Trevor Z. Dorn-Wallenstein

Curriculum Vitae

University of Washington
Department of Astronomy
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PhD Candidate, Graduate Research Assistant
Department of Astronomy
University of Washington, Seattle, WA

Education

Ph.D. in Astronomy — June, 2021
Thesis: "I'll Have a Latte (of Data) To Go:" Massive Stars Seen Through Tall-, Grande-, and Venti-Sized Data
University of Washington, Seattle, WA

M.S. in Astronomy — 2016
University of Washington, Seattle, WA

B.S. in Physics — 2015
B.S. in Astronomy
Thesis: Characterizing the X-ray Source Population of The Whirlpool Galaxy
Wesleyan University, Middletown, CT

Professional Experience

Research and Teaching Assistant (University of Washington)	Fall 2015 - Present
REU Student Researcher (Colgate University)	Summer 2014
Undergraduate Researcher (Wesleyan University)	Spring 2013 - Spring 2015
24" Telescope Operator (Van Vleck Observatory)	Spring 2013 - Spring 2015

Teaching Experience

Teaching Assistant (UW) — 2015-2017
· Designed and led lab/quiz sections for introductory college astronomy courses.

Honors & Awards

Astronomy Deptartment Graduate Research Prize (UW)	2020
Schmidt Science Fellowship Nominee (UW)	2020
Selected Attendee: Pulsations Along Stellar Evolution VIII (La Plata, Argentina)	2019
International Travel Grant Recipient (International Astronomical Union)	2016
High Honors (Wesleyan University)	2015
Littell Prize (Wesleyan University Astronomy Dept.)	2015
Presenter, Committee on Undergraduate Research REU Symposium	2014

Research Experience

Graduate Research Assistant (U. Washington) — 2015 – Present
Supervisors: Prof. Emily M. Levesque (Ph.D. Thesis Advisor), Prof. J. Davenport, Prof. J. Dalcanton
(Published: Dorn-Wallenstein et al. 2017, 2018, 2019, 2020a, 2020b)

Undergraduate Researcher (Wesleyan University) — 2013 – 2015
Supervisor: Prof. Roy Kilgard (B.A. Honors Thesis Advisor)
Published: Dorn-Wallenstein (2015)

REU Student Researcher (Colgate University) 2014
Supervisor: Prof. Jeff Bary (Keck Northeast Astronomy Consortium)

Technical Skills

Data Reduction, analysis, and visualization with Python, MySQL/ADQL, IDL, IRAF, ciao/Xspec
Proposing, planning, and carrying out optical spectroscopic and photometric observations
Survey & time-domain data retrieval and analysis
Developer on open-source software packages: JazzHands, arcesetc, aesop, ingot

Speaking Experience

Contributed Talk, MOBSTER-1 Virtual Conference **video** 2020
Breakout wavelet tutorial, online.tess.science Virtual Sprint **video** 2020
Astronomy on Tap Seattle **video** 2019
Contributed Talk, Northwest x Southwest Meeting (University of British Columbia) 2018
Astronomy on Tap Seattle **video** 2017
Contributed Splinter Talk, IAU Symposium 329 (Auckland, NZ) 2016

Successful Observing Proposals

APO 3.5-m (>30 half nights) 2015 – Present
Optical imaging, long-slit spectroscopy, echelle spectroscopy on various projects.
P-I: **T. Dorn-Wallenstein**

TESS, Cycle 3 (targets awarded) 2020
"Pulsations, Rotation, and Outbursts: a TESS Census of Evolved Supergiants"
P-I: **T. Dorn-Wallenstein**

TESS, Cycle 2 (targets awarded) 2019
"A Census of Variability in Evolved Massive Stars"
P-I: **T. Dorn-Wallenstein**

Gemini, GMOS-S 2017A
"Multi-Wavelength Monitoring of the Young HMXB SN 2010da,"
P-I: E. Levesque

Gemini Fast Turnaround, GMOS-N 2016A
"A Candidate Red Supergiant High-Mass X-ray Binary in M31,"
P-I: E. Levesque

ESO, VLT/XSHOOTER 2016A
"SMC 8324: A New Thorne-Zytkow Object Candidate in the Small Magellanic Cloud,"
P-I: E. Levesque

Service & Outreach

Astronomy on Tap SEA Organizer 2016 - 2020
Graduate Student Representative to Faculty (UW) 2018-2020
Journal Referee (MNRAS) 2019, 2020
Pre-MAP Graduate Research Mentor 2018, 2020
APO–UW Time Allocation Committee 2017 – 2019
Open House Speaker (Theodor Jacobson Observatory, UW) 2019
Prospective Graduate Student Visit Coordinator (UW) 2017, 2018
Planetarium Presenter (UW) 2016, 2017

