

# Asilata Bapat | Curriculum Vitae

Mathematical Sciences Institute, The Australian National University

☎ 02 6125 7320 • ✉ asilata.bapat@anu.edu.au • 🌐 asilata.github.io

## Education

### The University of Chicago

*PhD in Mathematics.*

Advisor: Victor Ginzburg.

Chicago, IL

2010–2016

### The University of Chicago

*MS in Mathematics.*

Chicago, IL

2010–2012

### Massachusetts Institute of Technology

*SB (Bachelor of Science) in Mathematics with Computer Science.*

GPA 4.9 out of 5.

Cambridge, MA

2006–2010

## Employment

### Australian National University (ANU)

*Senior Lecturer (Level C), Mathematical Sciences Institute*

Canberra

2024–present

### Australian National University (ANU)

*Lecturer (Level B), Mathematical Sciences Institute*

Canberra

2018–2023

### University of Georgia (UGA)

*Assistant Professor (Limited Term), Department of Mathematics*

Athens, GA

2016–2017

## Papers and preprints

- MatrixNet: Learning over symmetry groups using learned group representations (with Lucas Laird, Circe Hsu, Robin Walters)  
*Conference on Neural Information Processing Systems (NeurIPS) 2024*
- Some remarks about the faithfulness of the Burau representation of Artin–Tits groups (with Hoel Queffelec)  
*Preprint (submitted).*
- Wigglyhedra (with Vincent Pilaud)  
*To appear in Mathematische Zeitschrift.*
- $q$ -deformed rational numbers and the 2-Calabi–Yau category of type  $A_2$  (with Louis Becker, Anthony Licata)  
*Forum of Mathematics, Sigma, 11, e47 (2023).*
- Spherical objects and stability conditions on 2-Calabi–Yau quiver categories (with Anand Deopurkar, Anthony Licata)  
*Mathematische Zeitschrift 303, 13 (2023).*
- Computing the matching distance of 2-parameter persistence modules from critical values (with Robyn Brooks, Claudia Landi, Celia Hacker, Barbara Mahler, Elisabeth Stephenson)  
*Preprint.*
- Morse-based fibering of the persistence rank invariant (with Robyn Brooks, Claudia Landi, Celia Hacker, Barbara Mahler)  
*Research in Computational Topology 2 (2022), pp. 27–62*
- A Thurston compactification of the space of stability conditions (with Anand Deopurkar, Anthony Licata)  
*Preprint (submitted).*
- Recollement for perverse sheaves on real hyperplane arrangements  
*Journal of Algebra, 568 (2021), pp. 61–90*
- The strong topological monodromy conjecture for Coxeter hyperplane arrangements (with Robin Walters)  
*Mathematical Research Letters 24 (2017), no. 4, 947–954*
- Torus actions and tensor products of intersection cohomology  
*Pacific Journal of Mathematics 276 (2015), pp. 19–34*
- Lower central series of free algebras in symmetric tensor categories (with David Jordan)

## Grants

<b>The geometry of braids and triangulated categories</b> ARC DECRA grant DE240100447 (AUD 468000)	ANU 2024–2026
<b>Stability conditions: their topology and applications</b> ARC Discovery Project grant DP240101084 (AUD 419421) Jointly held with Anand Deopurkar and Anthony M. Licata.	ANU 2024–2026
<b>AMS-Simons travel grant</b> Grant for research travel (USD 4000)	UGA 2016–2018

## Academic and teaching awards

- Anne Penfold street award, 2023
- Dean's Commendation for Excellence in Education (for Teaching Excellence), ANU, 2021.
- Nadine Kowalsky Fellowship, University of Chicago, 2016.
- Jerry Rao Fellowship, University of Chicago, 2014–2015.
- Young Researcher at the 2nd Heidelberg Laureate Forum, Heidelberg, Germany, 2014.
- Lawrence and Josephine Graves Teaching Prize, University of Chicago, 2014.
- Amick Fellowship, University of Chicago, 2010–2012.
- Phi Beta Kappa, MIT, 2010.
- Rogers Prize for best paper, Summer Program in Undergraduate Research, MIT, 2009.
- Indian National Mathematical Olympiad (INMO) scholarship, 2005.
- International Astronomy Olympiad, Silver medal (2005) and Gold medal (2003).

## Teaching

### Australian National University.....

- **2024 Semester 2:** Algebra 3: Advanced Topics in Algebra (MATH3354/MATH6216)
- **2023 Semester 2:** Games, Graphs, and Machines (MATH2301)
- **2022 Semester 2:** Games, Graphs, and Machines (MATH2301)
- **2021 Spring Semester:** Mathematics and Applications 2 (MATH1014)
- **2021 Semester 2:** Games, Graphs, and Machines (MATH2301)
- **2021 Summer Session:** Representation theory (IBL reading course)
- **2020 Spring Semester:** Mathematics and Applications 2 (MATH1014)
- **2020 Semester 1:** Perverse Sheaves (half of a special topics course on Perverse Sheaves and Deligne–Lusztig theory)
- **2020 Semester 2:** Games, Graphs, and Machines (MATH2301)
- **2019 Semester 1:** Advanced Studies Extension for Analysis I (MATH2320).
- **2018–2019 Summer Session:** Introduction to the theory of Computation (reading course)
- **2018 Semester 2:** Mathematical Foundations for Actuarial Studies (MATH 1113), Linear Algebra.
- **2018 Semester 1:** Advanced Studies Extension for Analysis I (MATH2320).

