NATALIE MYERS

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Education:

Exp.	2025	Ph.D. Physics – Astrophysics Track, Texas Christian Univ. (TCU), TX
Dec	2022	M.S. Physics – Astrophysics Track, Texas Christian Univ. (TCU), TX.
May	2020	B.S. Physics, Univ. of St. Thomas (UST), MN (Minor: Math)

Employment and Affiliation:

2021–Present	Research Assistant, Texas Christian University, Advisor: P. M. Frinchaboy
2020–Present	Teaching Assistant, Texas Christian University
2019–2020	Physics Tutor, University of St. Thomas
2018–2020	Observatory Crew, University of St. Thomas

Awards and Fellowships:

2024	AAS International Travel Grant ($998)
2024	Sigma Xi Grant in Aid of Research ($2,765)
2024	Graduate Travel Grant, TCU ($400, $800)
2023	AAS 241 Chambliss Astronomy Achievement Award Winner
2020–2021	Ida Green Fellowship, TCU ($56,010)
2019–2020	MN Space Grant Consortium Award for Significant Contributions to Research ($500)
2019	Young Scholars Research Grant, Advisor: M. Wood

Telescope Proposals & Observing Experience (Totaling 32 nights):

2024B	McDonald 2.7-m/Coudé	(Co-I; 3 nights – awarded)
2024A	Keck 10-m/HIRES	(Co-I; 9 half nights – awarded))
2023C	McDonald 2.7-m/Coudé	(PI ; 6 nights – awarded)
2023C	McDonald 2.7-m/Coudé	(PI ; 6 nights – awarded)
2023B	Magellan 6.5-m/MIKE	(Co-I; 2 nights – awarded)
2023B	Lick 2.4-m/APF	(Co-I; 7 nights – awarded, queue scheduled)
2023B	Lick 3.0-m/Hamilton echelle	(Co-I; 3 nights – awarded)
2023B	Keck 10-m/HIRES	(Co-I; 1 night – awarded)
2023B	McDonald 2.7-m/Coudé	(Co-I; 4 nights – awarded)
2023A	Magellan 6.5-m/MIKE	(Co-I; 2 nights – awarded)
2022B	McDonald 2.7-m/Coudé	(Co-I; 4 nights – awarded)
2022A	Magellan 6.5-m/MIKE	(Co-I; 2 nights – awarded)

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Teaching Experience

2024 Spring	PHYS 10164:	Classical Physics 2 Lab	(3 sections)
2023 Fall	PHYS 10273	Gave a lecture	
2021 Summer	PHYS 10164:	Classical Physics 2 Lab	(1 section)
2021 Spring	PHYS 10263:	Cosmic Origins Lab	(2 sections)
2020 Fall	PHYS 10273:	Intro to Astronomy: Earth & Planets Lab	(2 sections)
2019-2020	Tutoring:	Up to Calculus III and Modern Physics	

Leadership Experience

2023 Mentored REU student H. Wallace
- *– Supervised a research project determining open cluster membership for SDSS-V data*

2022 Co-Mentored REU student K. Thomas
- *– Assisted in mentorship and teaching research methods*

2018–2019 Observatory Worker
- *– Trained introductory astronomy students to operate UST 0.4-m telescope (4 semesters)*
- *– Gave tours for star parties and other community outreach events*

Research Projects:

Open Cluster Optical Follow-up (TCU & SDSS-IV; 2022–Present):
- *– Derived neutron-capture abundances for known open cluster members in the OCCAM survey*
- *– Utilized professional observatories to collect data, including:*
  - *– Keck, Magellan, McDonald, and Lick Observatories*
- *– Reduced and analyzed echelle spectra with standard software (IRAF & BACCHUS)*

Open Cluster Chemical Abundances and Mapping Survey (TCU & SDSS-IV; 2020–Present):
- *– Utilized Gaia EDR3 and proprietary SDSS-IV/APOGEE DR17 data to ascertain membership probabilities for open cluster stars*
- *– Created an openly available value added catalog (DR17 OCCAM VAC) including:*
  - *– 153 open clusters with APOGEE abundances for 15+ elements*
  - *– 2061 total stellar members for the 153 open clusters*
- *– Utilized this sample to constrain the evolution of the abundance gradients for 15 elements including elements in the alpha, iron-peak, and odd-z groups*

