

Catherine Elena Fielder



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EDUCATION

2014 – PRESENT **Doctor of Philosophy in Physics – Expected July 2022**

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
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

2015-present
Pittsburgh, PA

Post Baccalaureate Researcher; Adviser: Dr. Wesley Even

Los Alamos National Laboratory
Modeling of unusual Type Ib and Ic Supernovae

Summer 2014
Los Alamos, NM

Undergraduate Researcher; Adviser: Dr. Tom Maccarone

Texas Tech University
Searching for Low Mass X-ray binaries near the center of the Milky Way

2012-2014
Lubbock, TX

SKILLS

CODING LANGUAGES Python, IDL, L^AT_EX, 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 o87: Basics of Space Flight (University of Pittsburgh, fall 2014, spring 2015) Astro o88: Stonehenge to Hubble (University of Pittsburgh, spring 2018) Phys oiii: Introduction to Physics 2 (University of Pittsburgh, spring 2015)
TEACHING FELLOW	Astro o87 and Astro o88 (University of Pittsburgh, fall 2018)
GUEST LECTURE	AstroPGH Research Seminar “A Beginner’s Guide to L ^A T _E X” (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 Class Lecture (March 2020)

Guest lecture on dark matter at Shadyside Academy.

High School Visit Lecture (Oct. 2019)

Guest lecture on astrophysics research for the Avonworth High School visit to the Pitt Physics and Astronomy department.

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.

PRESENTATIONS

INVITED TALKS	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, Mc Master 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	Astro Student Seminar – March 2021, Sept. 2020, Dec. 2019, May 2019, Dec. 2018, Dec. 2017

COLLABORATIONS

SDSS-IVMilky Way as a Galaxy and Milky Way Analogs Working Groups

SDSS-IV MaNGA Hi Follow-up Team

DESI - new member, planned work with the Outreach Committee and Bright Galaxy Survey

PUBLICATIONS (3 FIRST AUTHOR, 4 CONTRIBUTING AUTHOR)

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.

- Predictably missing satellites: subhalo abundances in Milky Way-like haloes.

CONTRIBUTING AUTHOR

1. Stark, D. V.; et al., 2021. *Monthly Notices of the Royal Astronomical Society*, 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. *Monthly Notices of the Royal Astronomical Society*, 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. *Monthly Notices of the Royal Astronomical Society*, 494(3), 3672–3701.
Milky Way analogues in MaNGA: multiparameter homogeneity and comparison to the Milky Way.
4. Masters, K. L.; et al. 2019. *Monthly Notices of the Royal Astronomical Society*, 488(3), 3396–3405.
H I-MaNGA: H I follow-up for the MaNGA survey.

REFERENCES

Dr. Jeffrey Newman

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EMPLOYER Department of Physics and Astronomy
University of Pittsburgh
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Dr. Brett Andrews

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EMPLOYER Department of Physics and Astronomy
University of Pittsburgh
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Dr. Gail Zasowski

POSITION	Assistant Professor
EMPLOYER	Department of Physics and Astronomy <i>University of Utah</i>
EMAIL	gail.zasowski@gmail.com

Dr. Yao-Yuan Mao

POSITION Post Doctoral Researcher, Einstein Fellow
EMPLOYER Department of Physics and Astronomy
Rutgers University
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Dr. Andrew Zentner

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