MACON MAGNO

EDUCATION

SOUTHERN METHODIST UNIVERSITY, Dallas, TX — August 2020 - TBD
Ph.D. candidate in Physics

TEXAS A&M UNIVERSITY-COMMERCE, Commerce, TX — December 2020
MSc in Physics
Member of the Society of Physics Students
Member of Sigma Pi Sigma
Overall GPA: 4.0

EAST TENNESSEE STATE UNIVERSITY, Johnson City, TN — May 2018
BS in Applied and Computational Mathematics
BS in Physics
Minor in Astronomy
Member of Kappa Mu Epsilon Mathematics Honor Society
Member of Society of Physics Students
Member of the S-STEM Program
Junior Member of American Astronomical Society
Overall GPA: 3.786

EXPERIENCE

High-Frequency Radio Observations of Radio-Quiet Active Galaxies Aug. 2021 - Today
Research Assistant, Advisor: Dr. Krista Smith — *Dallas, TX*

- Worked with Common Astronomy Software Application (CASA) to reduce radio images of Active Galactic Nuclei (AGN) selected from the BAT AGN Spectroscopic Survey (BASS).
- Worked with SAOImageDS9 (DS9) along with Cube Analysis and Rendering Tool for Astronomy (CARTA) to compare images at different wavelengths.
- Analyzed radio images to decide morphology of galaxies along with possible binaries.
- Accessed other data archives at other wavelengths to be able to compare the BASS AGN at various wavelengths.

Supernovae, Dark Energy, and Near-Infrared Study in Astronomy June 2021 - Aug. '21
Research Assistant, Advisor: Dr. Robert Kehoe — *Dallas, TX*

- Worked with data in Python to create supernovae light curves and velocity ejecta evolution curves to better understand the nature of supernovae.
- Observed with the Dark Energy Spectroscopic Instrument (DESI). This involved communicating with a few people on zoom about the image quality, weather conditions, and telescope status.
- Ran an experimental detector to understand how it warmed up by using measuring the dark current. A near-infrared laser was then attached to the detector so the stability of the laser could be measured. Finally, an experimental chip that is trying to suppress near-infrared lines was attached to the detector and laser, and the insertion loss was measured.

GAT for Southern Methodist University Aug. 2020 - May '21
Graduate Assistant Teaching *Dallas, TX*

- Helped teach the intro Physics classes for Physics Majors (Studio Physics I & II). These classes were taught in a cooperative environment solving a single problem that forced the students to think outside the box.
- Helped teach the Modern Physics class. Responsibilities included creating solutions to the homework, grading homework, and holding office hours to help students with homework and study for tests.
- Helped teach the Intro to Astronomy class. Responsibilities included grading homework and tests. In addition to the class, there was a lab component in which I walked students through the lab, and answered any questions they may have had.

Head GAT for Texas A&M University-Commerce Aug. 2019 - May '20
Graduate Assistant Teaching *Commerce, TX*

- Helped other GATs prepare and setup their labs.
- Made sure that the lab equipment was put up correctly and taken care of.

GAT for Texas A&M University-Commerce Aug. 2018 - May '20
Graduate Assistant Teaching *Commerce, TX*

- Helped teach the intro Physics classes for Physics Majors (University Physics I & II). These classes were taught using Studio Mode, which makes students work together in groups in order to figure out the problems they are given. The professor will only lecture for a little bit, then the groups are free to work. The professor, GAT, and learning assistants will go around to the groups to make sure they are understanding what they are doing.
- Helped teach the lab component to General Physics II. This primarily involved me setting up labs, and teaching the students about electricity and magnetism.
- Taught the Astronomy Labs (Stars & the Universe and Solar System) to help students better understand Astronomy. The labs were taught primarily in the planetarium and a classroom.

Analyzing Effects of Numerous EOS of Neutron Stars Aug. 2018 - Dec. '20
Research Assistant, Advisor: Dr. Bao-An Li *Commerce, TX*

- Used Fortran to compute different Equation of States (EOS).
- Studied three different correlations that can impact neutron star observables, and we found that it affected the crust-core transition and pressure.

ETSU Student Support Services Aug. 2017 - May '18
Tutor *Johnson City, TN*

- Helped students gain a better understanding of Physics by tutoring them one on one.

A Study of the H-alpha Emission and Absorption in Beta Lyrae May 2017 - May '18
Research Assistant, Advisor: Dr. Richard Ignace *Johnson City, TN*

- Used Python to generate a H-alpha spectrum for Beta Lyrae.
- Determined that the H-alpha primarily comes from the disk not the jet in the Beta Lyrae system.

