Fiona Lopez

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fionalopez687@gmail.com
LinkedIn

Education

B.S. Physics • *Fall 2021 - Present*
Texas A&M University, College Station, TX 77843

Research Experience

Research Assistant • *Fall 2024 - Present*
NSF REU Astronomy Intern • *Summer 2024*
Maria Mitchell Association, Nantucket, MA

– Advisor: Dr. Mónica Relaño Pastor
– Topic: Understanding the interplay between dust, gas and stars in high redshift galaxies with *ALMA* and *JWST*
– Used *JWST* observations to create emission line maps for 2 high redshift galaxies
– Processed JWST observations using Python and fitted emission lines through gaussian fitting
– Derived estimates of gas, dust, and star distributions of the galaxies in Python using the emission line maps

Research Assistant • *Fall 2023 - Present*
NSF REU Astronomy Intern • *Summer 2023*
University of Utah Department of Physics & Astronomy, Salt Lake City, UT

– Advisor: Dr. Daniel Wik
– Topic: Addressing the Temperature Difference Between *Chandra* and *XMM-Newton* Measurements
– Used *NuSTAR* observations of 10 relaxed galaxy clusters to measure their temperatures and compare with measurements in identical regions from *Chandra* and *XMM-Newton*
– Processed NuSTAR observations using light curve filtering, background characterization and global spectral extraction/fitting

Texas A&M University Research Student • *Fall 2022 - Spring 2023*
Texas A&M University Department of Physics & Astronomy, College Station, TX

– Advisor: Dr. Roland Allen
– Topic: Potential for Evidence of a Dark Matter Particle with Second Order Gauge Couplings
– Programmed a solution in Python to finding a nontrivial calculation of the cross-section of the proposed dark matter particle
– Implemented Monte Carlo integration to calculate the cross-section

Conferences

243rd American Astronomical Society (AAS) meeting • *Winter 2024*
New Orleans Ernest N. Morial Convention Center, New Orleans, LA

– Poster: Galaxy Cluster Temperatures: Solving the Discrepancy Between Chandra and XMM-Newton Using NuSTAR's Precision by Fiona Lopez, Daniel Wik, and Cicely Potter

University of Utah Summer Undergraduate Research Symposium • *Summer 2023*
University of Utah, Salt Lake City, UT

– Poster: Galaxy Cluster Temperatures: Solving the Discrepancy Between Chandra and XMM-Newton Using NuSTAR's Precision by Fiona Lopez, Daniel Wik, and Cicely Potter

American Physics Society (APS) Texas Section Meeting • *Fall 2022*
Rice University Department of Physics & Astronomy, Houston, TX
  – Presentation: Evidence for Dark Matter and Requirements for a Dark Matter Particle

Publications **1** **F. Lopez**, D. R. Wik, C. Potter, R. A. Rojas Bolivar, A. Tümer, D. Eckert, F. Gastaldello, B. R. Grefenstette, K. Madsen, B. Maughan, E. D. Miller, G. Schellenberger, and A. N. Wallbank *"Cross-Calibration of Galaxy Cluster Temperatures Measured with NuSTAR, XMM-Newton, and Chandra,"* Ready for submission to ApJ

2 R. Allen, B. Tallman, A. Boone, A. Vijayakumar, **F. Lopez**, S. Apata, and J. Martinez, *"Potential for Definitive Discovery of a 70GeV Dark Matter WIMP with Only Second-Order Gauge Couplings,"* LHEP 2023 (2023) 342

3 B. Tallman, A. Boone, C. LaFontaine, T. Croteau, Q. Ballard, S. Hernandez, S. Ellis, A. Vijayakumar, **F. Lopez**, S. Apata, J. Martinez, and R. Allen *"Indirect detection, direct detection, and collider detection cross-sections for a 70 GeV dark matter WIMP,"* PoS ICHEP2022 (2022) 988

Honors • College Board National Hispanic and National Indigenous Recognition Program Scholar
• Hispanic Scholarship Fund (HSF) Scholar

Leadership Experience **Society of Physics Students (SPS)** • *Spring 2022 - 2024*
Texas A&M University Department of Physics & Astronomy, College Station, TX
  – Treasurer, Spring 2023 - 2024
  – Treasury Officer, Spring 2022 - 2023

Outreach **Loines Observatory** • *Summer 2024*
Maria Mitchell Association, Nantucket, MA
  – Led astronomy outreach events involving tour of constellations, operating 24" refracting telescope or 8" reflecting telescope

Society of Physics Students (SPS) • *Spring 2022 - Present*
Texas A&M University Department of Physics & Astronomy, College Station, TX
  – Physics Demo Presenter at events: TAMU Physics Festival, First Friday in Historic Downtown Bryan, TAMU EnVision Conference, etc.

Skills • Programming Languages: Python, IDL, LaTeX and Jupyter Notebook
• Python Packages: NumPy, Matplotlib, SciPy, Astropy, MPDAF
• OSHA-10 Hour General Industry Certified
• Microsoft Office Specialist (MOS) Certified