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, *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

RECENT TALKS & POSTERS

Invited Talks

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

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

Contributed Talks

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

Universitaet Innsbruck Conference: The connection between galaxies and dark matter haloes — 2020
Taking Halo Modeling to the Next Level

Contributed Posters

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

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

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, LaTeX
Parallel Computing: MPI, OPENMP
Co-Investigator & Allocation Manager of XSEDE Grant — 2017–present
Experience generating initial conditions using CAMB and 2LPTIC,
running cosmological simulations using GADGET-2 & GADGET-4,
creating halo catalogues using ROCKSTAR halo finder,
and running MCMC parameter searches

Observational Experience

Wyoming Infrared Observatory 2.3 meter telescope ($\sim$ 80 hours) — 2014
Wellesley College 0.6 meter telescope ($\sim$ 200 hours) — 2013–2016
Williams College 0.6 meter telescope ($\sim$ 80 hours) — 2013
Wellesley & Vanderbilt 12″ Reflecting Telescopes ($\sim$ 50 hours) — 2012–present
Wellesley College 6″ & 12″ refracting telescopes ($\sim$ 100 hours) — 2012–2016

TEACHING & OUTREACH

Graduate Teaching Assistant, *Intro Astronomy Lab*, Vanderbilt University — 2016–2019
Co-mentored high school student Caleigh Dennis — 2017–2019
Two-time 1st place winner at Middle Tennessee Science & Engineering Fair
Physics Tutor, Wellesley College — 2013–2016
Whitin Observatory Volunteer, Wellesley College — 2012–2016

PRE-DOCTORAL APPOINTMENTS

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