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Professional Preparation

1997 PhD Astronomy, University College London; advisor Prof. Ian Howarth
1994 BA Physics, Oxford University (1st class honors)

Appointments

2020– Professor, Department of Astronomy, UW-Madison
2020–2023 Fluno-Bascom Professor & Chair, Department of Astronomy, UW-Madison
2014–2020 Associate Professor, Department of Astronomy, UW-Madison
2008–2014 Assistant Professor, Department of Astronomy, UW-Madison
2003–2008 Associate Scientist, University of Delaware
1998–2003 Postdoctoral Research Fellow, University College London

Extramural Grants as PI

2024–2027 NASA Astrophysics Theory Program: *Dead Ringers: A New Paradigm for Super-Soft X-ray Oscillations of Novae*; **$424k**
2024–2027 NSF Astronomy & Astrophysics Grants Program: *Collaborative Research: Polarimetric Asteroseismology of Massive Hot Stars*; **$119k**
2023–2024 NASA High Priority Open-Source Science Program: *Catalyzing an Open-Source Ecosystem for the GYRE Stellar Oscillation Code*; **$75k**
2020–2023 NASA Astrophysics Theory Program: *Cardiology for Heavyweights: Deciphering the Tidally Excited Oscillations of Intermediate & High-Mass Stars*; **$428k**
2017–2021 NSF Astronomy & Astrophysics Grants Program: *Here be Dragons: Mapping the Instabilities of Massive Stars*; **$317k**
2017–2021 NSF Software Infrastructure for Sustained Innovation Program: *Collaborative Research: SI2-SSI: Modules for Experiments in Stellar Astrophysics*; **$683k**
2014–2017 NSF Software Infrastructure for Sustained Innovation Program: *Collaborative Research: SI2-SSE: Modules for Experiments in Stellar Astrophysics*; **$75k**
2014–2016 NASA/NSF Theory & Computational Astrophysics Networks (TCAN) Program: *The SPIDER Network: Supernova Progenitor, Internal Dynamics and Evolution Research*; **$328k**
2014–2015 NASA Astrophysics Theory Program: *Massive-Star Magnetospheres: Now in 3D!*; **$425k**
2009–2012 NSF Astronomy & Astrophysics Grants Program: *Wave Transport of Angular Momentum: A New Spin on Massive-Star Evolution*; **$428k**
2009–2012 NSF Advanced Technologies & Instrumentation Program: *GRASSY: A Hardware-Accelerated Spectral Synthesis Engine for Asteroseismic Mode Identification*; **$341k**
2004–2009 NASA Long-Term Space Astrophysics Program: *Magnetically-Controlled Circumstellar Environments of Hot-Stars: A Multi-Wavelength Confrontation Between Observations and Models*; **$737k**

Honors & Awards

2025 Open Source Award, University of Wisconsin-Madison
2023 Visiting Researcher, Center for Computational Astrophysics
2023 Robert Christy Lecturer, Caltech

2022 Kellet Mid-Career Award, University of Wisconsin-Madison
2015 Leverhulme Visiting Fellow, Exeter University
1997 Blackwell Prize, Royal Astronomical Society (equivalent to ASP's Robert J. Trumpler Prize)
1997 Harry Massie Prize, University College London

Advising

Postdocs

2020–2021 Jacqueline Goldstein (PhD; now Instructional Designer at MIT School of Engineering Communication Lab)
2018–2021 Meng Sun (now Faculty at National Astronomical Institute of China, Beijing)
2010–2013 Seth Teitler (now President & Chief Editor at National Academic Quiz Tournaments)

Graduate Students

2022– Jarret Rosenberg
2016–2022 Aaron Lopez (MSc)
2014–2020 Jacqueline Goldstein (PhD; now Instructional Designer at MIT School of Engineering Communication Lab)
2011–2013 Brittin Borland (MSc; now Project Coordinator at Amento Group)
2010–2016 Christopher Bard (PhD; now Research Scientist at NASA Goddard Space Flight Center)
2009–2015 Nicholas Hill (PhD; now Software Engineer at Hewlett Packard)

Undergraduate Students

2025–2026 Mihir Manna
2025–2026 Ritvik Narayan
2022–2023 Tanvi Kulkarni
2021–2024 Rianna Kuenzi
2021–2023 Oscar Sy-Garcia
2019–2020 Kyle Fruhling (now graduate student at Boston College)
2018–2019 Zachary Way (now graduate student at Georgia State University)
2011–2013 Nicholas Mast (now Optical Engineer at Ball Aerospace)

