Aniruddha B. Madhava

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Education

2025 – 2030 **PhD in Mathematics | State University of New York at Stony Brook**
Prospective Advisor: 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. **ΣΠΣ 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

1. **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)
3. **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)

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, LaTeX, Bash and Linux, MATLAB

Languages

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