Martin A. Fernandez

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EMPLOYMENT & EDUCATION

2023 –	Postdoctoral Fellow	Department of Atmospheric Science, Colorado State University

2023	PhD in Physics	University of California Riverside
2018	M.S. in Physics	University of California Riverside
2017	B.S. in Physics	Western Washington University

RESEARCH

2023 – present: Using machine learning methods to improve climate and weather forecasting. With Dr. Elizabeth Barnes (Colorado State University).

2018 – 2023: Using cosmological simulations and machine learning to explore beyond-standard-model physics and constrain cosmological & astrophysical parameters. With Dr. Simeon Bird (University of California Riverside).

2016 – 2017: Theory & modeling of guided wave plasmon polariton modes on novel waveguide architectures. With Dr. Brad Johnson (Western Washington University).

2015 – 2017: Identifying & characterizing pre-main sequence double-lined spectroscopic binaries in young star forming environments. With Dr. Kevin Covey (Western Washington University).

OUTREACH

Advisor/mentor for high school student 2018 – 2020
Currently at Stanford studying computer science.

UCR Physics Organization for Women and the UnderRepresented 2018 – 2020
Served as treasurer for 2019.

WWU Public Night Sky Observing host 2015 – 2017

WWU Women in Physics 2015 – 2017

Volunteer/Organizer for outreach events, including: GEMS Fair (2016, 2017), GEMS Academy (2017), Compass2Campus (2015, 2016), Scouting for Science (2016, 2017), March for Science (2017), Mix it Up (2015, 2016).

PROGRAMMING SKILLS

7+ years: Python and LaTeX.
5+ years: High-performance computing (SLURM), including the use of TACC resources (Frontera, Stampede2), and the XSEDE (now ACCESS) allocation system.
1+ years: C, Mathematica, IDL, and HTML/CSS.

AWARDS

NSF GRFP (Graduate Research Fellowship Program)	2019 – 2022
UCR Chancellor's Distinguished Fellowship	2017
WWU Alumni Association Leader Scholarship	2016

FIRST AUTHOR PUBLICATIONS

Fernandez, M. A., Ho M.-F., and Bird, S., *A Multi-fidelity Emulator for the Lyman-α Forest Flux Power Spectrum*, **MNRAS 517, 3200**. arXiv: 2207.06445.

Fernandez, M. A., Bird, S., and Upton Sanderbeck, P. 2021, *Effect of separate initial conditions on the Lyman-α forest in simulations*, **MNRAS 503, 1668**. arXiv: 2009.09119.

Fernandez, M. A., Bird, S., and Cui, Y. 2020, *Cosmic Filaments from Cosmic Strings*, **Phys. Rev. D 102.043509**. arXiv: 2004.13752.

Fernandez, M. A., Covey, K. R., De Lee, N., et al. 2017, *Identification and Radial Velocity Extraction for 100+ Double-Lined Spectroscopic Binaries in the APOGEE/IN-SYNC Fields*, **PASP 129.084201**. arXiv: 1706.01161.