Presentations

Invited Scientific Talks

Jul 2024 'Massive-Star Magnetosphere Models — A Meandering Memoir', invited review at *Fundamentals of Stellar Outflows*, Leuven, Belgium
Mar 2023 'Oscillating Stars in Bloom: Asteroseismology and Wave Transport Phenomena', invited Robert Christy Lecture, Caltech, CA
Jul 2022 'The Secret Lives of OB Stars', review talk at *TASC6/KASC13: Asteroseismology in the Era of Surveys from Space and the Ground: Stars, Planets, and the Milky Way*, Leuven, Belgium
Jul 2020 'Angular Momentum Transport by Heat-Driven Modes', review talk at *European Astronomical Society 2020 Special Session: New insights of angular momentum transport in stellar interiors*, Leiden, Netherlands (virtual)
May 2019 'Regularities in Frequency/Period Spacings: How Asteroseismology Works', talk at *Better Stars, Better Planets* program, Kavli Institute for Theoretical Physics, Santa Barbara, CA
Sep 2015 'BRITE's Role in Stellar Physics', review talk at *Science with BRITE-Constellation: Initial Results*, Gdansk, Poland
Aug 2013 'The Pulsation-Rotation Interaction: Greatest Hits and the B-side', review talk at *IAU Symposium 301: Precision Asteroseismology*, Wroclaw, Poland
Dec 2012 'GYRE: Yet another oscillation code, why we need it and how it works', talk at *ERC/PROSPERITY/BAG Meeting 2012: Asteroseismology in Action: From Young to Old Stars*, Leuven, Belgium

Feb 2012	'Massive-Star Magnetospheres: The Interplay between Outflows, Rotation and Magnetic Fields', review talk at *Circumstellar Dynamics at High Resolution*, Foz do Iguaçu, Brazil
Nov 2011	'Magnetic Braking of Massive Stars: Theory and Observations', talk at *52nd American Physical Society-Division of Plasma Physics Annual Meeting*, Chicago, IL
May 2011	'Rigid-Field Models for Massive-Star Magnetospheres', talk at *Midwest Magnetic Fields Workshop*, Madison, WI
Jul 2010	'Modeling the Winds and Magnetospheres of Massive Stars', review talk at *IAU Symposium 272: Active OB Stars: Structure, Evolution, Mass Loss and Critical Limits*, Paris, France
Jun 2010	'Modeling Ejecta of Massive Stars', review talk at *Asymmetric Planetary Nebulae 5: The Shaping of Stellar Ejecta*, Bowness-on-Windermere, England
Apr 2010	'Progress in Observations and Modeling of Magnetic Massive Stars', talk at *Midwest Magnetic Fields Workshop*, Madison, WI
Jun 2007	'The Coupling between Pulsation and Mass Loss in Massive Stars', review talk at *Unsolved Problems in Stellar Physics*, Cambridge, England
Jul 2004	'Diagnostics of Disks around Hot Stars', review talk at *The Nature and Evolution of Disks around Hot Stars*, Johnson City, TN
Apr 2003	'An Introduction to Non-radial Stellar Pulsation: Photometric Modeling of Slowly-Pulsating B stars', review talk at *UK National Astronomy Meeting*, Dublin, Ireland
Nov 2002	'Interactions between Rotation and Pulsation', review talk at *IAU Symposium 215: Stellar Rotation*, Cancun, Mexico

Colloquia & Seminars

Feb 2026	Northwestern University		
Oct 2024	Canadian Institute for Theoretical Astrophysics	Jan 2024	KU Leuven
Feb 2020	The Ohio State University	Feb 2020	Villanova University
Aug 2019	University of California, Santa Barbara	Jun 2019	Center for Computational Astrophysics
Jun 2019	Kavli Institute for Theoretical Physics	Mar 2018	University of Illinois
May 2017	Kavli Institute for Theoretical Physics	Jan 2017	University of Chicago
Oct 2016	Center for Computational Astrophysics	Oct 2016	Georgia State University
Sep 2016	Military College of Canada	Dec 2015	University of Exeter
Nov 2015	Aarhus University	Nov 2015	University of Leicester
Nov 2015	University of Central Lancashire	Apr 2015	Canadian Institute for Theoretical Astrophysics
Nov 2014	Space Telescope Science Institute	Nov 2014	University of Wisconsin-Milwaukee
Nov 2013	Iowa State University	Aug 2012	University of California, Santa Barbara
Nov 2011	St Mary's University	Oct 2011	Kavli Institute for Theoretical Physics
Sep 2007	Swarthmore College	Apr 2007	University of Delaware
Feb 2007	Université de Montréal	Nov 2006	European Southern Observatory
Nov 2006	Space Telescope Science Institute	Jun 2006	University of Pittsburgh
Dec 2005	Yale University	Oct 2005	University of Toronto
Oct 2005	University of Western Ontario	Jul 2005	Georgia State University
Apr 2005	University of Maryland	Apr 2003	University of Oxford

