

EDUCATION

University of Virginia

B.A. in Astronomy-Physics and B.A. in History

Spring 2015

Harvard University

M.A. in Astronomy and Astrophysics

Fall 2017

PhD in Astronomy and Astrophysics

May 2020 (anticipated)

Advisors: Alyssa Goodman and Douglas Finkbeiner

RESEARCH INTERESTS

- Delineating the spiral structure of the Milky Way
- Characterizing the physical properties of the largest-scale filaments in the interstellar medium of our Galaxy via observations and simulations
- Mapping the distribution of the Milky Way's dust in 3D using stellar photometry
- Combining gas and dust measurements to determine distances to local molecular clouds

PUBLICATIONS

First Author

- **Zucker, C**; Schlafly, E.; Green, G.; Speagle, J.; Portillo, S.; Finkbeiner, D.; Goodman, A. 2018c. *ApJ*, 869, 83. [Mapping Distances across the Perseus Molecular Cloud Using CO Observations, Stellar Photometry, and Gaia DR2 Parallax Measurements.](#)
- **Zucker, C**; Chen, H. H. 2018b. *ApJ*, 864, 162. [RadFil: A Python Package for Building and Fitting Radial Profiles for Interstellar Filaments.](#)
- **Zucker, C**; Battersby, C.; Goodman, A. 2018a. *ApJ*, 864, 2. [The Physical Properties of Large-scale Galactic Filaments.](#)
- **Zucker, C**; Walker, L.M.; Johnson, K.; Gallagher, S.; Alatalo, K.; Tzanavaris, P. 2016. *ApJ*, 821, 113. [Hierarchical Formation in Action: Characterizing Accelerated Galaxy Evolution in Compact Groups using Whole-Sky WISE Data.](#)
- **Zucker, C**; Battersby, C.; Goodman, A. 2015. *ApJ*, 815, 23. [The Skeleton of the Milky Way.](#)

Contributing Author

- Monsch, K.; Pineda, J.; Liu, **Zucker, C.**, H.; Chen, H.; Pattle, K.; Offner, S.; Di Francesco, J.; Ginsburg, A.; Ercolano, B.; Arce, H.; Friesen, R.; Kirk, H.; Caselli, P.; Goodman, A. 2018. *ApJ*, 861, 77. [Dense Gas Kinematics and a Narrow Filament in the Orion A OMC1 Region using NH₃.](#)
- Lisenfeld, U.; Alatalo, K.; **Zucker, C.**; Appleton, P. N.; Gallagher, S.; Guillard, P.; Johnson, K.. 2017. *A&A*, 607, A110. [The role of molecular gas in galaxy transition in compact groups](#)

- Walker, L.M.; Butterfield, N.; Johnson, K.; **Zucker, C.**; Gallagher, S.; Konstantopoulos, I., Hornschemeier, A.; Tzanavaris, P.; Charlton, J. 2013. *ApJ*, 775,129. [The Optical Green Valley vs Mid-IR Canyon in Compact Groups](#)

PRESENTATIONS

Contributed Talks

- Harvard-Heidelberg Meeting on Star Formation (Heidelberg, Germany; December 2018), *Better Distances to Local Molecular Clouds with Gaia (Starting with Perseus)*
- ITC Luncheon Talk (Cambridge, MA; November 2018), [Large-scale Galactic Filaments – Shock and Shear in the Milky Way?](#)
- The Interstellar Filament Paradigm (Nagoya, Japan; November 2018), *The Physical Properties of Observed (and Synthetic!) Large-Scale Galactic Filaments*
- The Milky Way in the Age of Gaia (Orsay, France; October 2018), *Better Distances to Local Molecular Clouds with Gaia*
- MIT Haystack Lunch Talk (Westford, MA; August 2018), *Visualization and Outreach with glue and the WorldWide Telescope*
- The Olympian Symposium (Paralia, Greece; May 2018), *The Physical Properties of Large-Scale Galactic Filaments*
- AAS Splinter Session (Washington DC; January 2018), *Better Data Visualization and Exploration with GLUE*
- Sun, Stars, and Galaxies Lunch Talk (Manchester, UK; October 2017), *The Physical Properties of Large-Scale Galactic Filaments*
- Harvard-Smithsonian Center for Astrophysics Astrostats Day (Cambridge, MA; September 2017), *Interactive multi-dimensional data exploration and linking with the **glue** visualization software*
- Galactic Star Formation with Surveys Conference (Heidelberg, Germany; July 2017), *The Physical Properties of Large-Scale Galactic Filaments*
- Dunlap Institute for Astronomy & Astrophysics (Toronto, Canada; May 2017), *The Physical Properties of Large-Scale Galactic Filaments*
- Dunlap Institute for Astronomy & Astrophysics (Toronto, Canada; May 2017), *Interactive multi-dimensional data exploration and linking with the **glue** visualization software*
- New England Regional Star Formation Meeting (Cambridge, MA; January 2016), *The Skeleton of the Milky Way*
- Filamentary Structure in Molecular Clouds Workshop (Charlottesville, VA; October 2014), *The Skeleton of the Milky Way*
- 2014 SAO Astronomy Intern Symposium (Cambridge, MA; August 2014), *The Milky Way Skeleton*