Data Analysis for Ballad Health Aug. 2017 - Dec. '17
Data Analyst, Advisor: Dr. Michele Joyner *Johnson City, TN*

- Analyzed data in order to find out predicting factors and new factors that might help Ballad Health improve their Risk Stratification Algorithm.

Communicating with Raspberry Pis Jan. 2017 - May '17
S-STEM, Advisor: Dr. Ariel Cintron-Arias *Johnson City, TN*

- Used Python and Unix scripting in order to get two Raspberry Pis to communicate with one another.
- Investigated communication between two Raspberry Pis over wifi and bluetooth.

One-Dimensional Analysis of Body Cooling Jan. 2017 - May '17
Student, Advisor: Dr. Michele Joyner *Johnson City, TN*

- Simplified the third order heat equation to a first order equation.
- Used Matlab to compute the first order partial differential equation to find out how an object cools over time.

Subs vs Sushi: The Line is Real Jan. 2017 - May '17
Student, Advisor: Dr. Michele Joyner *Johnson City, TN*

- Used R and Queuing Theory to analyze the queue system at Nori Japan and Charley's Philly Steaks.
- Modified the data to create a hypothetical queue to see how it helps or hurts Nori Japan and Charley's Philly Steaks.

Astronomy Labs at Harry D. Powell Observatory January 2016 - May '18
Lab Assistant *Johnson City, TN*

- Helped put up telescopes for the astronomy labs and general viewing that takes place there.
- Assisted with questions being asked about what the telescopes are being pointed at along with any questions about astronomy.

Carbon Nanotubes Research Dec. 2016 - Dec. '17
Research Assistant, Advisor: Dr. Frank Hagelberg *Johnson City, TN*

- Helped optimize various structures of carbon nanotubes by running Fortran on ETSU's supercomputer, Knightrider.

Spectroscopy Setup May 2016 - '18
Research Assistant, Advisor: Dr. Gary Henson *Johnson City, TN*

- Helped set up and calibrate the Lhires III Spectrograph at the Harry D. Powell Observatory.
- Used MaxIm DL to obtain the solar spectrum and to obtain spectra of various variable stars.
- Reduced the images taken with the spectrograph by working in ISIS, AudeLA/SpcAudace, BASS, Rspec, and Visual Spec.
- Calculated the Signal to Noise ratio for all of the spectrum images.

Teaching Radio Astronomy Jan. 16 - May '17
Student *Rosman, NC and Johnson City, TN*

- Learned how to use the radio telescopes at Pisgah Astronomical Research Institute.
- Taught high school and college level students about radio astronomy and uses for radio astronomy.

Star Formation in Equal Mass Mergers May 2015 - August 2015
Research Assistant, Advisor: Dr. Beverly Smith *Johnson City, TN*

- Worked in Unix to determine the star formation rate in interacting equal mass galaxies by measuring and comparing the ultraviolet light and x-rays to the infrared light of those galaxies. Used images from Spitzer (Infrared), GALEX (Ultraviolet), and Chandra (X-Ray).

FELLOWSHIPS

- NASA Texas Space Grant Consortium Graduate Fellowship Fall 2019 - Spring 2020

HONORS AND AWARDS

- SMU Travel Grant for 241st AAS Meeting Spring 2023
- Outstanding Graduate Teaching Assistant Award - SMU Spring 2021
- Outstanding Graduate Teaching Assistant Award - TAMUC Spring 2020
- Graduated with Magna Cum Laude from ETSU Spring 2018
- Outstanding Student in Physics Award Spring 2018
- Jeffery Lynn Hightower Memorial Scholarship Fall 2017 - Spring 2018
- Honors-in-Discipline Scholarship Fall 2016 - Spring 2018
- Charles F. Wilkey Mathematics Scholarship Fall 2016 - Spring 2017
- Preparation for Data Driven Scientists, S-STEM Scholarship Fall 2016 - Spring 2018
- Honors-in-Discipline Fall 2015 - Spring 2018
- Academic Performance Scholarship Fall 2014 - Fall 2015
- Hope Scholarship Fall 2014 - May 2018
- Dean's List Fall 2014 - Fall 2015 & Fall 2016 - Spring 2018

WORKSHOPS

- SMU Fellowship Writing Boot Camp May 2022
- Statistics for Astronomers XVII - The Pennsylvania State University June 2022

COMMITTEES

- Local Organizing Committee for Theoretical Astroparticle and Cosmology Symposium in Texas Oct. 2022
  - Helped create and put up signs directing people to the conference
  - Created a Slack Channel for the conference
  - Helped with A/V issues such as microphones, laser pointers, and the projector
  - Helped stock food and drinks along with cleaning up the room