Professional Memberships

2022–present	Americal Physical Society
2005–present	American Astronomical Society
2003–present	International Astronomical Union

Courses Taught

Fall 2012, 2016, Summer 2018 (online), 2026	Astronomy 103: *The Evolving Universe* (intro. undergraduate)
Fall 2010	Astronomy 113: *Hands on the Universe* (intro. undergraduate)
Fall 2008–2009, 2011, 2013, 2017–2021	Astronomy 310: *Stellar Astrophysics* (adv. undergraduate)
Fall 2014, 2025	Astronomy 700: *Basic Astrophysics I* (graduate)
Spring 2012–2015, 2026	Astronomy 702: *Basic Astrophysics II* (graduate)
Spring 2011, 2019, 2024	Astronomy 715: *Stellar Interiors & Evolution* (graduate)
Spring 2010, 2020–2021	Astronomy 910: *Seminar in Astrophysics* (graduate)

Software Infrastructure

- Lead developer for the *GYRE* stellar oscillation code; https://gyre.readthedocs.io/
- Leadership council & core developer for the *MESA* (Modules for Experiments in Stellar Astrophysics) stellar evolution code; https://docs.mesastar.org/
- Lead developer for the *MSG* (Multidimensional Spectral Grids) synthesis library; https://msg.readthedocs.io/
- Lead developer for the *MESA-Web* online stellar evolution portal; https://madstar.richtownsend.dev/static.php?ref=mesa-web

Extramural Service

- Organizing committees of the IAU Working Groups on *Massive Stars* (member) and *Active OB Stars* (vice chair).
- Scientific organizing committees for *IAU Symposia* 272, 307 and 329.
- Time allocation committees for the *Hubble Space Telescope* (panelist) and *Chandra X-Ray Observatory* (panelist & panel chair).
- Proposal review panels for NASA (panelist & panel chair).
- External proposal reviewer for Swiss National Science Foundation.
- Referee for *Science*, *Astrophysical Journal*, *Monthly Notices of the RAS*, *Astronomy & Astrophysics*, *Frontiers in Astronomy*

Institutional Service

- Creating the new Astronomy 103 Online class, built around bespoke multimedia products that include virtual observatory lectures, *2-Minute Universe* mini-lectures, and the *At Play in the Cosmos* computer game (developed by GEAR Learning with my consultative input).
- Chairing the UW Department of Astronomy, and serving on and/or chairing the computing, web, admissions, colloquium, undergraduate, awards and prelims committees.
- Serving as the faculty senator for the UW Department of Astronomy.
- Serving on the UW Advanced Computing Infrastructure committee.

Publication Record

Metrics

Refereed Publications: 121 (27 as first author)
Total Career Citations: $\sim$ 20,000 ($\sim$ 2,500 as first author)
h-Index: 50 (50 papers with 50 or more citations)
Papers with over 2,000 citations: 58, 62, 72, 82
First-author papers with over 100 citations: 47, 10, 12, 16, 15, 21, 23, 24, 26, 27, 33

Refereed First-Author/Advisee-Led Papers

1. Narayan R. S., Soares-Furtado M., Townsend R. H. D., 2026: 'The Tale of a Hungry Subgiant and Its Brown Dwarf: Interior Radiative Damping Dominates the Tidal Evolution of TOI-5882', *ApJL*, **1005**, 35