Posters

- Harvard-Heidelberg Meeting on Star Formation (Heidelberg, Germany; November 2016), *The Physical Properties of Large-Scale Galactic Filaments*
- Via Lactea: The Milky Way as a Star Formation Engine (Rome, Italy; September 2016), *The Physical Properties of Large-Scale Galactic Filaments*

- The Milky Way in Molecular Clouds Meeting (Charlottesville, VA; April 2016); *The Skeleton of the Milky Way*
- 225 AAS (January 2015; Seattle, WA) *The Skeleton of the Milky Way*
- VA Space Grant Research Conference (Hampton, VA; April 2014) *Hierarchical Formation in Action: Characterizing Accelerated Galaxy Evolution in Compact Groups*
- 221st AAS (January 2013; Long Beach, CA) *Hierarchical Formation in Action: Characterizing Accelerated Galaxy Evolution in Compact Groups*

OBSERVING EXPERIENCE

Cerro Tololo Observatory, Chile (Blanco 4m) (2 nights)	August 2018
Cerro Tololo Observatory, Chile (Blanco 4m) (3 nights)	February 2018
MMT Observatory; Tucson, AZ (4 nights)	August 2014
Kitt Peak Observatory (Bok 90"); Tucson, AZ (5 nights)	December 2012

SELECTED AWARDS

• Harvard Astronomy Departmental Teaching Award	Spring 2018
• Certificate of Distinction in Teaching, Harvard University	Spring 2018
• La Serena School for Data Science Full Scholarship	Summer 2017
• NSF Graduate Research Fellowship Award	Fall 2016-Fall 2019
• John P. and Carol J. Merrill Graduate Fellowship, Harvard University	Fall 2015-Present
• Peirce Fellowship, Harvard Astronomy	Fall 2015-Fall 2018
• UVA Undergraduate Physics Research Symposium, 1st Place	Fall 2014
• Vyssotsky Prize, University of Virginia Astronomy	Spring 2014
• Double Hoo Research Award, University of Virginia	Spring 2014
• Intermediate Honors, University of Virginia	Fall 2013
• Virginia Space Grant Consortium Research Fellowship	Summer 2013-Spring 2014
• Kate Cabell Claiborne Cox Scholarship, University of Virginia History	Spring 2013
• Harrison Undergraduate Research Award, University of Virginia	Summer 2013-Spring 2014
• Echols Scholarship Fund Grant, University of Virginia	Summer 2012
• Small Research and Travel Grant, University of Virginia	Summer 2012
• Wolfe Undergraduate Docent Award, University of Virginia	Spring 2012
• Echols Scholar, University of Virginia	Fall 2011-Fall 2015

SERVICE

• Referee for Astronomy & Astrophysics, The Astronomical Journal	Fall 2018 - Present
• Astronomy Rewind , Volunteer Lead	Fall 2018 - Present
• Public Talk, New Hampshire Astronomical Society	Spring 2018
• Cambridge Explores the Universe Volunteer, Harvard University	Spring 2016, 2017, 2018
• Development of MilkyWay3D.com Galactic Plane Mapper Tool	Fall 2016
• Harvard College Undergraduate Research Association Conference Invited Speaker	Fall 2016
• Interview with Science News on the Milky Way Skeleton	December 2015
• Interview with Space.com on the Milky Way Skeleton	January 2015

- *Dark Skies, Bright Kids Planetarium Lead*, University of Virginia March 2012–May 2015
- Harrison Institute for American History Docent, University of Virginia September 2011–May 2015

TEACHING

- Teaching Fellow —Physics & Chemistry of the ISM (AY203). Harvard University. Spring 2019
- Teaching Fellow —Galactic and Extragalactic Astronomy (AY17). Harvard University. Fall 2017

COMPUTING

Programming Languages: Python

Tools: LaTeX, glue, ds9, git