Erika Lynn Wagoner

Curriculum Vitae

PERSONAL DETAILS

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RESEARCH INTERESTS

My research interests lie in cosmology, especially the analysis of cosmological survey data. I have focused primarily on the use of both photometric and spectroscopic data in studying the cosmic expansion history, and am also familiar with observational systematics for galaxy clustering. I am a member of both the Dark Energy Survey (DES) and the Dark Energy Science Collaboration (DESC) of the Vera Rubin Observatory's Legacy Survey of Space and Time (LSST), so a large portion of my graduate work has been focused on optimally analyzing the data from these two surveys.

EDUCATION

Ph.D. in Physics **2014-2020**

University of Arizona

Advisor: Eduardo Rozo; Tentative dissertation title: Precision Cosmology in the Era of Large Data; Defense date: October 15, 2020

B.S. in Physics and Astronomy **2010-2014**

The Ohio State University

Advisor: Jennifer Johnson; Thesis title: Testing Stellar Models for M Dwarfs

HONORS AND AWARDS

2018 Large Synoptic Survey Telescope Dark Energy Science Collaboration Travel Grant
2018 Graduate and Professional Student Council Travel Grant, University of Arizona
2014 Smith Senior Award, Ohio State Department of Physics
2014 Denman Undergraduate Research Forum Runner-up
2013 Smith Junior Award, Ohio State Department of Physics

RESEARCH EXPERIENCE

Research Assistant **2015-2020**

University of Arizona

Advisor: Dr. Eduardo Rozo

Cosmology analysis, with both photometric and spectroscopic survey data. Projects I have worked on include developing a method for three-dimensional baryon acoustic oscillation analyses with photometric data and mitigation of observational systematics for large scale structure (LSS) analyses (working with the DES LSS working group). I have also worked on a project forecasting measurements of the Hubble constant using the cluster edge radius identifiable in the velocity dispersion profile around redMaPPer clusters.

Undergraduate Researcher **2013-2014**

The Ohio State University

Research position through the Summer Undergraduate Research Program in Astronomy. Advisor: Dr. Jennifer Johnson

My work was focused on calibrating the relationship between color, temperature, and metalicity for M dwarfs observed with APOGEE, which would then be used to estimate the metalicity for M dwarfs found in SEGUE. This work led to my undergraduate thesis, which I defended in spring 2014.

TRAVEL AND PRESENTATIONS

Dealing with Systematics at the Map Level **Jan 21, 2020**

University of Arizona

Talk during the Large Scale Structure parallel session of the January 2020 DESC Collaboration meeting

Linear Model Systematics Mitigation **Nov 5, 2019**

University of Sussex

Talk during the Large Scale Structure parallel session of the November 2019 DES Collaboration meeting

Systematics Mitigation with Gaussian Processes **June 20, 2019**

University of Pennsylvania

Talk during the Large Scale Structure parallel session of the June 2019 DES Collaboration meeting

DES Observing **September 2018**

CTIO, Chile

Essential Cosmology for the Next Generation **December 2017**

Puerto Vallarta, Mexico

AKA Cosmology on the Beach

SKILLS

Languages	English (native tongue), French (semi-fluent)
Software	LaTeX, Python, C++, Mathematica, SQL

COLLABORATION MEMBERSHIPS

Dark Energy Survey collaboration

Dark Energy Science Collaboration (part of the Vera Rubin Observatory's Legacy Survey of Space and Time)

TEACHING EXPERIENCE

Teaching Assistant **2014**

University of Arizona

Courses: Introductory physics (classical mechanics)

Physics Tutor **2011-2014**

The Ohio State University

Courses: Algebra and calculus based introductory physics sequences

PUBLICATIONS

1. *Measuring Cosmological Distances Using Cluster Edges as a Standard Ruler.* **Wagoner, E. L.**, Rozo, E., et al. In preparation, to be submitted to MNRAS within one month

2. *Linear Systematics Mitigation in Galaxy Clustering in the Dark Energy Survey Year 1 Data.* **Wagoner, E. L.**, Rozo, E., Fang, X., et al. Submitted to arXiv and MNRAS

3. *Tomographic galaxy clustering with the Subaru Hyper Suprime-Cam first year public data release.* Nicola, A. [and 14 others including **Wagoner, E. L.**]. JCAP03, (2020) 044

4. *Clusters Have Edges: The Projected Phase Space Structure of SDSS redMaPPer Clusters.* Tomooka, P., Rozo, E., **Wagoner, E. L.**, et al. 2020, arXiv eprints, arXiv:2003.11555 (Submitted to MNRAS)

5. *Core Cosmology Library: Precision Cosmological Predictions for LSST.* Chisari, N. E. [and 29 others including **Wagoner, E. L.**]. 2019, ApJS, 242, 2

6. *Examining the relationships between colour, $T_{\rm eff}$, and [M/H] for APOGEE K and M dwarfs.* Schmidt, S. J., **Wagoner, E. L.**, Johnson, J. A., et al. 2016, MNRAS, 460, 2611