

# SMITA RAJAN

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## EDUCATION

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### University of California, Berkeley

*PhD Student, Department of Mathematics*

Berkeley, CA

August 2024–present

- Advisors: Hannah Larson and Bernd Sturmfels
- Visits at the Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany: January 2026, June–July 2025, June–July 2024

### Brown University

*Mathematics, Sc.B. with Honors; Mathematical Physics, Sc.B. with Honors*

Providence, RI

September 2020–May 2024

## AWARDS AND HONORS

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### NSF Graduate Research Fellowship

*University of California, Berkeley*

2024–2029

Berkeley, CA

### UC Berkeley Chancellor’s Fellowship

*University of California, Berkeley*

2025–2026

Berkeley, CA

### Albert A. Bennett Prize for Exceptional Accomplishment in Mathematics Concentration

*Brown University*

2024

Providence, RI

### Mildred Widgoff Prize for Excellence in Thesis Preparation (Physics)

*Brown University*

2024

Providence, RI

## PUBLICATIONS

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1. Kinematic varieties for massless particles (with S. Sverrisdóttir and B. Sturmfels), *Le Matematiche*, 80 (2025), no. 1, 453–471, arXiv:2408.16711.
2. Five-dimensional spinor helicity for all masses and spins (with A. Pokraka, L. Ren, A. Volovich, and W. Zhao), *J. High Energy Phys.* (2025), no. 7, Paper No. 056, arXiv:2405.09533.

## TALKS

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### 2026

- Étale cohomology learning seminar, UC Berkeley
- Hodge theory learning seminar, UC Berkeley
- Algebraic Curves in January, Max Planck Institute for Mathematics in the Sciences

### 2025

- SIAM Conference on Applied Algebraic Geometry, University of Wisconsin–Madison
- Tropical geometry learning seminar, UC Berkeley

### 2024

- Geometric class field theory learning seminar, UC Berkeley
- Tensors learning seminar, UC Berkeley
- Commutative Algebra and Algebraic Geometry seminar, University of California, Berkeley
- Positive Geometry Seminar, Max Planck Institute for Mathematics in the Sciences

## TEACHING

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### **Graduate Student Instructor**

August–December 2024

*University of California, Berkeley*

*Berkeley, CA*

- Served as a Graduate Student Instructor for Math 1B. Duties included holding discussion sections, office hours, creating quizzes, and grading homework and exams.

### **Undergraduate Teaching Assistant**

September 2021–May 2024

*Brown University*

*Providence, RI*

- Served as an Undergraduate Teaching Assistant for PHYS 0030, PHYS 0040, PHYS 0160, PHYS 1410, and PHYS 1420. Duties included facilitating problem-solving workshop sessions, holding weekly office hours, and grading.

## MENTORING AND COMMUNITY INVOLVEMENT

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### **Mentor for UC Berkeley Directed Reading Program**

August 2025–June 2026

*University of California, Berkeley*

*Berkeley, CA*

- Spring 2026: Sheaf cohomology
- Fall 2025: Computational algebraic geometry
- Fall 2025: Introduction to scheme theory

### **Math Diversity and Inclusion Action Plan (DIAP) Committee**

September 2023–May 2024

*Member*

*Brown University*

- Collaborated with a group of undergraduates, graduate students, and professors to address issues surrounding diversity, inclusion, and equity within the mathematics community at Brown.

### **Conference for Undergraduate Women in Physics**

September 2022–January 2023

*Local organizing committee member*

*Brown University*

- Helped organize the 2023 APS Conference for Undergraduate Women in Physics at Brown University by planning workshops, panel sessions, career fairs, and logistics along with graduate students and professors.

## TECHNICAL SKILLS

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**Programming Languages:** Macaulay2, Mathematica, Python, SageMath,  $\LaTeX$ .