

# ANDREIA CARRILLO, PH.D.

Assistant Professor, Department of Physics and Astronomy

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## EDUCATION

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**Ph.D. Astronomy** *2016 - 2021*

The University of Texas at Austin

Advisor: Dr. Keith Hawkins

*Thesis: Stellar Populations in the Milky Way and Beyond*

**B.S. Astronomy and Astrophysics  
and B.S. Interdisciplinary Physics** *2012 - 2016*

University of Michigan, Ann Arbor

*Highest Honors*

## PROFESSIONAL APPOINTMENTS

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**Assistant Professor** *September 2024 - present*

*Department of Physics and Astronomy*

Carleton College, Northfield MN

**Post-doctoral Research Associate** *October 2021 - August 2024*

*Institute for Computational Cosmology*

Durham University, England UK

**Data Science Fellow** *September 2019 - July 2022*

*Large Synoptic Survey Telescope Corporation*

**Pre-doctoral Fellow** *February - June 2020*

*Center for Computational Astrophysics*

Flatiron Institute, New York City NY

## AWARDS AND DISTINCTIONS

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- University Graduate Continuing Fellowship *June 2021*
- Fred T. Goetting, Jr. Memorial Scholarship *June 2020*
- Astronomy Department Graduate Excellence Fellowship *January 2020*
- Astronomy and Astrophysics, Highest Honors *April 29, 2016*
- University of Michigan Astronomy Department Outreach Excellence Award *April 29, 2016*
- University Honors *Fall 2012, 2014, 2016*
- William J. Branstrom Freshman Prize Award *March 17, 2013*

## PUBLICATIONS

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### 1<sup>st</sup>–3<sup>rd</sup> author:

‘\*’ students I have supervised

1. *Can we really pick and choose? Benchmarking various selections of Gaia-Enceladus/Sausage stars in observations with simulations*  
**Andreia Carrillo**, Alis J. Deason, Azadeh Fattahi, Thomas M. Callingham, Robert J.J. Grand, 2024, MNRAS, 527, 2165
2. *The individual abundance distributions of disk stars across birth radii in GALAH*  
Kaile Wang\*, **Andreia Carrillo**, Melissa Ness, Tobias Buck, 2024, MNRAS, 527, 321
3. *The relationship of age, metallicity, and abundance of disk stars in a simulated Milky Way galaxy*  
**Andreia Carrillo**, Melissa K. Ness, Keith Hawkins, Robyn E. Sanderson, Kaile Wang\*, Andrew Wetzel, Matthew Bellardini, 2023, ApJ, 942, 35C
4. *The detailed abundance patterns of accreted halo stars from the optical to infrared*  
**Andreia Carrillo**, Keith Hawkins, Paula Jofre, Danielle de Brito Silva, Payel Das, Madeline Lucey, 2022, MNRAS, 513, 1557
5. *The VIRUS-P Exploration of Nearby Galaxies (VENGA): Assembly History of the Bulge, Bar, and Disc of NGC 2903*  
**Andreia Carrillo**, Shardha Jogee, Niv Drory, Kyle Kaplan, Tim Weinzirl, Guillermo Blanc, Rongxin Luo, Mimi Song, and the VENGA Collaboration, 2020, MNRAS, 493, 4094
6. *Know thy star, know thy planet: Chemo-kinematically characterizing TESS targets*  
**Andreia Carrillo**, Keith Hawkins, Brendan Bowler, William Cochran, Andrew Vanderburg, 2020, MNRAS, 491, 4365
7. *Characterizing dw1335-29, a Recently Discovered Dwarf Satellite of M83*  
**Andreia Carrillo**, Eric F. Bell, Jeremy Bailin, Antonela Monachesi, Roelof S. de Jong, Benjamin Harmsen, and Colin Slater, 2017, MNRAS, 465, 5026

### Co-author:

1. *DESI Early Data Release Milky Way Survey Value-Added Catalogue* — Sergey Koposov, Carlos Allende Prieto, Andrew Cooper, Ting S. Li, Leandro Beraldo e Silva, Bokyoung Kim, **Andreia Carrillo**, et al., submitted to MNRAS 2024arXiv240706280K
2. *The frequency of metal enrichment of cool helium-atmosphere white dwarfs using the DESI early data release* — Christopher J. Manser, Boris Gansick, Paula Izquierdo, Andrew Swan, Joan Najita, C. Rockosi, **Andreia Carrillo**, et al., 2024, MNRAS, 531, 27
3. *Overview of the DESI Milky Way Survey* — Andrew Cooper, Sergey Koposov, Carlos Allende Prieto, ..., **Andreia Carrillo**, et al., 2023, ApJ, 947, 37C
4. *The Stars of the HETDEX Survey. I. Radial Velocities and Metal-Poor Stars from Low-Resolution Stellar Spectra* — Keith Hawkins, Greg Zeimann, Chris Sneden, ..., **Andreia Carrillo**, et al., 2021, ApJ, 911, 108
5. *A Giant Planet Candidate Transiting a White Dwarf* — Andrew Vanderburg, Saul A. Rappaport, Siyi Xu, ..., **Andreia Carrillo**, et al., 2020, Nature, 585, 363–367
6. *Identical or fraternal twins? The chemical homogeneity of wide binaries from Gaia DR2* — Keith Hawkins, Madeline Lucey, Yuan-Sen Ting, ..., **Andreia Carrillo**, 2020, MNRAS, 492, 1164

