

# Catherine Elena Fielder



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## EDUCATION

- 2014 – PRESENT **Doctor of Philosophy in Physics**  
EXPECTED JULY 2021  
Physics and Astronomy  
*University of Pittsburgh*
- 2016 **Master of Science in Physics**  
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 INTERESTS

**The formation and evolution of galaxies and dark matter halos**, including:

- Studying properties of the Milky Way and leveraging the Milky Way to fill in knowledge gaps on galaxy formation and evolution
- Investigating the properties of dark matter halos and their role in galaxy evolution
- Integrating machine learning techniques into astronomy

## AWARDS

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

## PUBLICATIONS (2 FIRST AUTHOR, 3 NTH AUTHOR, 1 IN PREP)

**Fielder, Catherine**; Newman, Jeffrey; Andrews, Brett; Boardman, Nicholas Fraser; Zasowski, Gail; Licquia, Tim (2020). A UV-IR Portrait of the Milky Way *In Prep*

**Fielder, Catherine E.**, Mao, Yao-Yuan, Zentner, Andrew R., Newman, Jeffrey A., Wu, Hao-Yi, Wechsler, Risa (2020). Illuminating dark matter halo density profiles without subhaloes. *Monthly Notices of the Royal Astronomical Society*, 499(2), 2426–2444.

Boardman, Nicholas Fraser; Zasowski, Gail; Newman, Jeffrey; Andrews, Brett; **Fielder, Catherine**; Bershad, Matthew; Brinkmann, Jonathan; Drory, Niv; Krishnarao, Dhanesh; Lane, Richard; Mackereth, Ted; Masters, Karen; Stringfellow, Guy (2020). Are the Milky Way and Andromeda unusual? A comparison with Milky Way and Andromeda Analogs. *Monthly Notices of the Royal Astronomical Society*, 498(4), 4943–4954

Boardman, N.; Zasowski, G.; Seth, A.; Newman, J.; Andrews, B.; Bershad, M.; Bird, J.; Chiappini, C.; **Fielder, C.**; Fraser-McKelvie, A.; Jones, A.; Licquia, T.; Masters, K. L.; Minchev, I.; Schiavon, R. P.; Brownstein, J. R.; Drory, N.; Lane, R. R. (2020). Milky Way analogues in MaNGA: multiparameter homogeneity and comparison to the Milky Way. *Monthly Notices of the Royal Astronomical Society*, 494(3), 3672–3701.

Masters, Karen L.; Stark, David V.; Pace, Zachary J.; Phipps, Frederika; Rujopakarn, Wiphu; Samanso, Nattida; Harrington, Emily; Sánchez-Gallego, José R.; Avila-Reese, Vladimir; Bershad, Matthew; Cherinka, Brian; **Fielder, Catherine E.**; Finnegan, Daniel; Rif-El, Rogemar A.; Rowlands, Kate; Shamsi, Shoaib; Newnham, Lucy; Weijmans, Anne-Marie; Witherspoon, Catherine A. (2019). H I-MaNGA: H I follow-up for the MaNGA survey. *Monthly Notices of the Royal Astronomical Society*, 488(3), 3396–3405.

**Fielder, Catherine E.**, Mao, Yao-Yuan, Newman, Jeffrey A., Zentner, Andrew R., Licquia, Timothy C. (2019). Predictably missing satellites: subhalo abundances in Milky Way-like haloes. *Monthly Notices of the Royal Astronomical Society*, 486(4), 4545–4568.

## CONFERENCES AND TALKS

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INVITED TALKS	Galaxies/ISM Group Talk, The Ohio State University - Oct. 6, 2020
CONTRIBUTED TALKS	Linking the Galactic and Extragalactic, digital at the 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
POSTERS	Small Galaxies Cosmic Questions, Durham, United Kingdom – July 2019 Dark Matter 2018, Kingston, Ontario Canada – 2018
DEPARTMENTAL TALKS	Astro Student Seminar – Sept. 2020, Dec. 2019, May 2019, Dec. 2018, Dec. 2017

## TEACHING AND MENTORING EXPERIENCE

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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 011: Introduction to Physics 2 (University of Pittsburgh, spring 2015)
TEACHING FELLOW	Astro 087 and Astro 088 (University of Pittsburgh, fall 2018)
GUEST LECTURE	for Astro Bootcamp, topic of $\Lambda$ CDM (University of Pittsburgh, July 1, 2020)

## ADDITIONAL SKILLS

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COLLABORATIONS	SDSS-IV Milky Way as a galaxy group MaNGA H <sub>I</sub> Follow-up Team
COMPUTER LANGUAGES	Python, IDL, $\LaTeX$ , Mathematica
SPOKEN LANGUAGES	English, Japanese (competent)
OBSERVING	WIYN 3.5m telescope, Kitt Peak National Observatory, 1 week of observing for the Sweet Spot Survey Green Bank Telescope Observer Training Workshop, 1 week Fall 2017 Observational Techniques course at TTU using 12” and 20” telescopes at the Preston Gott Observatory, Fall 2013

## OUTREACH

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### **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.

### **SPS Research Lecture** (Sept. 2020)

Guest lecture on astrophysics research for the Pitt Society of Physics students.

### **SPS Student Mentor** (Fall 2020)

Through the Women and Minorities in Physics group I mentor undergraduate students with a research interest in astronomy.

REFERENCES

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**Dr. Jeffrey Newman**  
POSITION Professor  
EMPLOYER Department of Physics and Astronomy  
*University of Pittsburgh*  
EMAIL janewman@pitt.edu

**Dr. Brett Andrews**  
POSITION Research Assistant Professor  
EMPLOYER Department of Physics and Astronomy  
*University of Pittsburgh*  
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**Dr. Gail Zosowski**  
POSITION Assistant Professor  
EMPLOYER Department of Physics and Astronomy  
*University of Utah*  
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**Dr. Yao-Yuan Mao**  
POSITION Post Doctoral Researcher, Einstein Fellow  
EMPLOYER Department of Physics and Astronomy  
*Rutgers*  
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**Dr. Andrew Zentner**  
POSITION Professor  
EMPLOYER Department of Physics and Astronomy  
*University of Pittsburgh*  
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