

GILLIAN DORA BELTZ-MOHRMANN

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EDUCATION

Ph.D., Astrophysics, Vanderbilt University	expected 2022
Thesis Title: Taking Halo Modeling to the Next Level	
Advisor: Andreas Berlind	
M.A., Astrophysics, Vanderbilt University	2018
B.A., Astrophysics, German, <i>cum laude</i> , Wellesley College	2016
Advisors: Kim McLeod, James Battat	

HONORS & AWARDS

Vanderbilt Physics & Astronomy Dept. - Most Outstanding Student Publication Award	2020
Vanderbilt Data Science Symposium - Graduate Student Poster Competition (1st place)	2019
Vanderbilt Akunuri V. Ramayya Award for Outstanding Teaching Assistant	2018
Vanderbilt Provost Graduate Fellowship	2016–2021
Undergraduate Chambliss Astronomy Achievement Award (Honorable Mention)	2016
Wellesley College Sarah Frances Whiting Medal for Achievement in Astronomy	2014

GRANTS

XSEDE - Awarded 58.4k Node Hours (2.8M CPU hours) on Stampede2	2019, 2020
Vanderbilt Physics & Astronomy Dept. - McMinn Research Grants (\$3,000 total)	2019, 2020
Vanderbilt College of Arts and Sciences - Graduate Summer Research Award (\$1,905)	2018

RECENT TALKS & POSTERS

Invited Talks

Johns Hopkins Galaxies and AGN Journal Club	2021
<i>The impact of baryonic physics on the abundance, clustering, and concentration of halos</i>	
Yale Galaxy Lunch	2021
<i>The impact of baryonic physics on the abundance, clustering, and concentration of halos</i>	

Contributed Talks

KITP Conference: The Galaxy-Halo Connection Across Cosmic Time	2020
<i>HMF Discrepancies between Hydro and DMO Simulations</i>	
Universität Innsbruck Conference: The connection between galaxies and dark matter haloes	2020
<i>Taking Halo Modeling to the Next Level</i>	

Contributed Posters

The First Shanghai Assembly on Cosmology and Galaxy Formation	2019
<i>Taking HOD Modeling to the Next Level: Results from SDSS & Hydrodynamic Simulations</i>	
Santa Cruz Galaxy Workshop	2019
<i>Can We Ignore Baryons in Halo Modeling?</i>	

PUBLICATIONS

Submitted & Published

4. **Beltz-Mohrmann, G. D.**, Berlind, A. A., 2021, “The impact of baryonic physics on the abundance, clustering, and concentration of halos”, *The Astrophysical Journal*, in press.

3. **Beltz-Mohrmann, G. D.**, Berlind, A. A., Szewciw, A. O., 2020, “Testing the Accuracy of Halo Occupation Distribution Modelling using Hydrodynamical Simulations”, *Monthly Notices of the Royal Astronomical Society*, 491, 5771.
2. Dale, D. A., **Beltz-Mohrmann, G. D.**, Egan, A. A., Hatlestad, A. J., Herzog, L. J., Leung, A. S., McLane, J. N., Phenicie, C., Roberts, J. S., Barnes, K. L., Boquien, M., Calzetti, D., Cook, D. O., Kobulnicky, H. A., Staudaher, S. M., van Zee, L., 2016, “Radial Star Formation Histories in Fifteen Nearby Galaxies”, *The Astronomical Journal*, 151, 4.
1. Souza, S. P., **Beltz-Mohrmann, G.**, Sami, M., 2014, “The Light Curve and Period of MT696”, *The Journal of the American Association of Variable Star Observers*, 42, 154.

In Preparation

2. Szewciw, A. O., **Beltz-Mohrmann, G. D.**, Berlind, A. A., Sinha, M., 2021, “Toward Accurate Modeling of Galaxy Clustering on Small Scales: Constraining the Galaxy-Halo Connection with Optimal Statistics”, in prep.
1. **Beltz-Mohrmann, G. D.**, Szewciw, A. O., Berlind, A. A., Sinha, M., 2021, “Toward Accurate Modeling of Galaxy Clustering on Small Scales: Extensions to the Standard Halo Model”, in prep.

SKILLS & EXPERIENCE

Computational Skills

Languages: PYTHON, C, MATLAB, BASH, GIT, L^AT_EX

Parallel Computing: MPI, OPENMP

Co-Investigator & Allocation Manager of Las Damas Project (XSEDE Grant) 2017–present

Experience generating initial conditions using CAMB and 2LPTIC, running cosmological N-body simulations using GADGET-2 & GADGET-4, creating halo catalogues using ROCKSTAR halo finder, and running MCMC parameter searches

Observing Experience

Wyoming Infrared Observatory: 2.3 meter reflecting telescope (~ 80 hours) 2014

Williams College: 0.6 meter reflecting telescope (~ 80 hours) 2013

Wellesley College: 6" & 12" refracting telescopes (~ 100 hours), 12" reflecting telescopes (~ 100 hours), 0.6 meter reflecting telescope (~ 200 hours) 2012–2016

TEACHING & OUTREACH

Co-mentored high school student Caleb Dennis 2017–2019

Two-time 1st place winner at Middle Tennessee Science & Engineering Fair

Dyer Observatory Volunteer, Vanderbilt University 2017–2018

Solar Eclipse talk (2017), Meet the Astronomer Night (2018)

Graduate Teaching Assistant, *Intro Astronomy Lab*, Vanderbilt University 2016–2019

Physics Tutor, Wellesley College 2013–2016

Whitin Observatory Volunteer, Wellesley College 2012–2016

PRE-DOCTORAL RESEARCH POSITIONS

Graduate Research Assistant, Vanderbilt University 2016–present

LIGO Summer Undergraduate Research Fellow, Caltech 2015

Advisors: Alan Weinstein, Jonah Kanner

NSF REU, University of Wyoming 2014

Advisor: Daniel Dale

Keck Northeast Astronomy Consortium Summer Research Fellow, Williams College 2013

Advisor: Steven Souza

Undergraduate Research Assistant, Wellesley College 2013–2016