## STUDENT RESEARCH MENTORSHIP

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**Thomas Tomlinson (Masters and PhD student, Durham)** *October 2022 - present*  
*co-supervised with Francesca Fragkoudi*

Relics of ancient mergers at the heart of the Milky Way. Presented on this work which was submitted as Masters thesis. Current PhD student at Durham, 2023

**Kaile Wang (undergrad, UT)** *July 2020 - October 2023*  
*co-supervised with Keith Hawkins and Melissa Ness*

Deriving the birth radius of Milky Way disk stars using chemistry. Presented a poster at the 241st AAS Meeting and led a first-author paper on this research submitted to MNRAS. Current PhD student at UT Austin, 2023

**Natasha Judson-Richardson (Masters student, Durham)** *October 2022 - May 2023*  
*co-supervised with Alis Deason*

Galactic Archaeology with stellar streams. Presented on this work which was submitted as Masters thesis. Currently writing up into a paper to be submitted to a journal

**Rian Robison (undergrad, UT)** *2019 - 2021*  
Gaussian Mixture Modeling of Milky Way stars in chemistry and kinematics

**Amaya Sinha (undergrad, UT)** *2019 - 2020*  
Principal component analysis of detailed chemical abundances of stars & chemical cartography in the Milky Way. Current PhD student at University of Utah, 2021

**Joel Burke (undergrad, UT)** *May - September 2019*  
The low-metallicity tail of the Milky Way thin disk. Current PhD student at Notre Dame, 2022

\*In addition, I have mentored ~20 undergraduate students (corresponding to five different research group projects) as a graduate student at UT Austin through my deep involvement in the Freshman Research Initiative and the Astronomy Research Methods class.

## OBSERVING EXPERIENCE

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DESI Kitt Peak, support observer *2022, 2024*  
PI: McDonald Observatory, 2.7m telescope (VIRUS-W IFU) – 3 nights *May 2022*  
PI: McDonald Observatory, 2.7m telescope (Tull Spectrograph) – 8 nights *April-August 2019*  
PI: MDM Telescope (4k Imager, CCDS Spectrograph) – 3 nights *May 2015*

## TEACHING

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**Lab Instructor:** Foundations of Physics Discovery Skills *Spring 2024*  
Lab instructor for experiments concerning the nature of light, *Durham University*

**Tutor:** Foundations of Physics *October 2021-May 2023*  
Tutor for first year undergrads majoring in Physics, covering Mechanics all the way to Relativity, *Durham University*

**Teaching Assistant:** Astronomy 376R *Fall 2019*  
TA for Astronomy research methods class, *UT Austin*

**Research mentor:** Freshman Research Initiative *Spring & Fall 2019,2020,2021*  
TA and mentor for freshmen/transferees starting on Astronomy research, *UT Austin*

**Teaching Assistant:** Astronomy 307  
Introductory Astronomy class for undergrad STEM majors, *UT Austin*

*Fall 2017 & 2018*

**Instructor:** Astronomy Structured Study Group  
Designed and taught a discussion class catered to the 100-level astronomy students for Honors credit,  
*University of Michigan*

*Fall 2016*

## SERVICE AND OUTREACH

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**Referee** *April 2022 - present*  
*Astrophysical Journal, Astronomy & Astrophysics*

**PhD career Day** *October 2022 - June 2024*  
*Durham University*  
Co-organizer of the FLAT talks at Durham meant for postgrads, postdocs, and external speakers to share their work in a 20-minute talk.

**Pint of Science** *October 2022 - June 2024*  
*Durham University*  
Co-organizer of the FLAT talks at Durham meant for postgrads, postdocs, and external speakers to share their work in a 20-minute talk.

**Friday Lunch Astrophysics Talk** *October 2022 - June 2024*  
*Durham University*  
Co-organizer of the FLAT talks at Durham meant for postgrads, postdocs, and external speakers to share their work in a 20-minute talk.

**Durham IDEA** *January 2022 - June 2024*  
*Durham University*  
Co-organizer of the Durham Astro IDEA group focused on Inclusion, Diversity, Equity, and Accessibility in the community.

