

Catherine Elena Fielder



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POSITIONS

AUG. 2022 – PRESENT **Postdoctoral Research Associate, Steward Observatory**
University of Arizona, Tucson, AZ, USA

EDUCATION

2014 – 2022 **Doctor of Philosophy in Physics**
Department of Physics and Astronomy
University of Pittsburgh

2014 – 2016 **Master of Science in Physics**
Department of Physics and Astronomy
University of Pittsburgh

2010 – 2014 **Bachelor of Science in Physics**
MAGNA CUM LAUDE, PHI BETA KAPPA, SIGMA PI SIGMA, DEANS LIST
Department of Physics
Texas Tech University

RESEARCH EXPERIENCE

Graduate Research Assistant; Adviser: Dr. Jeff Newman, Co-Adviser: Dr. Andrew Zentner
University of Pittsburgh, Dept. of Physics and Astronomy 2015-2022
Pittsburgh, PA
Constructing and analyzing the first long-baseline SED of the Milky Way
Multi-wavelength Milky Way Analogues
Empirically driven K -correction techniques
Analyses of dark matter halo property correlations and halo density profiles

Post Baccalaureate Researcher; Adviser: Dr. Wesley Even
Los Alamos National Laboratory Summer 2014
Los Alamos, NM
Modeling of unusual Type Ib and Ic Supernovae

Undergraduate Researcher; Adviser: Dr. Tom Maccarone
Texas Tech University 2012-2014
Lubbock, TX
Searching for Low Mass X-ray binaries near the center of the Milky Way

SKILLS

CODING LANGUAGES	Python, IDL, L ^A T _E X, Mathematica
MACHINE LEARNING PACKAGES	scikit-learn, GPyTorch, PyTorch, GPflow, TensorFlow
SPOKEN LANGUAGES	English, Japanese (competent)
OBSERVING	WIYN 3.5m telescope, Kitt Peak National Observatory, 1 week observing for Sweet Spot Survey Green Bank Telescope Observer Training Workshop, 1 week, Fall 2017 Observational Techniques course at TTU with 12" and 20" telescopes at the Preston Gott Observatory, Fall semester 2013

AWARDS

- 2014 **Outstanding Research Talk**
Los Alamos National Lab
- 2014 **Mary E. Warga Predoctoral Fellowship**
University of Pittsburgh

TEACHING AND MENTORING EXPERIENCE

PROJECT MENTOR, PHD STUDENT	Lorena Mezini, Exploring subhalo effects on host halo properties
TEACHING ASSISTANT	Astro 087: Basics of Space Flight (University of Pittsburgh, fall 2014, spring 2015) Astro 088: Stonehenge to Hubble (University of Pittsburgh, spring 2018) Phys 0111: Introduction to Physics 2 (University of Pittsburgh, spring 2015)
TEACHING FELLOW	Astro 087 and Astro 088 (University of Pittsburgh, fall 2018)
GUEST LECTURE	AstroPGH Research Seminar “A Beginner’s Guide to Λ CDM” (University of Pittsburgh, July 1, 2020)

OUTREACH

- Speaker for Astronomy on Tap** (Fall 2018)
National project for bringing astronomy to the general public.
- High School Visit Lecture** (Oct. 2019)
Guest lecture on astrophysics research for the Avonworth High School visit to the Pitt Physics and Astronomy department.
- High School Class Lecture** (March 2020)
Guest lecture on dark matter at Shadyside Academy.
- Society of Physics Students Research Lecture** (Sept. 2020)
Guest lecture on astrophysics research for the Pitt Society of Physics students.
- Society of Physics Students Student Mentor** (Fall 2020)
Through the Women and Minorities in Physics group I mentor undergraduate students with a research interest in astronomy.
- ACCElerate Festival** (April 8-10 2022)
At this outreach festival at the Smithsonian we presented a booth on making the largest map of the Universe with DESI.