2. Townsend R. H. D., Kuenzi R. V., Christensen-Dalsgaard J., 2025: 'Tools for Characterizing the Numerical Error of Stellar Oscillation Codes', *ApJ*, **988**, 140
3. Townsend R. H. D., Sun M., 2023: 'Discrepant Approaches to Modeling Stellar Tides, and the Blurring of Pseudosynchronization', *ApJ*, **953**, 48
4. Sun M., Townsend R. H. D., Guo Z., 2023: '`gyre_tides`: Modeling binary tides within the GYRE stellar oscillation code', *ApJ*, **945**, 48
5. Townsend R. H. D., Lopez A., 2023: 'MSG: A software package for interpolating stellar spectra in pre-calculated grids', *Journal of Open-Source Software*, **8**, 4602
6. Sun M., Mathieu Robert D., Leiner Emily M., Townsend R. H. D., 2021: 'WOCS 5379: Detailed Analysis of the Evolution of a Post-mass-transfer Blue Straggler', *ApJ*, **908**, 7
7. Townsend R. H. D., 2020: 'Improved asymptotic expressions for the eigenvalues of Laplace's tidal equations', *MNRAS*, **497**, 2670
8. Goldstein J., Townsend R. H. D., 2020: 'The Contour Method: a new approach to finding modes of non-adiabatic stellar pulsations', *ApJ*, **899**, 116
9. Goldstein J., Townsend R. H. D., Zweibel E. G., 2019: 'The Tayler Instability in the Anelastic Approximation', *ApJ*, **881**, 66
10. Townsend R. H. D., Goldstein J., Zweibel E., 2018: 'Angular momentum transport by heat-driven g-modes in slowly pulsating B stars', *MNRAS*, **475**, 879
11. Bard C., Townsend R. H. D., 2016: 'Effect of a magnetic field on massive-star winds - I. Mass-loss and velocity for a dipole field', *MNRAS*, **462**, 3672
12. Townsend R. H. D., Teitler S. A., 2013: 'GYRE: an open-source stellar oscillation code based on a new Magnus Multiple Shooting scheme', *MNRAS*, **435**, 3406
13. Townsend R. H. D., Rivinius Th., Rowe J. F., Matthews J. M., Moffat A. F. J., Bohlender D., Neiner C., Telting J. H., Guenther D. B., Kallinger T., Kuschnig R., Rucinski S. M., Sasselov D., Weiss W. W., 2013: 'MOST Observations of σ Ori E: Challenging the Centrifugal Breakout Narrative', *ApJ*, 769, 33
14. Townsend R. H. D., 2010: 'Fast Calculation of the Lomb-Scargle Periodogram Using Graphics Processing Units', *ApJS*, **191**, 247
15. Townsend R. H. D., Oksala M. E., Cohen D. H., Owocki S. P., ud-Doula A., 2010: 'Discovery of Rotational Braking in the Magnetic Helium-Strong Star σ Orionis E', *ApJL*, **714**, 318
16. Townsend R. H. D., 2009: 'An Exact Integration Scheme for Radiative Cooling in Hydrodynamical Simulations', *ApJS*, **181**, 391
17. Townsend R. H. D., 2008: 'Exploring the photometric signatures of magnetospheres around helium-strong stars', *MNRAS*, **389**, 559
18. Townsend R. H. D., Owocki S. P., ud-Doula A., 2007: 'A Rigid-Field Hydrodynamics approach to modelling the magnetospheres of massive stars', *MNRAS*, **382**, 139
19. Townsend R. H. D., MacDonald J., 2006: 'Excitation of g modes in Wolf-Rayet stars by a deep opacity bump', *MNRAS*, **368**, 57
20. Townsend R. H. D., 2005: 'Kappa-mechanism excitation of retrograde mixed modes in rotating B-type stars', *MNRAS*, **364**, 573
21. Townsend R. H. D., Owocki S. P., Groote D., 2005: 'The Rigidly Rotating Magnetosphere of σ Orionis E', *ApJL*, **630**, 81
22. Townsend R. H. D., 2005: 'Influence of the Coriolis force on the instability of slowly pulsating B stars', *MNRAS*, **360**, 465
23. Townsend R. H. D., Owocki S. P., 2005: 'A rigidly rotating magnetosphere model for circumstellar emission from magnetic OB stars', *MNRAS*, **357**, 251
24. Townsend R. H. D., Owocki S. P., Howarth I. D., 2004: 'Be-star rotation: how close to critical?', *MNRAS*, **350**, 189
25. Townsend R. H. D., 2003: 'Surface modelling of non-radial pulsators: alternative formalisms within the linear approximation', *MNRAS*, **343**, 863
26. Townsend R. H. D., 2003: 'A semi-analytical formula for the light variations due to low-frequency g modes in rotating stars', *MNRAS*, **343**, 125