**Astronomy Girls' Day** *February 2022, 2023, 2024*  
*Durham University*  
Part of the organizing team for the Astronomy Girls' Day outreach event with the aim of inspiring and encouraging girls for a career in science

**Astronomy on Tap ATX** *Fall 2019 - 2021*  
*Austin, Texas*  
I volunteer along with other graduate students and postdocs to run the monthly Astronomy on Tap at Austin, Texas attended by ~200 people or more.

**UT Austin Astronomy Department REU program graduate student mentor** *Summer 2019*  
*UT Austin*  
Served as an informal graduate student mentor to a student participating in the REU program

**Girl Day at UT** *Spring 2017, 2018, 2019*  
*UT Austin*  
Participated in and organized the Association of Women in Astronomy Research and Education's Discover Astronomy demos and activities for Girl Day, attended by over 8,000 elementary and middle school students.

**Graduate-Undergraduate Mentoring in Astronomy Program (GUMMY)** *Spring 2019*  
*Department of Astronomy, UT Austin*

Started a mentoring program for undergrads where they are paired with a graduate student mentor to help them navigate their careers in Astronomy

**Physics Circus** *Spring 2018 - Summer 2021*  
*Physics Department, UT Austin*

We go around different elementary and middle schools and do a free Physics show where we teach kids about different states of matter, the atmosphere, and electricity.

**Astro-coffee/python online workshop** *Fall 2018 - 2019*

One of the organizers for an online platform for the Filipinos interested in Astronomy to learn about python for research and hear about other people's research experience on astronomy and meteorology through online invited talks.

**TAURUS graduate student mentor** *Summer 2017 & 2018*  
*Department of Astronomy, UT Austin*

Served as a graduate student mentor for the Texas Astronomy Undergraduate Research experience for Under-represented Students (TAURUS).

**Astronomy Undergraduate Poster Session organizer** *Spring 2015 & 2016*  
*Department of Astronomy, University of Michigan*

Annual poster session showcasing the undergraduate students' researches; Successfully increased the number of participants from 12 from the previous year to 18 in 2015 and 30 in 2016.

## ACADEMIC PRESENTATIONS

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### Invited Talks

1. Astronomy Seminar, University of Bath, UK, November 10, 2023
2. Department of Geology, Lund University, Sweden, September 5, 2023
3. FLASH Talk, NOIRLab Arizona, April 7, 2023
4. Galaxy Group Talk, Steward Observatory/NOIRLab Arizona, April 3, 2023
5. ANU RSAA Feast-of-Facts, Canberra Australia, December 9, 2022
6. University of Kansas Astro/Space Seminar, October 14, 2022
7. University of Notre Dame Astrophysics Seminar, August 30, 2022
8. Liverpool John Moores Astrophysics Research Institute Seminar, March 30, 2022
9. Galread Extragalactic Discussion Group, Princeton University, August 16, 2021
10. Lunch Talk Series, Carnegie Observatories, January 15, 2021
11. Galread Extragalactic Discussion Group, Princeton University, December 7, 2020
12. FIRE Collaboration, July 17, 2020

### Contributed Talks

1. Connecting the Milky Way with its parent populations at the dawn of time, National Astronomy Meeting, Hull UK, July 15, 2024

2. Metal Production and Distribution in a Hierarchical Universe II, Chile, November 16, 2023
3. Institute of Astronomy, Cambridge UK, September 12, 2023
4. Galactic Archaeology Workshop, Liverpool UK, April 18, 2023
5. Linking the Galactic and Extragalactic Conference, Wollongong Australia, November 29, 2022
6. AAS Division on Dynamical Astronomy 53rd meeting, April 26, 2022
7. Dissertation Talk, 237th American Astronomical Society Meeting, January 11-15, 2021
8. Linking the Galactic and Extragalactic virtual meeting, Wollongong, NSW, Australia, November 30 - December 4, 2020
9. The Local Group: Assembly and Evolution, STScI, August 31, 2020
10. 2019 SDSS IV/V Collaboration Meeting, June 24-28, 2019

### Local Talks

1. DESI Milky Way Survey Group, April 25, 2024
2. DESI Research Forum, February 14, 2024
3. Durham Friday Lunch Astrophysics Talks, May 6, 2022
4. DESI Milky Way Survey Group, March 3, 2022
5. DESI @ Durham Group Meeting, Durham University, November 2, 2021
6. PhD Defense Public Presentation, UT Austin, July 21, 2021
7. Stars and ISM Seminar, UT Austin, October 14, 2020
8. Center for Computational Astrophysics Predoc Symposium, June 25, 2020
9. Stars and ISM Seminar, UT Austin, November 6, 2019
10. Stars and ISM Seminar, UT Austin, April 4, 2019
11. Second Year Defense, UT Austin, May 14, 2018
12. First Year Seminar, UT Austin, October 27, 2017

