

McKenzie A. Myers

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Research interests

Stellar evolution, massive stars, core-collapse supernovae, supernova progenitors, astrophysical neutrinos

Education

PhD in Physics, NC State University · Raleigh, NC expected May 2027

Thesis: *Effects of Stellar Evolution Uncertainties on Red Supergiant Progenitors and their Neutrino Emission*

Committee: James P. Kneller (chair), Carla Fröhlich, Ian Roederer, John Blondin

MS in Physics, NC State University · Raleigh, NC awarded Dec 2023

BA in Physics, NC State University · Raleigh, NC awarded May 2021

BS in Science, Technology, and Society, NC State University · Raleigh, NC awarded May 2021

Awards and honors

Meena and Pratul Ajmera Award[†] 2025

Sayers Fellowship[†] 2021

Mitchell Fellowship[†] 2021

Richard R. Patty Award for Leadership[†] 2021

Undergraduate Research Award* 2020

[†] Awarded by Department of Physics and Astronomy, NC State University

* Awarded by College of Sciences, NC State University

Publications

Total citations: 42 || h-index: 2 || [ORCID](#), [INSPIRE](#), [Google Scholar](#)

First author

The Effects of Mass Loss and Convective Overshooting on the Pre-Collapse Structure, Composition, and Neutrino Emission of Red Supergiants. M. A. Myers, C. B. Campbell, K. M. Patton, and J. P. Kneller.

(2026). Submitted to Phys. Rev. D. [10.48550/arXiv.2604.22605](#). Citations: 2

Neutrino flavor mixing with moments. M. Myers, T. Cooper, M. Warren, J. Kneller, G. McLaughlin, S. Richers, E. Grohs, & C. Fröhlich.

(2022). Phys. Rev. D, 105, 123036. [10.1103/PhysRevD.105.123036](#). Citations: 20

Contributing author

SNEWPY: A Data Pipeline from Supernova Simulations to Neutrino Signals. A. L. Baxter, S. BenZvi, J. Castaneda, A. Coleiro, M. Colomer Molla, D. Dornic, S. Griswold, T. Goldhagen, A. Graf, A. Habig, R. Hill, S. Horiuchi, J. P. Kneller, M. Lamoureux, R. F. Lang, M. Lincetto, J. Migenda, M. Myers, E. O'Connor, A. Renshaw, K. Scholberg, A. Sheshukov, J. Tseng, C. Tunnell, N. Uberoi, & A. Worlikar.

(2021). Journal of Open Source Software, 6, 3772. [10.21105/joss.03772](#). Citations: 21

Selected presentations

<i>Effects of Mass Loss and Overshooting on Pre-Supernova Neutrinos from RSGs</i>	Sep 2026
Contributed talk, BRIDGCE 2026, University of Hertfordshire · Hatfield, England	
<i>The Last 20 Hours of a Red Supergiant's Life</i>	Sep 2026
Seminar, Theory Center of the Institute for Nuclear Physics, Technische Universität Darmstadt · Darmstadt, Germany	
<i>Effects of Mass Loss and Overshooting on the Pre-Supernova Neutrino Signal in Red Supergiants</i>	Jul 2025
Seminar, Division of Elementary Particle-, Nuclear-, and Astrophysics, Institute of Theoretical Physics, University of Wrocław · Wrocław, Poland	
<i>Effects of Mass Loss and Overshooting on the Pre-Supernova Neutrino Signal in Red Supergiants</i>	Jul 2025
Invited talk, HELIUM25 · Dresden, Germany	
<i>Effects of Mass Loss and Overshooting on the Pre-Supernova Neutrinos from Red Supergiants</i>	Jun 2025
Contributed poster and flash talk, Nuclei in the Cosmos XVIII · Girona, Spain	
<i>Effects of Mass Loss and Overshooting on the Pre-Supernova Neutrinos from Red Supergiants</i>	May 2025
Contributed poster, Frontiers in Nuclear Astrophysics · Athens, OH	
<i>The Effect of Mass Loss on Supernova Progenitors</i>	Sep 2024
Seminar, SNEWS 2.0 collaboration · online	
<i>Predicting the Next Galactic Core-Collapse Supernova</i>	Mar 2023
Seminar, Department of Statistics, NC State University · Raleigh, NC	

Workshops, schools, and training

MESA Massive Stars Hackathon · New York, NY	2026
N3AS Summer School · Santa Cruz, CA	2026
BRIDGE Summer School · Hertfordshire, UK	2026
Nuclei in the Cosmos XVIII Summer School · Barcelona, Spain	2025
61st Karpacz Winter School & ChETEC-INFRA Training School · Karpacz, Poland	2025
SNEWS 2.0 Collaboration Hackathon · Duluth, MN	2024
OSG User School · Madison, WI	2022

Mentorship

Undergraduate researchers

Claire B. Campbell, Illinois State University	May 2024–present
• Evolved red supergiants with the stellar evolution code MESA.	
Daniel Almonte, Stony Brook University	May–August 2024
• Simulated earth matter effects on neutrino flavor oscillations.	

Teaching experience

Adjunct Faculty , Wake Technical Community College	Jan 2024–present
• Tutoring in undergraduate physics, mathematics, chemistry, and computer programming.	
Teaching Assistant , Department of Physics and Astronomy, NC State University	
PY 125: Astronomy Laboratory	5 semesters, 2022–present

- Instruction in observing with the Skynet robotic telescope network, image analysis, and related software. Optical, UV, and radio observations of Solar System objects, galaxies, nebulae, globular clusters, and the Galactic center.

PY 209: Physics for Engineers and Scientists II Laboratory

Fall 2021

- Average student rating: 4.58/5.00
- Mini lectures, experiments, and exercises in electromagnetism to accompany the lecture course PY 208. Circuits and Python programming emphasized.

Service and outreach

Developer, MESA Development Team

June 2026–present

- Contribute to development and testing of the MESA stellar evolution code as an official developer.

Secretary/Treasurer, Graduate Physics Student Association

May 2023–May 2025

- Organized events and managed financial resources for the NC State University GPSA.

Moore Square Middle School

Dec 2023

- Taught children about sun spots and observed them together through a telescope.

APS-IDEA Group

Sep 2020–Aug 2022

- Participated in training and contributed to discussions about cultivating a positive and diverse work environment in the physics community.

Diversity, Equity, and Inclusion Committee

Sep 2020–Aug 2022

- Explored institutional resources to support DEI initiatives in NC State's physics department.

Secretary, Women in Physics

Aug 2020–Aug 2022

- Organized events and mentored undergraduate women in NC State's physics department.

References

Available upon request.