27. Townsend R. H. D., 2003: 'Asymptotic expressions for the angular dependence of low-frequency pulsation modes in rotating stars', *MNRAS*, **340**, 1020
28. Townsend R. H. D., 2002: 'Photometric modelling of slowly pulsating B stars', *MNRAS*, **330**, 855
29. Townsend R. H. D., Ivison R. J., Smail I., Blain A. W., Frayer D. T., 2001: 'Gigamasers: the key to the dust-obscured star formation history of the Universe?', *MNRAS*, **328**, 17
30. Townsend R. H. D., 2000: 'Surface trapping and leakage of low-frequency g modes in rotating early-type stars - II. Global analysis', *MNRAS*, **319**, 289
31. Townsend R. H. D., 2000: 'Surface trapping and leakage of low-frequency g modes in rotating early-type stars - I. Qualitative analysis', *MNRAS*, **318**, 1
32. Townsend R. H. D., 1999: 'Spatial wavelet analysis of line-profile variations', *MNRAS*, **310**, 851
33. Townsend R. H. D., 1997: 'Spectroscopic modelling of non-radial pulsation in rotating early-type stars', *MNRAS*, **284**, 839

Refereed Collaborative Papers

34. de Vries N. B., Le Saux A., Baraffe I., Guillet T., Townsend R. H. D., 2026: 'Revealing Mixed Modes in Compressible Hydrodynamical Simulations of Red Giant Stars', *ApJ*, **1005**, 154
35. Cantiello M., Hassan J. B., Perna R., Armitage P. J., Begelman M. C., Jiang Y.-F., Ryu T., Townsend R. H. D., 2026: 'Pulsational Instability of Quasi-stars: Interpreting the Variability of Little Red Dots', *ApJL*, **1000**, 4
36. Sun M., Xia H., Gossage S., Kalogera V., Liu J., Rocha K. A., Townsend R. H. D., Zapartas E., 2026: ' Tides in Massive Binaries: Numerical Solutions and Semianalytical Comparisons', *ApJ*, **998**, 32
37. Sun M., Townsend R. H. D., Xia H., Liu J., 2026: 'Numerical Nonadiabatic Tidal Calculations with GYRE-tides: The WASP-12 Test Case', *ApJL*, **995**, 29
38. Miszuda A., Guo Z., Townsend R. H. D., 2025: 'The evolutionary and asteroseismic imprints of mass accretion: The 10 $M_\odot$ β Cep case study', *A&A*, **702**, 203
39. Gao Qing, Wang Wei, Baade Dietrich, Liu Jifeng, Rivinius Thomas, Arcos Catalina, de Almeida Elisson S. G., Yuan Hailong, Bai Yu, Jankov Slobodan, Hadjara Massinissa, Bai Zhongrui, Zhang Haotong, de Amorim Tajan H., Wu Yue, Townsend Richard H. D., Carciofi Alex C., Németh Péter, Curé Michel, 2025: 'A Be star that turned bright and blue during a major outburst', *A&A*, **694**, A131
40. Rehm R., Mombarg J. S. G., Aerts C., Michielsen M., Burssens S., Townsend R. H. D. , 2024: 'The impact of radiative levitation on mode excitation of main-sequence B-type pulsators', *A&A*, **687**, A175
41. Johnston Cole, Michielsen Mathias, Anders Evan H., Renzo Mathieu, Cantiello Matteo, Marchant P., Goldberg Jared A., Townsend Richard H. D., Sabhahit Gautham, Jermyn Adam S., 2024: 'Modelling time-dependent convective penetration in 1D stellar evolution', *ApJ*, **964**, 170
42. Wagg Tom, Johnston Cole, Bellinger Earl P., Renzo Mathieu, Townsend Richard, de Mink Selma E., 2024: 'The Asteroseismic Imprints of Mass Transfer: A Case Study of a Binary Mass Gainer in the SPB Instability Strip', *A&A*, **687**, A222
43. Bryan Jared, de Wit Julien, Sun Meng, de Beurs Zoë L., Townsend Richard H. D., 2024: 'The co-evolution of migrating planets and their pulsating stars through episodic resonance locking', *Nature Astronomy*, **8**, 1387
44. Saunders Nicholas, van Saders Jennifer L., Lyttle Alexander J., Metcalfe Travis S., Li Tanda, Davies Guy R., Hall Oliver J., Ball Warrick H., Townsend Richard, Creevey Orlagh, Dodds Curt, 2024: 'Stellar Cruise Control: Weakened Magnetic Braking Leads to Sustained Rapid Rotation of Old Stars', *ApJ*, **962**, 138
45. Anders Evan H., Lecoanet Daniel, Cantiello Matteo, Burns Keaton J., Hyatt Benjamin A., Kaufman Emma, Townsend Richard H. D., Brown Benjamin P., Vasil Geoffrey M., Oishi Jeffrey S., Jermyn Adam S., 2023: 'The photometric variability of massive stars due to gravity waves excited by core convection', *Nature Astronomy*, in press
46. Burssens Siemen, Bowman Dominic M., Michielsen Mathias, Simón-Díaz Sergio, Aerts Conny, Vanlaer Vincent, Banyard Gareth, Nardetto Nicolas, Townsend Richard H. D., Handler Gerald, Mombarg Joey S. G., Vanderspek Roland, Ricker George, 2023: 'A calibration point for stellar evolution from massive star asteroseismology', *Nature Astronomy*, **7**, 913

