bundle Gluing Learning Seminar**, Virtual, Organizers: Jo Nelson (Rice) and Jacob Rooney (Simons Center)
- Aug 2020 **The Eighth Pacific Rim Conference in Mathematics**, *Symplectic Geometry and Dynamical Systems*, Virtual, Organizers: Alan Hammond, Alvaro Pelayo and Fraydoun Rezakhanlou
- July 2019 **WiSCon**, ICERM, Providence, Rhode Island
- July 2019 **Current Trends in Symplectic Topology**, CRM, Montreal, Canada
- June 2019 **Kylerec Workshop**, *Sheafy symplectic topology*, Truckee, California
- Dec 2018 **Floer Homotopy 2018**, University of California Los Angeles
- July 2018 **British Isles Graduate Workshop II**, *Singularities and symplectic topology*, Jersey Island, UK
- May 2018 **Kylerec Workshop**, *Cotangent bundles and the nearby Lagrangian conjecture*, Leavenworth, Washington
- Aug 2017 **GEAR Network Retreat**, Stanford, California
- May 2017 **The MIT Talbot Workshop**, *Obstruction theory for structured ring spectra*, Gooding, Idaho

Service and Outreach

- 2021-23 **Institute for Advanced Study/Princeton University Joint Symplectic Seminar**, *Co-organiser*
- 2021-22 **Math Conversations at Institute for Advanced Study**, *Co-organiser*
- Spr, Fall 2019 **Stanford Student Symplectic Seminar**, *Organiser*, Graduate student weekly seminar on symplectic geometry and topology
- 2018-21 **The Noetherian Ring at Stanford**, *Organiser*, Supportive group of women and gender minorities in Stanford Department of Mathematics
- 2017-20 **Stanford Math Directed Reading Program**, *Mentor*, Mentored individual reading projects in advanced topics for motivated and talented undergraduates
- 2016-21 **Stanford Women in Math Mentoring**, *Board member and Mentor*, Mentoring program aimed at lowering the gender gap in mathematics
- 2013-14 **Anti Sexual Harassment Committee**, **Indian Statistical Institute, Bangalore**, *Student representative*