

# Dr. Erika Lynn Wagoner

Ph.D.

📍 Flagstaff, AZ, USA ✉ [wagoner.47@cloud.com](mailto:wagoner.47@cloud.com) 🏠 [wagoner47.github.io](https://wagoner47.github.io)

Process-driven graduate student with research background in statistical analysis and modeling of large data sets. Goal-oriented with experience working in collaborations.

## Experience

### Graduate Research Assistant, University of Arizona

Jan 2015 – Now

Research advisor is Dr. Eduardo Rozo in the Department of Physics. Research focused on large scale structure methods and measuring the cosmic expansion rate using velocity dispersions around galaxy clusters. Used galaxy catalog data from the Sloan Digital Sky Survey and the Dark Energy Survey. Also generated and analyzed mock catalogs for code development and model testing.

### Undergraduate Research Assistant, The Ohio State University

May 2013 – Jul 2014

Worked with Dr. Jennifer Johnson and Dr. Sarah Schmidt in the Department of Astronomy. Research focused on modeling M Dwarf colors, temperatures, and metallicities. Used data from the Sloan Digital Sky Survey and stellar isochrone models. Part of the Summer Undergraduate Research Program in Astronomy at OSU.

### Undergraduate Researcher, The Ohio State University

Jun 2012 – Aug 2012

Worked with Dr. L Stanley Durkin in the Department of Physics. Research focused on testing upgraded board design for the Large Hadron Collider (LHC) Compact Muon Solenoid (CMS) detector.

## Education

### Doctor of Philosophy (Ph.D.), Physics, University of Arizona

Oct 2020

Title: Enabling Galaxy Clustering and Dynamics as Tools of Precision Cosmology. Advisor: Dr. Eduardo Rozo. Other Committee members: Dr. Elisabeth Krause, Dr. Sam Gralla, Dr. Elliott Cheu, Dr. Charles Wolgemuth

### Bachelor of Science (B.S.), Physics and Astronomy, The Ohio State University

May 2014

Graduated *magna cum laude* (GPA 3.712), with honors in the Arts and Sciences, and with honors research distinction in Astronomy and Astrophysics. Successfully completed and defended an [undergraduate thesis](#). Thesis advisors: Dr. Jennifer Johnson and Dr. Sarah Schmidt. Committee: Dr. L. Stanley Durkin and Dr. Donald Terndrup.

## Teaching

### Teaching Assistant, [Introductory Physics](#)

Aug 2014 – Dec 2014

Undergraduate course Physics 141, Dep. of Physics, University of Arizona

### Undergraduate Tutor, [Physics \(various\)](#)

Sep 2011 – Jul 2014

Various undergraduate physics courses, Dep. of Physics, The Ohio State University

## Computer skills

Programming languages: Python, C/C++, SQL, Mathematica

Markup languages: HTML, CSS, Markdown, reStructuredText,  $\LaTeX$

Operating systems: Linux, macOS

Other: Git, Bash, Microsoft Office, LibreOffice, Keynote, Numbers, Pages

## Languages

Native language: **English**, Semi-fluent: **French**

## Talks and Presentations

- [1] Dealing with Systematics at the Map Level

Jan 2020

Dark Energy Science Collaboration Meeting, University of Arizona, Tucson, AZ, USA

- [2] Linear Model Systematics Mitigation

Nov 2019

Dark Energy Survey Collaboration Meeting, University of Sussex, Falmouth, Brighton, UK

- [3] Systematics Mitigation with Gaussian Processes Jun 2019  
Dark Energy Survey Collaboration Meeting, University of Pennsylvania, Pittsburgh, PA, USA

## Honors and Awards Presentations

- [1] LSST DESC Travel Grant Summer 2018
- [2] Graduate and Professional Student Council Travel Grant Spring 2018  
University of Arizona
- [3] Graduation Honors (B.S.)  
*magna cum laude*  
with honors in Arts and Sciences  
with honors research distinction in Astronomy and Astrophysics
- [4] Smith Senior Award Spring 2014  
The Ohio State University Department of Physics
- [5] Runner-up, Denman Undergraduate Research Forum Spring 2014  
The Ohio State University
- [6] Smith Junior Award Spring 2013  
The Ohio State University Department of Physics
- [7]  $\Sigma\Pi\Sigma$  Inductee Spring 2012