1st Author Publications

6. Photometric Classifications of Evolved Massive Stars: Preparing for the Era of *Webb* and *Roman* with Machine Learning
T.Z. Dorn-Wallenstein, J.R.A. Davenport, & D. Huppenkothen. ApJ, submitted (2021)
5. Short Term Variability of Evolved Massive Stars with TESS II: A New Class of Cool, Pulsating Supergiants
T.Z. Dorn-Wallenstein, E.M. Levesque, K.F. Neugent, J.R.A. Davenport, B.M. Morris, & K. Gootkin†. ApJ, 902(1):24 (2020) Press: Physics World, Astrobites
4. A Comparison of Rotating and Binary Stellar Evolution Models: Effects on Massive Star Populations
T.Z. Dorn-Wallenstein & E.M. Levesque. ApJ, 896(2):164 (2020)
3. Short Term Variability of Evolved Massive Stars with TESS
T.Z. Dorn-Wallenstein, E.M. Levesque, & J.R.A. Davenport. ApJ, 878(1):155 (2019)
2. Stellar Population Diagnostics of the Massive Star Binary Fraction
T.Z. Dorn-Wallenstein & E.M. Levesque. ApJ, 867(2):125 (2018)
1. A Mote in Andromeda's Disk: A Misidentified Periodic AGN behind M31
T.Z. Dorn-Wallenstein, E.M. Levesque, & J.J. Ruan. ApJ, 850(1):86 (2017)

Co–Author Publications

5. 13 years of P Cygni Spectropolarimetry: Investigating Mass Loss through Hα, Periodicity, and Ellipticity
K. Gootkin†, **T.Z. Dorn-Wallenstein**, *et al.* ApJ, 900(2):162 (2020)
4. Photometric Metallicities for Low-Mass Stars with Gaia and WISE
J.R.A. Davenport & **T.Z. Dorn-Wallenstein**. RNAAS, 3, 3, (2019)
3. arcesetc: ARC Echelle Spectrograph Exposure Time Calculator
B.M. Morris, **T.Z. Dorn-Wallenstein**, *et al.* JOSS, 4, 34 (2019)
2. aesop: ARC Echelle Spectroscopic Observation Pipeline
B.M. Morris & **T.Z. Dorn-Wallenstein**. JOSS, 3, 28 (2018)
1. No Strong Geometric Beaming in the Ultraluminous Neutron Star Binary NGC 300 ULX-1 (SN 2010da) from Swift and Gemini
B. Binder, E.M. Levesque, & **T.Z. Dorn-Wallenstein**. ApJ, 863(2):141 (2018)

Recent Conference Proceedings

Talk: A New Class of Pulsating Yellow Supergiants: Implications for the Red Supergiant Problem
T.Z. Dorn-Wallenstein, E.M. Levesque, K.F. Neugent, J.R.A. Davenport, B.M. Morris, & K. Gootkin†.
MOBSTER-1 Virtual Conference, 2020

Poster: Measuring the Massive Star Binary Fraction with Stellar Population Diagnostics
T.Z. Dorn-Wallenstein, & E.M. Levesque.
AAS 233, 2019 (Seattle, WA)

Poster: 13 Years of Spectropolarimetry of P Cygni
K. Gootkin†, J. Lomax, **T.Z. Dorn-Wallenstein**, & E.M. Levesque.
AAS 233, 2019 (Seattle, WA)

Talk: Measuring the Massive Star Binary Fraction with Stellar Population Diagnostics
T.Z. Dorn-Wallenstein & E.M. Levesque.
Northwest x Southwest Meeting, 2018, (University of British Columbia)

Poster: 13 Years of Spectropolarimetry of P Cygni
K. Gootkin†, J. Lomax, **T.Z. Dorn-Wallenstein**, & E.M. Levesque.
Northwest x Southwest Meeting, 2018, (University of British Columbia)

Poster: A Mote in Andromeda's Disk: A Periodic AGN Behind M31
T.Z. Dorn-Wallenstein, E.M. Levesque, & J.J. Ruan.
AAS 231, 2018 (National Harbor, MD)

Talk: There Are (super)Giants in the Sky: Searching for Misidentified Massive Stars in Algorithmically-Selected Quasar Catalogs
T.Z. Dorn-Wallenstein & E.M. Levesque.
IAUS 329: The Lives and Death Throes of Massive Stars, 2016 (Auckland, New Zealand)

Poster: Properties of the Discrete X-ray Source Population of M51
T.Z. Dorn-Wallenstein, *et al.*.
AAS 225, 2015 (Seattle, WA)

†: Supervised student