PRESENTATIONS

INVITED TALKS	Hot Topics Seminar, The University of Toledo - Feb. 11, 2022 Physics and Astronomy Colloquium, The University of Utah - Jan. 20, 2022 Galaxies/ISM Group Talk, The Ohio State University - Oct. 6, 2020
CONTRIBUTED TALKS	MWAG X MaNGA SciCon 1 – November 29, 2021 SDSS-IV Collaboration Meeting – August 2021 Linking the Galactic and Extragalactic, University of Sydney – Dec. 2020 Lunch Talk Series, National Radio Astronomy Observatory/University of Virginia - Oct. 27, 2020 Morning Astro Tea, Sydney Institute for Astronomy/The University of Sydney - Oct. 26, 2020 Talk Series, International Centre for Radio Astronomy Research, Australia - Oct. 22, 2020 Galaxy Lunch, Yale University - Oct. 21, 2020 Astronomy Seminar, Vanderbilt University - Oct. 16, 2020 Astronomy Seminar, New Mexico State University - Oct. 5, 2020 SDSS-IV Collaboration Meeting – June 2020 Great Lakes Cosmology Workshop 12, Rochester Institute of Technology, Rochester USA – Aug. 2019 Great Lakes Cosmology Workshop 11, McMaster University, Hamilton, Ontario Canada – 2016
POSTER PRESENTATIONS	Small Galaxies Cosmic Questions, Durham, United Kingdom – July 2019 Dark Matter 2018, Kingston, Ontario Canada – 2018
DEPARTMENTAL TALKS	Steward Journal Club – Sept. 2022 Pitt Astro Student Seminar – March 2021, Sept. 2020, Dec. 2019, May 2019, Dec. 2018, Dec. 2017

COLLABORATIONS

SDSS-IV Milky Way as a Galaxy and Milky Way Analogs Working Groups
SDSS-IV MaNGA H I Follow-up Team
DESI - Outreach Committee

PUBLICATIONS (3 FIRST AUTHOR, 4 CONTRIBUTING AUTHOR)

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|---------------------|---|
| LEAD AUTHOR | 1. Fielder, C. E. ; Newman, J. A.; Andrews, B. H.; et al., 2021. <i>Monthly Notices of the Royal Astronomical Society</i> 508(3), 4459-4483.
Constraining the Milky Way's ultraviolet to infrared SED with Gaussian process regression. |
| | 2. Fielder, C. E. ; Mao, Y.; Zentner, A. R.; Newman, J. A.; et al., 2020. <i>Monthly Notices of the Royal Astronomical Society</i> , 499(2), 2426-2444.
Illuminating dark matter halo density profiles without subhaloes. |
| | 3. Fielder, C. E. ; Mao, Y.; Newman, J. A.; Zentner, A. R.; et al., 2019. <i>Monthly Notices of the Royal Astronomical Society</i> , 486(4), 4545-4568.
Predictably missing satellites: subhalo abundances in Milky Way-like haloes. |
| CONTRIBUTING AUTHOR | 1. Stark, D. V.; et al., 2021. <i>Monthly Notices of the Royal Astronomical Society</i> , 503(1), 1345-1366.
H I-MaNGA: tracing the physics of the neutral and ionized ISM with the second data release. |
| | 2. Boardman, N. F.; et al., 2020. <i>Monthly Notices of the Royal Astronomical Society</i> , 498(4), 4943-4954
Are the Milky Way and Andromeda unusual? A comparison with Milky Way and Andromeda Analogs. |
| | 3. Boardman, N. F.; et al., 2020. <i>Monthly Notices of the Royal Astronomical Society</i> , 494(3), 3672-3701.
Milky Way analogues in MaNGA: multiparameter homogeneity and comparison to the Milky Way. |
| | 4. Masters, K. L.; et al. 2019. <i>Monthly Notices of the Royal Astronomical Society</i> , 488(3), 3396-3405.
H I-MaNGA: H I follow-up for the MaNGA survey. |

REFERENCES

Dr. David Sand		Dr. Gail Zasowski	
POSITION	Associate Professor	POSITION	Assistant Professor
EMPLOYER	Department of Astronomy and Steward Observatory <i>University of Arizona</i>	EMPLOYER	Department of Physics and Astronomy <i>University of Utah</i>
EMAIL	dsand@arizona.edu	EMAIL	gail.zasowski@gmail.com
Dr. Jeffrey Newman		Dr. Yao-Yuan Mao	
POSITION	Professor	POSITION	Assistant Professor
EMPLOYER	Department of Physics and Astronomy <i>University of Pittsburgh</i>	EMPLOYER	Department of Physics and Astronomy <i>University of Utah</i>
EMAIL	janewman@pitt.edu	EMAIL	yymao.astro@gmail.com
Dr. Brett Andrews		Dr. Andrew Zentner	
POSITION	Research Assistant Professor	POSITION	Professor
EMPLOYER	Department of Physics and Astronomy <i>University of Pittsburgh</i>	EMPLOYER	Department of Physics and Astronomy <i>University of Pittsburgh</i>
EMAIL	andrewsb@pitt.edu	EMAIL	zentner@pitt.edu