

TREVOR Z. DORN-WALLENSTEIN

CURRICULUM VITAE

Observatories of the Carnegie Institution for Science
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Employment	CARNEGIE FELLOW Observatories of the Carnegie Institution for Science, Pasadena, CA	September 2022 - Present
Postdoctoral Experience	POSTDOCTORAL SCHOLAR University of Washington, Seattle, WA	September 2021 - September 2022
Education	PH.D. IN ASTRONOMY <i>Thesis: "Small Samples No More: Probing the Evolution of Massive Stars"</i> University of Washington, Seattle, WA	August, 2021
	M.S. IN ASTRONOMY University of Washington, Seattle, WA	2016
	B.S. IN PHYSICS B.S. IN ASTRONOMY <i>Thesis: "Characterizing the X-Ray Source Population of the Whirlpool Galaxy"</i> Wesleyan University, Middletown, CT	2015
Honors & Awards	ASTRONOMY DEPARTMENT 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	POSTDOCTORAL FELLOW (Carnegie) Supervisors: Dr. Tony Piro	2022 – Present
	POSTDOCTORAL SCHOLAR (U. Washington) Supervisors: Prof. Emily M. Levesque, Prof. J. Davenport	2021 – 2022
	GRADUATE RESEARCH ASSISTANT (U. Washington) 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, 2021)	2015 – Present
	UNDERGRADUATE RESEARCHER (Wesleyan University) Supervisor: Prof. Roy Kilgard (B.A. Honors Thesis Advisor) Published: Dorn-Wallenstein (2015)	2013 – 2015
	REU STUDENT RESEARCHER (Colgate University) Supervisor: Prof. Jeff Bary (Keck Northeast Astronomy Consortium)	2014

	24" TELESCOPE OPERATOR (Van Vleck Observatory) Supervisor: Prof. Seth Redfield (Wesleyan University)	2014 – 2015
Speaking Experience	Invited Panelist, Observations, Transport in Stellar Interiors (KITP), video Invited Talk, TESS Science Conference II, video Invited Talk, Thorne-Zytkow Object Meeting-in-a-Meeting, AAS 238 Invited Talk, AAVSO Webinar Invited Talk, ARC Star Talk, University of Victoria video Astronomy at Home video Invited Talk, “Lunch Talk” Seminar, Carnegie Observatories Contributed Talk, DELVE Virtual Conference Contributed Talk, MOBSTER-1 Virtual Conference video Breakout wavelet tutorial, online.tess.science Virtual Sprint video Contributed Talk, STScI Spring Symposium Astronomy on Tap Seattle video Contributed Talk, Northwest x Southwest Meeting (University of British Columbia) Astronomy on Tap Seattle video Contributed Splinter Talk, IAU Symposium 329 (Auckland, NZ)	2021 2021 2021 2021 2021 2021 2021 2020 2020 2019 2019 2018 2017 2016
Successful Observing Proposals	Las Campanas Observatory, Magellan telescopes (5 nights) Echelle spectroscopy with MIKE on various projects. P-I: T. Dorn-Wallenstein	2022 – Present
	TESS, Cycles 2-4 (targets awarded) P-I: T. Dorn-Wallenstein	2019 – 2021
	APO 3.5-m (>30 half nights) Optical imaging, long-slit spectroscopy, echelle spectroscopy on various projects. P-I: T. Dorn-Wallenstein	2015 – Present
	Gemini, GMOS-S “Multi-Wavelength Monitoring of the Young HMXB SN 2010da,” P-I: E. Levesque	2017A
	Gemini Fast Turnaround, GMOS-N “A Candidate Red Supergiant High-Mass X-ray Binary in M31,” P-I: E. Levesque	2016A
	ESO, VLT/XSHOOTER “SMC 8324: A New Thorne-Zytkow Object Candidate in the Small Magellanic Cloud,” P-I: E. Levesque	2016A
Technical Skills	Developer on open-source software packages: JAZZHANDS , ARCESETC , AESOP , INGOT Data reduction, analysis, and visualization with Python, SQL/ADQL, IDL, IRAF, ciao/Xspec Proposing, planning, and carrying out optical spectroscopic and photometric observations Survey & time-domain data retrieval and analysis; machine learning methods (regression & classification)	
Service & Outreach	DIVERSITY, EQUITY, & INCLUSION COMMITTEE MEMBER (Carnegie Observatories) JOURNAL REFEREE (MNRAS, AAS JOURNALS) GRADUATE STUDENT REPRESENTATIVE TO FACULTY (UW) ASTRONOMY ON TAP SEA ORGANIZER APO-UW TIME ALLOCATION COMMITTEE PROSPECTIVE GRADUATE STUDENT VISIT COORDINATOR (UW) PLANETARIUM PRESENTER (UW)	2022 – 2023 2019 - 2023 2018 – 2020 2016 – 2020 2017 – 2019 2017, 2018 2016, 2017

- Teaching & Mentoring**
- RESEARCH MENTORSHIP 2017 – 2023
 - Mentored multiple undergraduate students through the Pre-MAP program at UW and the CASSI program at Carnegie, leading to multiple student publications.
 - Completed the [Advancing Inclusive Mentoring](#) Program. This research mentor training program provides 12+ hours of content and discussion about positive and inclusive mentoring practices.
 - TEACHING ASSISTANT (UW) 2015-2017
 - Designed and led lab/quiz sections for introductory college astronomy courses.

