

ANDREIA CARRILLO

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Post-Doctoral Research Associate

Institute for Computational Cosmology, Department of Physics, Durham University

EDUCATION

The University of Texas at Austin

August 2016 - July 2021

Ph.D. Astronomy

Advisor: Dr. Keith Hawkins

Thesis: Stellar Populations in the Milky Way and Beyond

University of Michigan, Ann Arbor

September 2012 - May 2016

B.S. Astronomy and Astrophysics and B.S. Interdisciplinary Physics

PROFESSIONAL APPOINTMENTS

Post-doctoral Research Associate

October 2021 - present

Institute for Computational Cosmology

Durham University

Data Science Fellow

September 2019 - July 2022

Large Synoptic Survey Telescope Corporation

Pre-doctoral Fellow

February - June 2020

Center for Computational Astrophysics

Flatiron Institute

AWARDS AND DISTINCTIONS

- 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

1st author:

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, in prep., to be submitted to MNRAS in May 2023
2. *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

3. *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
4. *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
5. *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
6. *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

2nd – 3rd co-author:

1. *The individual abundance distributions of disk stars across birth radii in GALAH*
Kaile Wang, **Andreia Carrillo**, Melissa Ness, Tobias Buck, to be submitted to MNRAS in April 2023

Co-author:

1. *Overview of the DESI Milky Way Survey*
Andrew Cooper, Sergey Koposov, Carlos Allende Prieto,..., **Andreia Carrillo**, et al., 2022, arXiv:2208.08514
2. *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
3. *A Giant Planet Candidate Transiting a White Dwarf*
Andrew Vanderburg, Saul A. Rappaport, Siyi Xu,..., **Andreia Carrillo**, et al., 2020, Nature, 585, 363–367
4. *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

ACADEMIC PRESENTATIONS

Talks

** invited colloquium/seminar/talk*

1. *The detailed chemical abundance patterns of accreted halo stars from the optical to the infrared.*
FLASH Talk, NOIRLab Arizona, April 7, 2023
2. *Can we really pick and choose? Benchmarking various selections of accreted halo stars in observations with simulations.* Galaxy Group Talk, Steward Observatory/NOIRLab Arizona, April 3, 2023
3. *Can we really pick and choose? Benchmarking various selections of accreted halo stars in observations with simulations.* ANU RSAA Feast-of-Facts, Canberra Australia, December 9, 2022
4. *Can we really pick and choose? Benchmarking various selections of accreted halo stars in observations with simulations.* Linking the Galactic and Extragalactic Conference, Wollongong Australia, November 29, 2022