### Posters

1. Future Faculty Workshop, Notre Dame University, May 8-10, 2023
2. Frank N. Bash Symposium, October 24-25, 2017
3. 230th American Astronomical Society Meeting, June 4-8, 2017
4. 227th American Astronomical Society Meeting, January 4-8, 2016

### PUBLIC PRESENTATIONS AND PRESS

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1. Elkhart Career Center, April 25, 2024. *[invited speaker]*
2. “Women and Girls in Astronomy”. PAGASA Observatory Philippines, March 8, 2024. *[invited speaker]*
3. “National Astronomy Week: Parallax”. University of the Philippines Astronomical Society, February 17, 2024. *[invited speaker]*
4. “International Women’s Day Special Interview with Andreia Carrillo Barbie Kids Meet Role Models”. March 2023. *[featured scientist: <https://www.youtube.com/watch?v=YltmZJHs9MQ>]*

5. “*Asia’s Rising Scientists: Andreia Carrillo*”. Asian Scientist Magazine.  
[featured scientist: <https://www.asianscientist.com/2022/12/interview/asias-rising-scientists-andreia-carrillo/>]
6. “*Fosiles del cosmos*”. by Paula Jofré, January 2022. [featured scientist, book]
7. “*Career-a: Path to Space 2021* ”. Space Innovators Youth Alliance, Philippine Science High School - Cagayan Valley Campus, December 11, 2021. [invited speaker]
8. “*Women in the Society: Modern Day Iha*”. Archers for UNICEF, De La Salle University-Manila, April 30, 2021. [invited speaker]
9. “*Women’s Herstory month: meet an astrophysicist and astronomer*”. Strive Higher Incorporated, Bronx NY, March 21, 2021. [guest reader]
10. “*The Milky Way: Dark Constellations, A Black Hole Our Galaxy*”. Seeker Constellations Youtube series, January 22, 2021. [guest expert: <https://www.youtube.com/watch?v=ZoL6Em5OZl4t=301s>]
11. “*How Galaxies Form*”. Headwaters School, Austin Texas, November 8, 2019. [talk]
12. “*Bayesian Statistics for Dummies*”. Graduate Student and Postdoc Seminar, UT Austin, October 25, 2019. [talk]
13. “*The Chemical Abundance of Milky Way’s Cannibalized Stars*”. Undergraduate Women in Physics, UT Austin, November 5, 2019. [talk]
14. “*Different Stars Make Different Galaxies*”. Teaching Workshop, McDonald Observatory, June 30, 2019. [talk]
15. “*Stellar Populations of Galaxies*”. Astronomy on Tap, Austin Texas, March 19, 2019. [talk: [https://www.youtube.com/watch?v=Q2cfQ\\_Y4x4](https://www.youtube.com/watch?v=Q2cfQ_Y4x4)]
16. “*AstroCoffee/AstroPython*”. Gaia Oracle, Filipino Astronomy Community Magazine, December 6, 2019. [article]
17. “*My journey through astronomy + stellar populations*”. Astronomy Students Association, UT Austin, November 14, 2018. [talk]
18. “*Believe in your genius – let these girls show you*”. Business Mirror, Philippines, March 28, 2018. [feature: <https://businessmirror.com.ph/2018/03/27/believe-in-your-genius-let-these-girls-show-you-how/>]
19. “*Empowering Girls to Code*”. Microsoft DigiGirlz, Manila Philippines, August 11, 2017. [invited speaker]
20. “*Six Filipino Scientists Who Are Changing the World*”. CNN, Manila Philippines, June 28, 2017. [feature: <https://cnnphilippines.com/life/culture/2017/06/27/6-filipino-scientists.html>]
21. “*Concealed Universe: Women in Astronomy*”. National Museum, Philippines, March 23, 2017. [featured scientist]
22. “*Satellites aka Dwarf Galaxies*”. Astronomy on Tap, Austin Texas, March 21, 2017. [talk: <https://www.youtube.com/watch?v=4oPoXXrQhfQ>]
23. *Pinoy Scientists*. Manila, Philippines, May 3, 2016. [featured scientist]
24. *Undergraduate Alumni Profiles*. Astronomy Department, University of Michigan, 2016. [feature: <https://lsa.umich.edu/astro/undergraduates/alumni-profiles/andreia-carrillo.html>]
25. “*Aiming High: Astronomy Undergraduate Education at 6,800 Feet*”. Mercury Vol. 44 No. 4, p. 25, 2015. [article]

## REFERENCES

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**Dr. Alis Deason**

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Lower Mountjoy, South Rd  
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