### University of Georgia.....

- **Fall 2017:** Precalculus (Math 1113).
- **Fall 2017:** Graduate Algebra (Math 8000).
- **Spring 2017:** Calculus II for Science and Engineering (Math 2260).
- **Fall 2016:** Calculus I for Science and Engineering (Math 2250).

### University of Chicago.....

- **2015–2016:** IBL Honors Calculus I and II (Math 161 and 162).
- **2014–2015:** Studies in Mathematics I and II (Math 112 and 113).
- **Summer 2014:** Linear Algebra (Math 196).
- **2013–2014:** Calculus I, II, and III (Math 151, 152, and 153).
- **2012–2013:** Calculus I, II, and III (Math 151, 152, and 153).

- **2011–2012:** College fellow for Honors Algebra I, II, and III (Math 257, 258, and 259).

## Canada/USA Mathcamp.....

- **Summer 2015:** Academic coordinator and mentor. Coordinated the academic schedule, invited visiting speakers, and taught several undergraduate-level courses.
- **Summer 2013:** Mentor. Taught several undergraduate-level courses.
- **Summer 2012:** Mentor. Taught several undergraduate-level courses.

## Talks and presentations

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- **Nov 2024:** CNRS IRL FAMSIS colloquium, ANU
- **May 2024:** Algebra Seminar, University of Sydney
- **May 2024:** Geometry and Dynamics Seminar, Tsinghua University, online
- **Feb 2024:** Winterbraids, Montpellier (mini-course)
- **Jan 2024:** Applied and computational algebraic geometry, Isaac Newton Institute, University of Cambridge
- **Nov 2022:** Tensor categories in Sydney, University of Sydney
- **Nov 2022:** Lie groups seminar, Massachusetts Institute of Technology, online
- **Aug 2022:** QUACKS II, The University of Oregon
- **Jun 2022:** AMSI winter school 2022, The University of Queensland
- **May 2022:** Algebra & discrete mathematics seminar, UC Davis, online
- **Apr 2022:** FD Seminar, online
- **Mar 2022:** LAGOON webinar, online
- **Mar 2022:** Paris algebra seminar, online
- **Feb 2022:** Geometry, physics, and representation theory seminar, Northeastern University
- **Feb 2022:** Braids in representation theory and algebraic combinatorics, ICERM, Brown University
- **Dec 2021:** Special session on Topology, AustMS 2021, online
- **Nov 2021:** EmacsConf 2021, online
- **Jun 2021:** Dynamical Systems in Triangulated Categories and Surfaces (DiTS), online
- **May 2021:** AMS special session on geometric and categorical methods in representation theory, online
- **Jan 2021:** RepNet Virtual seminar, online
- **Nov 2020:** Algebra Seminar, University of Georgia
- **Feb 2020:** New Connections in Representation Theory, Mooloolaba, Queensland
- **Jan 2020:** Derived Days workshop 2020, University of Sydney
- **Jun 2019:** Triangulated Categories in Geometry and Representation Theory, University of Sydney
- **Feb 2019:** Women of Mathematics: a one-day meeting at the ANU, Australian National University
- **Feb 2019:** Pure Mathematics Seminar, University of Queensland
- **Dec 2018:** Special session in Representation Theory, AustMS 2018, University of Adelaide
- **May 2018:** Pure mathematics seminar, University of Melbourne
- **Dec 2017:** Future Directions in Representation Theory, University of Sydney (poster)
- **Nov 2017:** Workshop on Topics in Algebraic Geometry, University of North Carolina at Chapel Hill
- **Jul 2017:** Canada/USA Mathcamp 2017, University of Puget Sound
- **Mar 2017:** Geometric representation theory seminar, University of Toronto
- **Mar 2017:** Algebraic Geometry, Arithmetic Geometry, and Commutative Algebra Seminar, University of South Carolina
- **Mar 2017:** Special session on Geometric Methods in Representation Theory, AMS Southeastern Spring Sectional Meeting, Charleston
- **Jan 2017:** Special session on New Developments in Noncommutative Algebra and Representation Theory, AMS Joint Mathematical Meeting, Atlanta
- **Dec 2016:** Mathematics Seminar, Indian Institute of Science Education and Research, Pune
- **Nov 2016:** Algebra Seminar, University of Georgia
- **Sep 2016:** Algebra Seminar, University of Georgia
- **Jun 2016:** Young Women in Representation Theory, University of Bonn
- **Feb 2016:** Algebraic Geometry Seminar, Ohio State University
- **Jan 2016:** Algebra Seminar, University of Alberta
- **Oct 2015:** AlGeCom 12, University of Michigan (poster)
- **Oct 2015:** AMS Central Fall Sectional Meeting, Loyola University (poster)

- **Sep 2015:** Algebraic Geometry/Commutative Algebra Seminar, University of Notre Dame
- **May 2015:** Oberseminar Representation Theory, University of Bonn
- **May 2015:** Number Theory and Algebraic Geometry Seminar, Katholieke Universiteit Leuven
- **May 2015:** Oberseminar Algebra, Mathematisches Institut, University of Cologne
- **Jul 2014:** Mathematics Seminar, Indian Institute of Science Education and Research, Pune
- **Jun 2014:** Summer school on quiver Hecke algebras, IESC Cargèse (expository)
- **May 2014:** Workshop on Yangians and quantum loop algebras, Austin (expository)