5. **Can we really pick and choose? Benchmarking various selections of accreted halo stars in observations with simulations.* University of Kansas Astro/Space Seminar, October 14, 2022
6. **The Milky Way's history through Galactic Archaeology.* University of Notre Dame Astrophysics Seminar, August 30, 2022
7. *Galactic Archaeology of the Milky Way's merger graveyard.* Durham Friday Lunch Astrophysics Talks, May 6, 2022
8. *Can we really pick and choose? Benchmarking various selections of accreted halo stars in observations with simulations.* AAS Division on Dynamical Astronomy 53rd meeting, April 26, 2022
9. **The Milky Way's history through Galactic Archaeology.* LJMU/ARI Seminar, March 30, 2022
10. *Milky Way halo stars and their chemistry.* DESI Milky Way Survey Group, March 3, 2022
11. *The Analysis of Stellar Populations in the Milky Way and Beyond.* DESI @ Durham Group Meeting, Durham University, November 2, 2021
12. *The detailed chemical abundance patterns of accreted halo stars from the optical to infrared.* Galread Extragalactic Discussion Group, Princeton University, August 16, 2021
13. *The Analysis of Stellar Populations in the Milky Way and Beyond.* PhD Defense Public Presentation, UT Austin, July 21, 2021
14. **Stellar Population Analysis in the Milky Way and Beyond.* Lunch Talk Series, Carnegie Observatories, January 15, 2021
15. *Stellar Population Analysis in the Milky Way and Beyond.* Dissertation Talk, 237th American Astronomical Society Meeting, January 11-15, 2021
16. *The VIRUS-P Exploration of Nearby Galaxies (VENGA): Assembly History of the Bulge, Bar, and Disc of NGC 2903.* Galread Extragalactic Discussion Group, Princeton University, December 7, 2020
17. *Establishing the relationship of age, metallicity, and abundance of disk stars in a simulated Milky Way galaxy.* Linking the Galactic and Extragalactic virtual meeting, Wollongong, NSW, Australia, November 30 - December 4, 2020
18. *Establishing the relationship of age, metallicity, and abundance of disk stars in a simulated Milky Way galaxy.* UT Austin, October 14, 2020
19. *The detailed chemical abundance patterns of accreted halo stars.* The Local Group: Assembly and Evolution, STScI, August 31, 2020
20. *Age-abundance trends in a simulated Milky Way galaxy.* FIRE Collaboration, July 17, 2020
21. *Age-abundance trends in a simulated Milky Way galaxy: The Milky Way as an ultimate test of precision cosmology.* CCA Predoc Symposium, June 25, 2020
22. *Galactic Archaeology with Chemistry and Kinematics.* UT Austin, November 6, 2019
23. *The S-process abundance patterns of the accreted halo from APOGEE.* 2019 SDSS IV/V Collaboration Meeting, June 24-28, 2019
24. *Stellar Populations in the Milky Way and Beyond.* UT Austin, April 4, 2019
25. *Star formation history and stellar populations of NGC 2903's bulge, bar, and disk with VENGA IFU Survey.* UT Austin, May 14, 2018

26. *Characterizing dw1335-29, a dwarf galaxy of M83.* UT Austin, October 27, 2017

Posters

1. *Dissecting the assembly and star formation history of disks and bulges in nearby spirals using the VENGA IFU survey.* Frank N. Bash Symposium, October 24-25, 2017
2. *Dissecting the assembly and star formation history of disks and bulges in nearby spirals using the VENGA IFU survey.* 230th American Astronomical Society Meeting, June 4-8, 2017
3. *Characterizing dw1335-29, a Recently Discovered Dwarf Satellite of M83.* 227th American Astronomical Society Meeting, January 4-8, 2016

STUDENT RESEARCH MENTORSHIP

Kaile Wang (undergrad, UT) <i>co-supervised with Keith Hawkins and Melissa Ness</i>	<i>July 2020 - present</i>
Natasha Judson-Richardson (Masters student, Durham) <i>co-supervised with Alis Deason</i>	<i>October 2022 - present</i>
Thomas Tomlinson (Masters student, Durham) <i>co-supervised with Francesca Fragkoudi</i>	<i>October 2022 - present</i>
Rian Robison (undergrad, UT)	<i>2019 - 2021</i>
Amaya Sinha (undergrad, UT) <i>current grad student at University of Utah, 2021</i>	<i>2019 - 2020</i>
Joel Burke (undergrad, UT) <i>current grad student at Notre Dame, 2022</i>	<i>May - September 2019</i>

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

OBSERVING EXPERIENCE

PI: McDonald Observatory, 2.7m telescope (VIRUS-W IFU) – 3 nights	<i>May 2022</i>
PI: McDonald Observatory, 2.7m telescope (Tull Spectrograph) – 8 nights	<i>April-August 2019</i>
PI: MDM Telescope (4k Imager, CCDS Spectrograph) – 3 nights	<i>May 2015</i>

TEACHING

Tutor: Foundations of Physics Tutor for first year undergrads majoring in Physics, <i>Durham University</i>	<i>October 2021-present</i>
Teaching Assistant: Astronomy 376R TA for Astronomy research methods class, <i>UT Austin</i>	<i>Fall 2019</i>
Research mentor: Freshman Research Initiative TA and mentor for freshmen/transferees starting on Astronomy research, <i>UT Austin</i>	<i>Spring & Fall 2019,2020,2021</i>
Teaching Assistant: Astronomy 307 Introductory Astronomy class for undergrad STEM majors, <i>UT Austin</i>	<i>Fall 2017 & 2018</i>
Instructor: Astronomy Structured Study Group Designed and taught a discussion class catered to the 100-level astronomy students for Honors credit, <i>University of Michigan</i>	<i>Fall 2016</i>

