

Aniruddha B. Madhava

Stony Brook University, Stony Brook, NY

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Education

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| 2025 – 2030 | PhD in Mathematics State University of New York at Stony Brook
<i>Prospective Advisor:</i> Professor John Anderson
Intended Research Interests: Partial Differential Equations; Mathematical Physics |
| 2021 – 2025 | Bachelor's Degree Rutgers, The State University of New Jersey
School of Arts and Sciences Honors Program ; BS Degree in Astrophysics
(Highest Honors) and Mathematics (Honors); Paul Robeson Scholar |

Awards

1. **SUNY GREAT Award** (Stony Brook University; January 2026)
2. **Henry Rutgers Scholar Award** (Rutgers University; May 2025)
3. **NSF GRFP (Honorable Mention)** (April 2025)
4. **Aryabhata Endowed Award in Astronomy** (Rutgers University; April 2025)
5. **$\Sigma\Pi\Sigma$ National Physics Honor Society** (February 2025)
6. **Hermann Y. Carr Scholarship in Physics** (Rutgers University; April 2024)
7. **ΦBK (Phi Beta Kappa) Honor Society** (April 2024)
8. **Rutgers College Scholarship** (Rutgers University; May 2023)
9. **Robert L. Sells Scholarship in Physics** (Rutgers University; April 2023)
10. **RU Scarlet Merit Scholarship** (Rutgers University; 2021, 2022, 2023)
11. **New Jersey Seal of Biliteracy (French)** (2021)

Publications

1. **Madhava, A., & Keeton, C. R.** (2024). A New Framework for Understanding Systematic Errors in Cluster Lens Modeling. III. Deflection from Large-Scale Structure, *apj*, 975(2), e287.
<https://doi.org/10.3847/1538-4357/ad7eb6>

Talks

3. **When Mathematics meets Astrophysics: Analyzing the Number of Solutions to the Gravitational Lens Equation:** Talk given during the 2025 Department of Physics and Astronomy Spring Honors Thesis Presentations at Rutgers University (March 31, 2025)
2. **Quantifying Systematic Errors in Cluster Lens Models due to Cosmological Large-Scale Structures:** Talk given at the Fall Research Symposium organized by the Rutgers Society of Physics Students (November 29, 2023)
1. **The Isoperimetric Inequality, Calculus of Variations, and Lagrangian Mechanics:** Seminar talk given in the First and Second Year Honors Seminar run by the Rutgers Department of Mathematics, (April 3, 2023)

Teaching Experiences

4. Teaching Assistant for MAT 123 (Precalculus) (**Stony Brook University; Fall 2026**)
Double teaching load for the Fall 2026 semester
3. Teaching Assistant for MAT 123 (Precalculus) (**Stony Brook University; Fall 2026**)
2. Teaching Assistant for MAT 126 (Calculus B) (**Stony Brook University; Spring 2026**)
Included serving as the lead proctor during the first midterm.
1. Teaching Assistant for MAT 125 (Calculus A) (**Stony Brook University; Fall 2025**)

Posters

1. **Quantifying Systematic Errors in Cluster Lens Models due to Cosmological Large-Scale Structures:** Poster presentation at the annual Aresty Science Research Symposium (April 26, 2024)
2. **Computing Lensing Deflection Angle Maps for Simulated Large-Scale Structures:** Poster presentation at the annual Aresty Summer Science Research Symposium (August 4, 2022)

Essays

1. **Nöther's Theorem, Hamiltonian Mechanics, and Homological Algebra**, 2023. (Research summary paper written for my independent study course)
2. **Isoperimetric Inequality and Related Topics**, 2023, Lecture Notes for my talk on the isoperimetric inequality and related problems in the First and Second Year Honors Seminar (Department of Mathematics)

Computer Skills

Python (**astropy**, **scipy**, **numpy**), Mathematica, $\text{\LaTeX}$, Bash and Linux, MATLAB

Languages

English (Native Fluency), French (Fluency), German (Limited Proficiency), Kannada (Native Fluency)