AYANAH CASON

Nashville, TN
(+443) 6551343 ⋄ ayanah1121@gmail.com

Efficient, reliable, and motivated physicist with strong foundations in mathematics and physics. Experienced in research and teaching, with a demonstrated ability to communicate complex concepts clearly and effectively. Passionate about advancing scientific understanding while fostering inclusion and collaboration within the scientific community. Committed to using research, education, and networking to deepen both science and representation in the field.

EDUCATION

Fisk University *Fall 2024 – Present*
M.S. Physics

University of Nevada, Las Vegas *Fall 2022 – Spring 2023*
B.A. Mathematics

RESEARCH EXPERIENCE

Fisk-Vanderbilt Masters-To-PhD Program, Nashville, TN *Fall 2024 – Present*
Used simulations to predict rates of binary systems for LISA.

SULI Intern, Los Alamos National Laboratory *Fall 2023 – Fall 2024*
Used a super-computer to run simulations that model gamma-ray burst progenitors.
PI: Dr. Nicole Lloyd-Ronning

Research Assistant, New Mexico State University *Fall 2021 – Summer 2023*
Created programs to model how metal yields affect the circumgalactic medium.
PI: Dr. Kristian Finlator

Lamat Fellow, University of California, Santa Cruz *Spring 2023 – Summer 2023*
Prepared first-author publication on how metal yields affect galaxy environments.
PI: Dr. Kristian Finlator Mentor: Dr. Enrico Ramirez-Ruiz

Research Assistant, University of Nevada, Las Vegas *Fall 2022 – Spring 2023*
Created programs to model radiation transport equations.
PI: Dr. Daniel Proga

Summer Intern, NASA Ames Research Center *Summer 2021*
Data mined and recorded physical properties of alloys and found correlations.

PUBLICATIONS

Ayanah Cason, Nicole Lloyd-Ronning, Roseanne Cheng – "Using COSMIC Population Synthesis Code to Investigate how Metallicity Affects Massive Stars in Interacting Binaries" (arXiv:2405.20396)

TALKS

National Society for Black Physicists Conference, Houston, TX *November 2025*
"Predictive Models for Massive Star–Compact Object Binary Formation Across Metallicity and Redshift" **Cosmic Origins Career Workshop**, Virtual / Space Telescope Science Institute *October 2025*

Los Alamos National Laboratory (LANL) Lightning Talk Series, Los Alamos, NM *July 2025*
"Modeling Binary Evolution Pathways and Metallicity Effects" (Lightning Talk)

American Astronomical Society Meeting #245, National Harbor, MD *January 2025*
"Predicting Rates of Massive Stars with Compact Compact Companions and Binary Black Hole Systems"

National Society for Black Physicists Conference, Houston, TX *November 2024*
"Predicting Rates of Massive Stars with Compact Compact Companions and Binary Black Hole Systems"

American Astronomical Society Meeting #243, New Orleans, LA *January 2024*
"Massive Stars in Interacting Binaries - Investigating the Progenitors of Gamma-ray Bursts" (iPoster)

New Mexico Symposium, Socorro, NM *November 2023*
"Massive Stars in Interacting Binaries - Investigating the Progenitors of Gamma-ray Bursts" (iPoster)

SULI Deliverable (LANL), Los Alamos, NM *November 2023*
"Massive Stars in Interacting Binaries - Investigating the Progenitors of Gamma-ray Bursts"

Lamat, University of California, Santa Cruz *August 2023*
A talk discussing how metal yields affect the circumgalactic medium.

American Astronomical Society Meeting #241, Seattle, WA *January 2023*
"How the Environments of Metal Absorbers Trace the Underlying Metal Yields"

AWARDS AND SCHOLARSHIPS

GEM Fellow, Los Alamos National Laboratory *Summer 2024 – Present*
Selected for a fellowship that provided funding and research internship at a National Laboratory.

SULI Grant, Department of Energy, Los Alamos, NM *Fall 2023 – Summer 2024*
Selected for a paid research internship at Los Alamos National Laboratory.

Lamat Fellowship, University of California, Santa Cruz *Spring 2023 – Summer 2023*
Fellowship for early career scientists to engage in novel research while creating healthy spaces for scientific inquiry.

MUREP Fellow, NASA Ames Research Center *Summer 2019*
Minority University Research and Education Project (MUREP) Fellowship for undergraduates pursuing STEM degrees.

TEACHING EXPERIENCE

Teaching Assistant, University of New Mexico, Los Alamos *Fall 2023 – Spring 2024*
Gave mathematic intuition to physical topics taught in PHYS I, II.

Tutor, New Mexico State University, Success Center *Summer 2021 – Spring 2022*
College Tutor — PreCalc and Algebra — Calc I, II, III — Differential Equations I, II — Linear Algebra I, II — Real Analysis — Introduction to Proofs — The Planets — Astrophysics I

Student Athlete Tutor, University of Nevada, Las Vegas *Fall 2022 – Spring 2023*
College Tutor — PreCalc and Algebra — Calc I, II, III — Differential Equations I, II — Linear Algebra I, II — Real Analysis — Introduction to Proofs — The Planets — Astrophysics I

Private Tutor, Las Vegas, NV *Summer 2016 – Spring 2019*
Tutored K-12 in Mathematics.

SERVICE AND LEADERSHIP

SOUL Group, Los Alamos National Laboratory, Los Alamos *Fall 2023 – Present*
Participates in efforts towards diverse spaces for African Americans and other underrepresented peoples. Provides and coordinates events and articles for Black History Month and Martin Luther King Jr. Day.

Inclusion for STEM Classes, Panel, University of Nevada, Las Vegas *Spring 2023*
Participated on a panel to discuss how to improve inclusion for Black students in the Mathematics Department at UNLV.

Inclusion for Women in STEM Environments, University of Nevada, Las Vegas *Spring 2023*
Participated on a panel on creating spaces for women and those who have been historically marginalized in STEM.

STEM Mentorship for People of Color, University of Nevada, Las Vegas *Fall 2022 – Spring 2023*
Organized and led discussions and talks to develop a mentorship program in STEM for students of color in undergraduate institutions.

OTHER PUBLICATIONS

Ayanah Cason – "Massive Stars in Interacting Binaries - Investigating the Progenitors of Gamma-ray Bursts: SULI Publication" (January 2024)

Ayanah Cason – "Honoring the Birth of Black History Month and Black Scientists Past and Present" (LANL Internal Site, February 2024)