SERVICE AND OUTREACH

Referee

Astrophysical Journal

April 2022 - present

Friday Lunch Astrophysics Talk

Durham University

October 2022 - present

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

Durham University

January 2022 - present

Co-organized the Impostor Syndrome session as part of the Durham Astro IDEA group focused on Inclusion, Diversity, Equity, and Accessibility in the community.

Astronomy Girls' Day

Durham University

February 2022

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

Austin, Texas

Fall 2019 - 2021

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

UT Austin

Summer 2019

Served as an informal graduate student mentor to a student participating in the REU program

Girl Day at UT

UT Austin

Spring 2017, 2018, 2019

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)

Department of Astronomy, UT Austin

Spring 2019

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

Physics Department, UT Austin

Spring 2018 - present

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

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.

Fall 2018 - present

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.

PUBLIC PRESENTATIONS AND PRESS

1. *"Fosiles del cosmos"*. by Paula Jofré, January 2022. *[featured scientist, book]*
2. *"Career-a: Path to Space 2021 "*. Space Innovators Youth Alliance, Philippine Science High School - Cagayan Valley Campus, December 11, 2021. *[invited speaker]*
3. *"Women in the Society: Modern Day Iha"*. Archers for UNICEF, De La Salle University-Manila, April 30, 2021. *[invited speaker]*
4. *"Women's Herstory month: meet an astrophysicist and astronomer"*. Strive Higher Incorporated, Bronx NY, March 21, 2021. *[guest reader]*
5. *"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>]*
6. *"How Galaxies Form"*. Headwaters School, Austin Texas, November 8, 2019. *[talk]*
7. *"Bayesian Statistics for Dummies"*. Graduate Student and Postdoc Seminar, UT Austin, October 25, 2019. *[talk]*
8. *"The Chemical Abundance of Milky Way's Cannibalized Stars"*. Undergraduate Women in Physics, UT Austin, November 5, 2019. *[talk]*
9. *"Different Stars Make Different Galaxies"*. Teaching Workshop, McDonald Observatory, June 30, 2019. *[talk]*
10. *"Stellar Populations of Galaxies"*. Astronomy on Tap, Austin Texas, March 19, 2019. *[talk: https://www.youtube.com/watch?v=Q2cfQ_Y4x4]*
11. *"AstroCoffee/AstroPython"*. Gaia Oracle, Filipino Astronomy Community Magazine, December 6, 2019. *[article]*
12. *"My journey through astronomy + stellar populations"*. Astronomy Students Association, UT Austin, November 14, 2018. *[talk]*
13. *"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/>]*
14. *"Empowering Girls to Code"*. Microsoft DigiGirlz, Manila Philippines, August 11, 2017. *[invited speaker]*
15. *"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>]*
16. *"Concealed Universe: Women in Astronomy"*. National Museum, Philippines, March 23, 2017. *[featured scientist]*

17. “*Satellites aka Dwarf Galaxies*”. Astronomy on Tap, Austin Texas, March 21, 2017. [talk:
<https://www.youtube.com/watch?v=4oPoXXrQhfQ>]
18. *Pinoy Scientists*. Manila, Philippines, May 3, 2016. [featured scientist]
19. *Undergraduate Alumni Profiles*. Astronomy Department, University of Michigan, 2016. [feature:
<https://lsa.umich.edu/astro/undergraduates/alumni-profiles/andrea-carrillo.html>]
20. “*Aiming High: Astronomy Undergraduate Education at 6,800 Feet*”. Mercury Vol. 44 No. 4, p.
25, 2015. [article]

REFERENCES

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Dr. Keith Hawkins

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Austin, TX 78712, USA
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Dr. Melissa Ness

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Dr. Niv Drory

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