GILLIAN DORA BELTZ-MOHRMANN

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EDUCATION

Ph.D., Astrophysics, Vanderbilt University — expected 2022
Advisor: Andreas Berlind
Thesis: *Developing an Accurate Probe of the Galaxy-Halo Connection: Baryonic Effects, Small-Scale Galaxy Clustering, and Halo Model Extensions*

M.A., Astrophysics, Vanderbilt University — 2018

B.A., Astrophysics, German, *cum laude*, 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

PUBLICATIONS

Submitted & Published

5. 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", The Astrophysical Journal, in press, arXiv:2110.03701

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, 921, 112

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

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.

RECENT TALKS & POSTERS

Invited Talks

University of Chicago, *Developing an Accurate Probe of the Galaxy-Halo Connection* 2021

Johns Hopkins Galaxies and AGN Journal Club, *The impact of baryonic physics on the abundance, clustering, and concentration of halos* 2021

Yale Galaxy Lunch, *The impact of baryonic physics on the abundance, clustering, and concentration of halos* 2021

Contributed Talks

KITP Conference: The Galaxy-Halo Connection Across Cosmic Time, *HMF Discrepancies between Hydro and DMO Simulations* 2020

Universität Innsbruck Conference: The connection between galaxies and dark matter haloes, *Taking Halo Modeling to the Next Level* 2020

Contributed Posters

The First Shanghai Assembly on Cosmology and Galaxy Formation, *Taking HOD Modeling to the Next Level: Results from SDSS & Hydrodynamic Simulations* 2019

Santa Cruz Galaxy Workshop, *Can We Ignore Baryons in Halo Modeling?* 2019

COMPUTATIONAL SKILLS & EXPERIENCE

Languages: PYTHON, C, MATLAB, BASH, GIT, LaTeX

Parallel Computing: MPI, OPENMP

Supercomputing: Co-Investigator & Allocation Manager of LasDamas Project 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 on Stampede2 supercomputer

TEACHING & OUTREACH

Co-mentored high school student Caleigh Dennis 2017–2019
Two-time 1st place winner at Middle Tennessee Science & Engineering Fair

Outreach at Vanderbilt University 2016–present
Dyer Observatory Volunteer: Solar Eclipse talk (2017), Meet the Astronomer Night (2018)
Nashville Girl Scout Troop talk (2018)
Volunteer for Summer Academy at Vanderbilt for the Young (July 2017)
Vanderbilt Student Volunteers for Science (Fall 2016)

Graduate Teaching Assistant, *Intro Astronomy Lab*, Vanderbilt University 2016–2019
~ 50 hours experience using $12''$ reflecting telescopes

Physics Tutor, Wellesley College 2013–2016

Whitin Observatory Volunteer, Wellesley College 2012–2016
~ 100 hours experience using $6''$ & $12''$ historic refracting telescopes
~ 50 hours experience using $12''$ reflecting telescopes

PRE-DOCTORAL RESEARCH POSITIONS

Graduate Research Assistant, Vanderbilt University 2016–present

LIGO Summer Undergraduate Research Fellow, Caltech 2015
Advisors: Alan Weinstein, Jonah Kanner

NSF Summer REU, University of Wyoming 2014
Advisor: Daniel Dale

Summer Research Fellow, Keck Northeast Astronomy Consortium, Williams College 2013
Advisor: Steven Souza

Undergraduate Research Assistant, Wellesley College 2013–2016