

Rafael Stavros Cotton

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Ph.D. Student, Fellow

Rm. 203, Wright-Rieman Laboratories, Busch Campus, Rutgers University

INTERESTS

RESEARCH	Thermophysical evolution of ice-rich solid body surfaces and interiors; ice-ocean interactions and cryo-volcanism; dynamics of planetary ices; habitability.
SERVICE	Geoscience and astronomy outreach; mentoring students.

EDUCATION

2030	Rutgers University , New Brunswick, NJ Ph.D., Earth and Planetary Sciences Advisor: Lujendra Ojha
2025	University of California, Santa Cruz , Santa Cruz, CA B.S., Earth Sciences (Planetary Science)
2023	Santa Barbara City College , Santa Barbara, CA A.S., Astronomy [transfer w/o degree]

ADDITIONAL TRAINING

2026	International Heat Flow Commission (IHFC) Summer School <i>İzmir, Türkiye</i>
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STUDENT RESEARCH POSITIONS

2024-2025	Undergraduate Researcher · Advisors: Benjamin Idini & Jonathan Fortney Solar System Physics (S ² P) Group, Department of Astronomy & Astrophysics, UCSC
2023	Cosmology Research Intern · Advisor: Adrian Liu McGill Cosmic Dawn and Hydrogen Cosmology Group, Trottier Space Institute, Université McGill
2022	Astrophysics Research Intern · Advisor: Erika Holmbeck Carnegie Observatories

PUBLICATIONS

IN PREP	Cotton, R. & Holmbeck, E. (2026). Deriving the First Stellar Mass Function from the Light-Element Abundances of Metal-poor Stars.
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HONORS & GRANTS

2026	Research Lead Award · <i>Governor's STEM Scholars, Research & Development Council of New Jersey</i> (\$1000 USD) IHFC Travel Grant · <i>International Heat Flow Commission</i> (\$300 USD)
2025	Dean's Honors List (Spring Quarter) · <i>University of California, Santa Cruz</i> Excellence Fellowship · <i>Earth & Planetary Sciences, Rutgers University</i> (\$40,000 USD) Eli Silver Earth & Planetary Science Opportunities Fund · <i>Earth & Planetary Sciences, UCSC</i> (\$2,000 USD)
2023	Marschak Astronomy SBCC Foundation Scholarship · <i>Earth & Planetary Sciences, SBCC</i> (\$1,000 USD)
2022	Neil Currie Award: Outstanding Planetary Petrologist · <i>Earth & Planetary Sciences, SBCC</i> (\$500 USD)
<u>TOTAL:</u>	\$44,800 USD

PROFESSIONAL EXPERIENCE

2019-2023	Lead Astronomy Programs Presenter, Coordinator <i>Astronomy Department & School and Teacher Services, Santa Barbara Natural History Museum (SBMNH)</i>
2023	Tutor <i>Field Course: Death Valley Petrology (5 Days and 4 Nights), Earth and Planetary Sciences, SBCC</i>

CONFERENCE PRESENTATIONS

Posters

- 2026 **Cottom, R.** & Ojha, L. (2026). Dike-mediated water transport in the European ice shell: Implications for the feasibility of ice-ocean exchange. *57th Lunar and Planetary Science Conference*, #1881.
- 2023 **Cottom, R.** & Holmbeck, E. (2023). Deriving the First Stellar Mass Function from the Light-Element Abundances of Metal-poor Stars. *Bulletin of the American Astronomical Society*, 55(2).

TEACHING ASSISTANTSHIPS

FALL 2026 GEO 100 (*The Planet Earth*)

OTHER PRESENTATIONS

- 2026 *Jupiter and the Galilean Satellites* · **Guest Lecturer**, 01:460:224 (Geol. of Moons & Planets), Rutgers University
- 2025 *Ocean Worlds and Planetary Science* · **Invited Speaker**, SBCC Astronomy Club
- 2023 *Algal Members of the Crystal Springs Formation* · **Tutor Talk**, Death Valley Petrology Field Course, SBCC
- Galactic Archaeology* · **Invited Speaker**, Santa Barbara Astronomical Unit: First Friday of the Month Speaker Event
- Astronomy 101* · **Speaker**, Educator Training, Santa Barbara Museum of Natural History
- 2022 *Galactic Archaeology* · **Invited Speaker**, Science Pub at Dargan's, Santa Barbara Museum of Natural History
- Galactic Archaeology* · **Invited Speaker**, SBCC Astronomy Club

LEADERSHIP & OUTREACH

- 2026 Founder, Organizer · *Planetary Science Group* (weekly), Earth and Planetary Sciences, Rutgers University
- 2025 Committee Lead · *Commencement A/V Committee*, Earth & Planetary Sciences, UCSC
- 2023 - 2025 Member · *Astrobiology Reading Group*, Earth & Planetary Sciences, UCSC
- Member · *Cosmochemistry Reading Group*, UCSC
- 2023 - 2024 Events Coordinator · *Women in Physics and Astronomy*, UCSC
- 2021 - 2023 President, Officer · *Astronomy Club*, Earth & Planetary Sciences, SBCC
- 2019 - 2023 Organizer and observatory operator · *Monthly Star Party*, SBMNH, Santa Barbara, CA
- 2021 - 2023 Organizer and communicator · *Astronomy Club Star Parties*, Earth & Planetary Sciences, SBCC
- 2022 - 2023 Organizer and communicator · *STEM Day*, Earth & Planetary Sciences, SBCC
- 2023 Communicator · *Science Discovery Day (STEM Transfer Program)*, Earth & Planetary Sciences, SBCC
- 2022 Communicator · *Ask an Astronomer Table*, Carnegie Observatories, Pasadena, CA
- Communicator · *AstroFest 22 (Carnegie Observatories)*, Pasadena, CA
- Communicator · *La Cumbre Junior High School Science Night (SBCC Astronomy Club)*, Santa Barbara, CA

MENTORING

- 2026-2027 Research Lead, Governor's STEM Scholars · *High School Students*, Research & Development Council of New Jersey
- 2023-2026 Evan Grant · *Undergraduate*, UC Berkeley
- 2023-2026 CASSI Mentorship Program · *Undergraduates*, Carnegie Observatories Summer Student Internship

SKILLS

- LEADERSHIP** Event organizing and hosting; leading educational programs for school groups and community members; coordinating outreach; mentorship experience
- CODING** Python, L^AT_EX, R, DigiStar
- SOFTWARE** COMSOL Multiphysics, iSALE, QGIS, ArcMap, Jupyter Notebook, Microsoft Suite, Open Broadcast Software, Moog, Spectroscopy Made Hard(er), [STARFIT](#)
- LANGUAGES** Greek (native), English (native), French (elementary)