Globular Cluster Membership (TCU & SDSS-IV; 2022–Present):
- *– Determined globular cluster membership by modifying the OCCAM analysis pipeline*
- *– Explored their orbits to identify any correlations between types of orbits and chemistry*

Spectroscopic Instrumentation (UST; 2019–2020):
- *– Calibrated an optical spectrometer for the Univ. of St. Thomas observatory*
- *– Used the spectrometer and line-depth ratios to derive the temperature of Arcturus*

Other Professional Experience

- Graduate Student Representative at TCU (2023-2024)
- CUWiP Conference Local Organizing Committee (LOC) member and volunteer, (Jan 2023 at TCU)
- Volunteering for Atatiana Projects 2023 STEAM summer camp (July 2023)

NATALIE MYERS – PUBLICATIONS

Refereed Publications

Schiavon, R. P., Phillips, S. G., **Myers, N.**, Horta, D., Minniti, D., et al., (2024), "*The APOGEE value-added catalogue of Galactic globular cluster stars*", MNRAS, 528, 1393, doi: 10.1093/mnras/stad3020.

Almeida, A., Anderson, S. F., Argudo-Fernández, M., Badenes, C., Barger, K., **et al.** (155 authors listed alphabetically; including **Myers, N.**), (2023), "*The Eighteenth Data Release of the Sloan Digital Sky Surveys: Targeting and First Spectra from SDSS-V*", ApJS, 267, 44, doi: 10.3847/1538-4365/acda98.

Myers, N., Donor, J., Spoo, T., Frinchaboy, P. M., Cunha, K., et al., (2022), "*The Open Cluster Chemical Abundances and Mapping Survey. VI. Galactic Chemical Gradient Analysis from APOGEE DR17*", AJ, 164, 85, doi: 10.3847/1538-3881/ac7ce5.

Spoo, T., Tayar, J., Frinchaboy, P. M., Cunha, K., **Myers, N.**, et al., (2022), "*The Open Cluster Chemical Abundances and Mapping Survey. VII. APOGEE DR17 [C/N]-Age Calibration*", AJ, 163, 229, doi: 10.3847/1538-3881/ac5d53.

Abdurro'uf, Accetta, K., Aerts, C., Silva Aguirre, V., Ahumada, R., **et al.** (341 authors listed alphabetically; including **Myers, N.**), (2022), "*The Seventeenth Data Release of the Sloan Digital Sky Surveys: Complete Release of MaNGA, MaStar, and APOGEE-2 Data*", ApJS, 259, 35, doi: 10.3847/1538-4365/ac4414.

Poster Presentations

Myers, N., Reggiani, H., Loebman, S., Holmbeck, E., Shetrone, M., Frinchaboy, P., & The Occam Team, (2024), "*Surveying for Ancient Supernovae Across the Galaxy: Mapping SDSS-IV/OCCAM Abundances and the Search for Heavier Elements*", AAS, 243, 458.07.

Myers, N., Frinchaboy, P., Donor, J., Spoo, T., Otto, J., Wiggins, et al., (2023), "*Mapping Chemical Abundances Across the Milky Way with Open Clusters in SDSS/APOGEE: Gradients of Iron and Light Elements plus Neutron Capture Follow-Up*", Surveying the Milky Way: The Universe in Our Own Backyard, Pasadena CA, October.

Myers, N., Frinchaboy, P., Spoo, T., Wiggins, A., Otto, J., et al., (2023), "*The Open Cluster Chemical Abundances and Mapping Survey Follow-up: Tracing the Neutron-Capture Enrichment of the Milky Way*", SDSS-V Meeting NYC.

Myers, N., "Painting a Portrait of a Young Milky Way using Globular Clusters", (2023), Student Research Symposium at TCU.

