Tyco Brahe Mera Evans – Curriculum Vitae

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EDUCATION

Florida State University – PhD., Astrophysics — Tallahassee, FL | August 2022 - Expected Graduation July 2027
Thesis: *Unknown*
Advisor: Peter Hoeflich

Florida State University – M.S., Physics — Tallahassee, FL | August 2020 - August 2022

Brown University – Sc.B., Honors, Astrophysics — Providence, RI | Aug 2016 - May 2020
Thesis: *A Pedagogical Demonstration/Lecture Plan for the Introduction of Gravitational Wave Astronomy*
Advisor: Robert Coyne

Universidad de Cantanbria – Study Abroad — Santander, Spain | Spring 2019

EMPLOYMENT

Los Alamos National Laboratory, Graduate Research Assistant — Los Alamos, NM | July 2022 - Aug 2023
- Implemented the second order numerical fast sweeping method for the Eikonal equation from the previous summer into the lab shared FSM++ GitHub directory with proper test requirements using GoogleTest suite

Los Alamos National Laboratory, XCP Summer Workshop Student — Los Alamos, NM | June 2022 - Aug 2022
- Collectively designed a second order numerical fast sweeping method for the Eikonal equation
- Found 70% better accuracy over the first order solution for a single point initialization in a constant field
- Implemented a distributed memory parallel fast sweeping method for both first and second order solutions
- Enhanced computational performance over the serial method, where the weak scaling tended towards ideal

Florida State University, Teaching Assistant — Tallahassee, FL | Aug 2020 - Present
- Teaches the Introduction to Astronomy Laboratory to groups of 20-30 students
- Actively engages the classroom with 15-20 min introductory lectures to guide students through the laboratory
- Patiently works with students to fully understand astronomical concepts from spectroscopy to telescopes
- Encourages students to think beyond the laboratory about how the concept is used in science today

College Advising Corps, Matriculation Coach — Providence, RI | Summer 2019
- Successfully prevented *summer melt* for 42 recent RI high school graduates from undeserved communities
- Developed a executable program that produces a list of recommended majors to study for each RI college

Brown University Academic Support Services, Academic Coach — Providence, RI | Aug 2019- May 2020
- Coached college students one on one in time management, study strategies, scheduling, etc.
- Collaboratively worked with the Dean of Academic Support Services to implement new workshops
- Managed 30+ person workshops organized around academic skills (presenting, preparing for exams, etc.)

PUBLICATIONS

* First or Second Author

* "JWST NIRSpec+MIRI Observations of SN2022acko: Tracing Molecular Formation" Mera, T.; Ashall, C.; et al., 2024, ApJ (in prep)

* "IR Spectral Signatures of CO and SiO in Core-Collapse Supernovae" Mera, T.; Hoeflich P., 2024, ApJ (in prep)

* "Probing the Magnetic Field and Progenitor Structure of Thermonuclear Supernovae by the 1.644 μm [FeII] Line" Mera, T.; Hoeflich P., 2024, ApJ (in prep)

"A JWST Medium Resolution MIRI Spectrum and Models of the Type Ia supernova 2021aefx at +415d", Ashall, C.; Hoeflich, P.; … ;Mera, T.; et al., 2024 ApJ (submitted)

"JWST NIRSpec+MIRI Observations of the nearby Type IIP Supernova 2022acko", Shahbandeh, M.; Ashall, C.; … Mera, T.; et al., 2024, ApJ (submitted)

"Type Ia supernovae in the age of JWST: Finding the 'right' questions and the path to answer", Hoeflich, P.; Fereidouni, E.; Mera, T., 2023, Elsevier (submitted)

"Type Ia Supernovae Progenitor Properties and Their host Galaxies" Chakraborty, S.; Sadler, B.;… Mera T. B.; et al., 2023, AAS (submitted)

"JWST MIRI/MRS Observations and Spectral Models of the Under-luminous Type Ia Supernoave 2022xkq" Derkacy, J.; Ashall, C.; ... Mera Evans, T. B.; et al., 2023, ApJ

"JWST Low-Resolution MIRI Spectral Observations of SN 2021aefx: High-density Burning in a Type Ia Supernova" Derkacy, J.; Ashall, C.; ... Mera Evans, T. B.; et al., 2023, ApJL

"A JWST Near- and Mid-Infrared Nebular Spectrum of the Type Ia Supernova 2021aefx" Kwok, L.; Jha, S.; ... Mera Evans, T. B.; et al., 2023, ApJL

* "A second-order distributed memory parallel fast sweeping method for the Eikonal equation" Tro, S.; Mera Evans, T. B.; et al., 2022, JCP

* "Galactic Positrons from Thermonuclear Supernovae" Mera Evans, T. B.; Hoeflich, P.; Diehl, R., 2021, ApJ

Invited Presentations

"CO and SiO Dust from Core-Collapse Supernovae", Astro Seminar, Florida State University, Tallahassee, Florida, April 19th, 2023

"Detonation Waves & Probing the Progenitor Structure of Thermonuclear Supernovae by the FeII Line", Astro Seminar, Florida State University, Tallahassee, Florida, September 14th, 2022

"Estrategias de Estudio y Administracion del Tiempo" Education Department Conference Talk, Universidad Laica Eloy Alfaro de Manabi, Manta, Ecuador, May 26th, 2021

Contributed Presentations

"Thermonuclear Supernovae as a Source of Galactic Positrons", 88th Southeastern Section of the American Physical Society, Florida State University, Tallahassee, Florida, November 19th, 2021

Selected Proposals and Honors

Anna Runyan Endowment Award, Florida State University Department of Physics May 2022

Fellow, American Physical Society Bridge Program Aug 2020 - Aug 2022

"Dust, Mass Loss and Explosions of Massive Stars in the MIR", Ashall, C., et. al., JWST Proposal. Cycle 1, 2021

"MIR Spectroscopy of Type Ia Supernovae: The Key to Unlocking their Explosions and Element Production", Ashall, C., et. al., JWST Proposal. Cycle 1, 2021

Skills

Computer Skills: (advanced/intermediate) Fortran, Python, Open MPI, bash, LaTeX , Stellarium; (basic) C++
Languages & Interest: Spanish (basic/intermediate), Calisthenics (e.g. human flag), Mountain Biking , Duathlons