Galina Bouyer

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Education

The University of Texas at Austin
August 2020 - May 2024

B.S. Physics, B.S.A. Astronomy Honors

- Certificate in Scientific Computation and Data Science
- Certificate in Evidence and Inquiry
- Part of the College of Natural Sciences' Polymathic Honors program with a focus on computational linguistics.

Research Experience

Galaxy Evolution Vertically Integrated Projects Program
January 2022 - PRESENT

UT Austin Department of Astronomy | Advisor: Dr. Steven Finkelstein

Program studying galaxy evolution, with a focus on high-redshift galaxies and reionization.

- Sorted and identified 150+ images for algorithm training.
- Created individual and collaborated on collective poster presentations.
- Currently working on a capstone project to analyze the UV spectral slope of galaxies at z=6-8 and determine galaxy characteristics (dust attenuation, stellar formation, etc.)

Undergraduate Research Assistant
May 2021 - PRESENT

UT Austin Department of Physics | Advisor: Dr. Pablo Laguna

Working with the UT Center for Gravitational Physics to study binary black hole mergers.

- Used Python to solve a predictive formula and find all possible combinations of initial binaries that would result in the same final LIGO-observed black hole.
- Using PyCBC to generate waveforms for binary black hole collisions.
- Create data visualization and small databases to store and demonstrate results.
- Run simulations on TACC supercomputer.
- Attend weekly research meetings.

Freshman Research Initiative: White Dwarves
January 2021 - December 2021

UT Austin Department of Astronomy | Advisor: Dr. Michael Montgomery

- Used Python to model light curves to identify binary star systems, cepheid variables, etc.
- Navigated large stellar databases and data releases (up to 1.5 billions objects), and retrieved and cross-validated data.
- Used Python and TOPCAT to analyze the chemical homogeneity of stellar strings.

Papers & Presentations

Second MAYA Catalog of Binary Black Hole Numerical Relativity Waveforms
September 2023

Ferguson et al. | doi: arXiv:2309.00262v1

Conference for Undergraduate Women in Physics
January 2023

Oral presentation: *Multiple Paths to One Final Black Hole: Finding Initial Parameters for 16 Gravitational Wave Events.*

Work Experience

McDonald Observatory Summer Intern
May 2023 - August 2023
UT Austin McDonald Observatory

- Lead tours and programs to educate the public on telescope history, engineering, and science.
- Ran telescopes and visitor support at star parties four times a week.
- Operated the Harlan J. Smith telescope and dome.
- Planned projects for and helped lead astronomy-themed STEAM summer camp (ages 8-14).
- Assisted in running teacher workshops dedicated to providing K-12 teachers the resources and background necessary to succeed in teaching astronomy.

Physics Demos Assistant
October 2022 - PRESENT
UT Austin Department of Physics

- Prepare, test and set up various in-class experiments for physics courses.
- Develop new projects and order supplies for the office.

Freshman Research Initiative Mentor
January 2022 - PRESENT
UT Austin Department of Astronomy

- Teach incoming students Python and bash basics.
- Oversee yearly trip to McDonald Observatory, which includes operating a 2.1-meter telescope and its corresponding software.
- Lead group projects and guide current students.

Extracurriculars

Junior Fellows / Research Participant
August 2023 - May 2024

Program dedicated to supporting research and the exchange of ideas across colleges and disciplines.

- Present research at bi-weekly meetings.
- Collaborate with other students to improve cross-discipline research communication.

Gender Minorities in Physics / President
May 2021 - May 2023

Undergraduate organization dedicated to promoting diversity and inclusivity in physics.

- Hosted and planned weekly meetings (lectures, socials, panels).
- Organized a weekly book club and collected reading material.
- Coordinated DEI efforts within and outside of the physics department.
- Organized and ran outreach events (STEM Girl Day, community Star Parties).
- Helped to run departamental community events (prospective students' day, gender and sexuality allyship training, department-wide poster competition).

Destination Imagination / Volunteer
February 2021 - PRESENT

Non-profit that holds a creativity competition for teams ranging from Pre-K to University levels and promotes STEAM learning, collaboration, & problem-solving skills at the regional, state & global level

- Help run and organize tournaments at the regional level.
- Volunteer at tournaments at the regional, state, and global level.
- Organize events and training for both other volunteers and participants.
- Guide, teach, and encourage students ages 5-20.

Awards & Honors

Darrell W. Moffitt, Jr. Memorial Endowed Presidential Scholarship in Physics
August 2023 - May 2024

Abel Family Scholarship in Physics
August 2022 - May 2023

Walter E. Millett Endowed Undergraduate Scholarship in Physics
August 2021 - May 2022

Second Year Excellence Award
College of Natural Sciences, UT Austin

Professional Skills

- Fluent in French.
- Proficient in Python and UNIX, intermediate in R, HTML, and Mathematica.
- Proficient in Excel, TOPCAT, PyCBC and MayaWaves software / libraries.