Myers, N., Frinchaboy, P., Donor, J., & Spoo, T., (2023), "*Exploring the Milky Way's Childhood: Globular Clusters Abundances from SDSS/APOGEE*", AAS, 241, 402.14.

Myers, N., Frinchaboy, P., Donor, J., Cunha, K., Spoo, T., et al., (2022), "*OCCAM VI: Assembling the open cluster "Avengers" of Galactic Evolution*", AAS, 240, 201.04.

Myers, N., "Assembling the Open Cluster 'Avengers' of Galactic Evolution", Student Research Symposium at TCU, April 2022.

Myers, N., Frinchaboy, P., Donor, J., Cunha, K., Spoo, T., et al., "*OCCAM VI: Assembling the open cluster 'Avengers' of Galactic Evolution*", AAS #239, Salt Lake City, UT, January 2022.
(Cancelled due to COVID-19)

Myers, N., & Wood, M., (2021), "*Calibrating a New Spectrometer Using Arcturus*", AAS, 237, 547.18.

Collaborative Research Presentations

Spoo, T., Frinchaboy, P., Tayar, J., Souto, D., & The Occam Team, (2024), "*Deriving Ages for Field Stars: Tools and Complications from Stellar Evolution*", AAS, 243, 430.04D.

Otto, J., Spoo, T., Toguchi-Tani, E., Thomas, K., Frinchaboy, P., & The Occam Team, (2024), "*Digging through the Galactic Graveyard: Chemistry and Ages of "Dead" Milky Way Satellite Galaxies*", AAS, 243, 107.05.

Wiggins, A., Bhattarai, B., Loebman, S., **Myers, N.**, Frinchaboy, P., Otto, J., Spoo, T., & Donor, J., (2024), "*Only the Special Survive: Star Cluster Disruption in Milky Way-like Galaxy Simulations*", AAS, 243, 458.20.

Wallace, H., **Myers, N.**, Otto, J., Donor, J., Spoo, T., Wiggins, A., & Frinchaboy, P., (2024), "*The Open Cluster Chemical Abundances and Mapping (OCCAM) Survey: First Results from SDSS-V*", AAS, 243, 458.02.

Wiggins, A. I., Bhattarai, B., **Myers, N.**, Loebman, S., Frinchaboy, P., et al., (2023), "*Only the Special Survive: Star Cluster Disruption in Galaxy Simulations*", Surveying the Milky Way: The Universe in Our Own Backyard, Pasadena CA.

Wiggins, A. I., Bhattarai, B., **Myers, N.**, Loebman, S., Frinchaboy, P., et al., (2023), "*Only the Special Survive: Star Cluster Disruption in Galaxy Simulations*", New York City NY.

Otto, J., Wallace, H., Frinchaboy, P., **Myers, N.**, Spoo, T.,et al., (2023), "*The Open Cluster Chemical Abundance and Mapping (OCCAM) survey: Cross-calibration of APOGEE to MWM/ASTRA*", New York City NY.

Thomas, K., Spoo, T., Frinchaboy, P., **Myers, N.**, Shetrone, M., & Tayar, J., (2023), "*Metal through the Eons: Calibrating Chemical Clocks to Probe the Early History of the Milky Way*", AAS, 241, 402.33.

Spoo, T., Frinchaboy, P., Souto, D., Cunha, K., & **Myers, N.**, (2023), "*How buoyant is your element? Atomic Diffusion of stars in Ruprecht 147 and NGC 752*", AAS, 241, 402.09.

Spoo, T., Tayar, J., Frinchaboy, P., Cunha, K., **Myers, N.**, Donor, J., & Majewski, S., (2022), "*Tik Tok on the Chemical Clocks!: Calibrating [C/N] abundance ratios using star clusters to determine stellar ages*", AAS, 240, 201.05.

Other Conferences Attended

2023 Conference for Undergraduate Women in Physics at Texas Christian Univ., Fort Worth, TX.
2020 Conference for Undergraduate Women in Physics at Univ. of Minnesota, St. Paul, MN.
2019 Conference for Undergraduate Women in Physics at Northwestern Univ., Chicago, IL.