**1st Author
Publications**

9. [PHYSICAL PROPERTIES OF 5,000 COOL LMC SUPERGIANTS WITH GAIA XP SPECTRA: A DETAILED PORTRAIT OF THE UPPER HR DIAGRAM HINTS AT MISSING SUPERNOVA PROGENITORS](#)
T.Z. Dorn-Wallenstein, K.F. NEUGENT, & E.M. LEVESQUE. *APJ*, IN PRESS (2023)
8. [THE PROPERTIES OF FAST YELLOW PULSATING SUPERGIANTS: FYPS POINT THE WAY TO MISSING RED SUPERGIANTS](#)
T.Z. Dorn-Wallenstein, E.M. LEVESQUE, J.R.A. DAVENPORT, K.F. NEUGENT, B.M. MORRIS, & K.A. BOSTROEM. *APJ*, 940(1):27 (2022)
7. [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, & E.M. LEVESQUE. *APJ*, 913(1):32 (2021)
6. [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](#)
5. [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)
4. [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)
3. [STELLAR POPULATION DIAGNOSTICS OF THE MASSIVE STAR BINARY FRACTION](#)
T.Z. Dorn-Wallenstein & E.M. LEVESQUE. *APJ*, 867(2):125 (2018)
2. [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)
1. [CHARACTERIZING THE X-RAY SOURCE POPULATION OF THE WHIRLPOOL GALAXY](#)
T.Z. Dorn-Wallenstein. WESLEYAN UNIVERSITY PRESS (2015)

**Co-Author
Publications**

7. [PHOTOMETRIC DETECTION OF INTERNAL GRAVITY WAVES IN UPPER MAIN-SEQUENCE STARS. III. COMPARISON OF GAUSSIAN PROCESSES AND AMPLITUDE SPECTRUM FITTING](#)
D.M. BOWMAN & **T.Z. Dorn-Wallenstein**. *A&A*, ACCEPTED (2022).
Developed and tested GP fitting methodology, computed simulated light curves in hare & hound tests, contributed to manuscript.
6. [TESTING EVOLUTIONARY MODELS WITH RED SUPERGIANT AND WOLF-RAYET POPULATIONS](#)
P. MASSEY, K.F. NEUGENT, **T.Z. Dorn-Wallenstein**, *et al.* *APJ*, 922(2):177 (2021).
Computed model grids, ran variable star-formation history simulations, contributed to manuscript.
5. [13 YEARS OF P CYGNI SPECTROPOLARIMETRY: INVESTIGATING MASS LOSS THROUGH H \$\alpha\$, PERIODICITY, AND ELLIPTICITY](#)
K. GOOTKIN[†], **T.Z. Dorn-Wallenstein**, *et al.* *APJ*, 900(2):162 (2020)
Mentored first author, oversaw the analysis work and development of the manuscript.
4. [PHOTOMETRIC METALLICITIES FOR LOW-MASS STARS WITH GAIA AND WISE](#)
J.R.A. DAVENPORT & **T.Z. Dorn-Wallenstein**. *RNAAS*, 3, 3, (2019)
Ran queries and cross-matches to assemble the sample, aided in manuscript preparation.
3. [ARCESETC: ARC ECHELLE SPECTROGRAPH EXPOSURE TIME CALCULATOR](#)
B.M. MORRIS, **T.Z. Dorn-Wallenstein**, *et al.* *JOSS*, 4, 34 (2019)
Aided in software development and the creation of documentation.
2. [AESOP: ARC ECHELLE SPECTROSCOPIC OBSERVATION PIPELINE](#)
B.M. MORRIS & **T.Z. Dorn-Wallenstein**. *JOSS*, 3, 28 (2018)
Aided in software development and the creation of documentation.
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)
Reduced optical spectroscopic observations, contributed to manuscript preparation.

- Recent Conference Proceedings** TALK: NEW PHENOMENA IN EVOLVED SUPERGIANTS REVEALED BY TESS
T.Z. Dorn-Wallenstein, E.M. Levesque, K.F. Neugent, J.R.A. Davenport, B.M. Morris, & K. Gootkin[†].
TESS Science Conference II Virtual Conference, 2021
- TALK: PHOTOMETRIC IDENTIFICATION OF RED SUPERGIANTS BEYOND THE LOCAL GROUP USING MACHINE LEARNING
T.Z. Dorn-Wallenstein, J.R.A. Davenport, D. Huppenkothen, & E.M. Levesque.
AAS 238, 2021 (Virtual)
- TALK: NEW PHENOMENA IN EVOLVED SUPERGIANTS REVEALED BY TESS
T.Z. Dorn-Wallenstein, E.M. Levesque, K.F. Neugent, J.R.A. Davenport, B.M. Morris, & K. Gootkin[†].
DELVE: Death-throes of Evolved stars, a Virtual Encounter, 2021
- LIGHTNING TALK: A NEW CLASS OF PULSATING YELLOW SUPERGIANTS
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