## Publications

### First author papers

- [1] Linear Systematics Mitigation in Galaxy Clustering in the Dark Energy Survey Year 1 Data  
**Erika L. Wagoner**, Eduardo Rozo, Xiao Fang, Martín Crocce, Jack Elvin-Poole, and Noah Weaverdyck. 2021, *MNRAS*. DOI: [10.1093/mnras/stab717](https://doi.org/10.1093/mnras/stab717). arXiv: [2009.10854](https://arxiv.org/abs/2009.10854)
- [2] Measuring Cosmological Distances Using Cluster Edges as a Standard Ruler  
**Erika L. Wagoner**, Eduardo Rozo, Han Aung, and Daisuke Nagai in prep. Submitted to MNRAS

### Peer-reviewed journals

- [1] Tomographic galaxy clustering with the Subaru Hyper Suprime-Cam first year public data release  
Andrina Nicola, David Alonso, Javier Sánchez, Anže Slosar, Humna Awan, Adam Broussard, Jo Dunkley, Eric Gawiser, Zahra Gomes, Rachel Mand elbaum, Hironao Miyatake, Jeffrey A. Newman, Ignacio Sevilla-Noarbe, Sarah Skinner, and **Erika L. Wagoner**. 2020, *J. Cosmology Astropart. Phys.* 2020, p. 044. DOI: [10.1088/1475-7516/2020/03/044](https://doi.org/10.1088/1475-7516/2020/03/044). arXiv: [1912.08209](https://arxiv.org/abs/1912.08209)
- [2] Clusters Have Edges: The Projected Phase Space Structure of SDSS redMaPPer Clusters  
Paxton Tomooka, Eduardo Rozo, **Erika L. Wagoner**, Han Aung, Daisuke Nagai, and Sasha Safonova. 2020, *arXiv e-prints*. DOI: [10.1093/mnras/staa2841](https://doi.org/10.1093/mnras/staa2841). arXiv: [2003.11555](https://arxiv.org/abs/2003.11555). Accepted for publication in MNRAS
- [3] Core Cosmology Library: Precision Cosmological Predictions for LSST  
Nora Elisa Chisari, David Alonso, Elisabeth Krause, C. Danielle Leonard, Philip Bull, Jérémy Neveu, Antonio Villarreal, Sukhdeep Singh, Thomas McClintock, John Ellison, Zilong Du, Joe Zuntz, Alexander Mead, Shahab Joudaki, Christiane S. Lorenz, Tilman Tröster, Javier Sanchez, Francois Lanusse, Mustapha Ishak, Renée Hlozek, Jonathan Blazek, Jean-Eric Campagne, Husni Almoubayyed, Tim Eifler, Matthew Kirby, David Kirkby, Stéphane Plaszczynski, Anže Slosar, Michal Vrástil, **Erika L. Wagoner**, and LSST Dark Energy Science Collaboration. 2019, *ApJS*, 242, p. 2. DOI: [10.3847/1538-4365/ab1658](https://doi.org/10.3847/1538-4365/ab1658). arXiv: [1812.05995](https://arxiv.org/abs/1812.05995)
- [4] Examining the relationships between colour,  $T_{\text{eff}}$ , and [M/H] for APOGEE K and M dwarfs  
Sarah J. Schmidt, **Erika L. Wagoner**, Jennifer A. Johnson, James R. A. Davenport, Keivan G. Stassun, Diogo Souto, and Jian Ge. 2016, *MNRAS*, 460, pp. 2611–2624. DOI: [10.1093/mnras/stw1139](https://doi.org/10.1093/mnras/stw1139). arXiv: [1605.03732](https://arxiv.org/abs/1605.03732)

### Peer-reviewed conferences and workshops

- [1] Using APOGEE Data to Examine Late-K and Early-M Dwarfs  
Sarah J. Schmidt, **Erika L. Wagoner**, Jennifer Johnson, Jose Gregorio Fernandez Trincado, Annie Robin, Celine Reyle, Ryan Terrien, Carlos Allende-Prieto, Fred Hearty, Steven R. Majewski, and Ricardo P. Schiavon. *American Astronomical Society Meeting Abstracts #225*, 2015

## Published code

- [1] CCL: Core Cosmology Library  
Nora Elisa Chisari, David Alonso, Elisabeth Krause, C. Danielle Leonard, Philip Bull, Jérémy Neveu, Antonio Villarreal, Sukhdeep Singh, Thomas McClintock, John Ellison, Zilong Du, Joe Zuntz, Alexander Mead, Shahab Joudaki, Christiane S. Lorenz, Tilman Troester, Javier Sanchez, Francois Lanusse, Mustapha Ishak, Renée Hlozek, Jonathan Blazek, Jean-Eric Campagne, Husni Almoubayyed, Tim Eifler, Matthew Kirby, David Kirkby, Stéphane Plaszczyński, Anze Slosar, Michal Vrátil, and **Erika L. Wagoner**. 2019. ascl: [1901.003](#)