PRESENTATIONS

1. ETSU Physics & Astronomy Seminar, Johnson City, TN. *Census of Radio Quiet AGN and Their Effect on Galaxy Evolution*. Oral. March 7, 2023.
2. 241st American Astronomical Society Poster Presentation, Seattle, WA. *Radio-Quiet AGN: Spectral Indices, Morphologies, and Feedback Mechanisms*. Poster. Jan. 10, 2023.
3. SMU's Three Minute Thesis Competition, Dallas, TX. *Studying the Co-Evolution of Galaxies and Super Massive Black Holes*. Oral. Nov. 15, 2022.
4. Theoretical Astroparticle and Cosmology Symposium, Dallas, TX. *Multi-Frequency Approach to Studying Feedback Mechanisms from Radio Quiet AGN*. Fireslide. Oct. 10-11, 2022.
5. VLA Sky Survey in the Multiwavelength Spotlight, Socorro, NM. *Multi-Frequency Approach to Studying Radio-Quiet AGN*. Poster with Flash Talk. Sept. 7-9, 2022.
6. Department of Physics and Astronomy Colloquium, Commerce, TX. *Analyzing the Effects of the Nuclear Equation of State on Properties of Neutron Stars*. Oral. Nov. 21, 2019.
7. 16th Annual Pathways Research Symposium, Laredo, TX. *Analyzing the Effects of the Nuclear Equation of State on Properties of Neutron Stars*. Poster. Nov. 8, 2019.
8. Annual Research Symposium, Commerce, TX. *Comparing the Effects of Numerous Equation of States of Nuclear Matter on Properties of Neutron Stars*. Oral. Apr. 9, 2019.
9. 233rd American Astronomical Society Poster Presentation, Seattle, WA. *H-alpha Spectroscopy of Bright Stars*. Poster. Jan. 9, 2019.
10. Department of Physics and Astronomy Colloquium, Commerce, TX. *A Study of the H-alpha Emission in Beta Lyrae*. Oral. Nov. 1, 2018.
11. Department of Physics and Astronomy Thesis Seminar, Johnson City, TN. *A Study of the H-alpha Emission in Beta Lyrae*. Oral. Apr. 23, 2018.
12. ETSU Boland Undergraduate Research Symposium, Johnson City, TN. *A Study of the H-alpha Emission in Beta Lyrae*. Oral. Mar. 27, 2018.
13. 231st American Astronomical Society Poster Presentation, Fort Washington, MD. *A Study of the H-alpha Emission in Beta Lyrae*. Poster. Jan. 3, 2018.
14. Preparation for Industrial Careers in Mathematics Presentation to Mountain States Health Alliance, Johnson City, TN. *An Analysis of Mountain States Health Alliance's Risk Stratification*. Oral. Dec. 6, 2017.
15. ETSU Boland Undergraduate Research Symposium, Johnson City, TN. *Communicating with a Raspberry Pi*. Oral. Mar. 28, 2017.
16. Appalachian Research Forum, Johnson City, TN. *A Survey of Equal Mass Galaxy Mergers in the Infrared, Ultraviolet, and X-Ray*. Poster. Apr. 7, 2016.

PUBLICATIONS

1. *UGC 4211: A Confirmed Dual AGN in the Local Universe at 230 pc Nuclear Separation* - The Astrophysical Journal Letters - Jan. 2023 - Koss et al.
2. *Curvature-slope correlation of nuclear symmetry energy and its imprints on the crust-core transition, radius and tidal deformability of canonical neutron stars* - Physical Review C - Oct. 2020 - Bao-An Li and Macon Magno

3. *A Study of Hα Line Profile Variations in β Lyr* - The Astronomical Journal - Aug. 2018 - Richard Ignace, Gray Sharon, Macon Magno, Gary Henson, and Derck Massa
4. *Diffuse X-Ray-emitting Gas in Major Mergers* - The Astronomical Journal - Feb. 2018 - Beverly Smith, Kristen Campbell, Curtis Struck, Roberto Soria, Douglas Swartz, Macon Magno, Brianne Dunn, and Mark L. Giroux
5. *Strained Zigzag Graphene Nanoribbon Devices with Vacancies as Perfect Spin Filters* - Journal of Molecular Modeling - Jan. 2018 - Frank Hagelberg and Macon Magno

TECHNICAL STRENGTHS

Computer Languages	Python, C, R, Fortran, Bash
Markup Languages	LateX, R Markdown
Tools	CASA, CARTA, Spyder, Jupyter Notebook, R Studio, Anaconda, Overleaf, Microsoft Office
Operating Systems	Windows, Linux, MacOS

REFERENCES

Dr. Krista Lynne Smith 214-768-9879
Southern Methodist University *KristaS@mail.smu.edu*