47. Jermyn Adam S., Bauer Evan B., Schwab Josiah, Farmer R., Ball Warrick H., Bellinger Earl P., Dotter Aaron, Joyce Meridith, Marchant Pablo, Mombarg Joey G., Wolf William M., Wong Tin Long Sunny, Cinquegrana Giulia C., Farrell Eoin, Smolec R., Thoul Anne, Cantiello Matteo, Herwig Falk, Toloza Odette, Bildsten Lars, Townsend Richard H. D., Timmes F. X., 2023, 'Modules for Experiments in Stellar Astrophysics (MESA): Time-Dependent Convection, Energy Conservation, Automatic Differentiation, and Infrastructure', *ApJS*, **265**, 15
48. Oey M. S., Castro N., Renzo M., Vargas-Salazar I., Suffak M. W., Ratajczak M., Monnier J. D., Szymanski M. K., Phillips G. D., Calvet N., Chiti A., Micheva G., Rasmussen K. C., Townsend R. H. D., 2023: 'Strong Variability in AzV 493, an Extreme Oe-Type Star in the SMC', *ApJ*, **947**, 27
49. Limbach Mary Anne, Soares-Furtado Melinda, Vanderburg Andrew, Best William M. J., Cody Ann Marie, D'Onghia Elena, Heller René, Hensley Brandon S., Kounkel Marina, Kraus Adam, Mann Andrew W., Robberto Massimo, Rosen Anna L., Townsend Richard, Vos Johanna M., 2023, *PASP*, **135**, 14401
50. Guo Z., Ogilvie Gordon I., Li Gang, Townsend Richard H. D., Sun Meng, 2022, 'A new window to tidal asteroseismology: non-linearly excited stellar eigenmodes and the period spacing pattern in KOI-54', *MNRAS*, **517**, 437
51. Chontos Ashley, Huber Daniel, Berger Travis A., Kjeldsen Hans , Serenelli Aldo M., Silva Aguirre Victor, Ball Warrick H., Basu Sarbani, Bedding Timothy R., Chaplin William J., Claytor Zachary R., Corsaro Enrico, Garcia Rafael A., Howell Steve B., Lundkvist Mia S., Mathur Savita, Metcalfe Travis S., Nielsen Martin B., Mian Joel Ong Jia, Çelik Orhan Zeynep Örtel Sibel , Salama Maissa, Stassun Keivan G., Townsend R. H. D., van Saders Jennifer L., Winther Mark, Yildiz Mutlu, Butler R. Paul, Tinney C. G., Wittenmyer Robert A., 2021: 'TESS Asteroseismology of α Mensae: Benchmark Ages for a G7 Dwarf and Its M Dwarf Companion', *ApJ*, **922**, 229
52. Chidester Morgan T., Timmes F. X., Schwab Josiah, Townsend Richard H. D., Farag Ebraheem, Thoul Anne, Fields C. E., Bauer Evan B., Montgomery Michael H. , 2021: 'On The Impact Of ^{22}Ne On The Pulsation Periods Of Carbon-Oxygen White Dwarfs With Helium Dominated Atmospheres', *ApJ*, **910**, 24
53. Rindler-Daller Tanja, Freese Katherine, Townsend Richard H. D., Visinelli Luca, 2021: 'Stability and pulsation of the first dark stars', *MNRAS*, **503**, 3677
54. Owocki Stanley P., Shultz Matt E., ud-Doula Asif, Sundqvist Jon O., Townsend Richard H. D., Cranmer Steven R., 2020: 'How the breakout-limited mass in B-star centrifugal magnetospheres controls their circumstellar H alpha emission', *MNRAS*, **499**, 5366
55. Christensen-Dalsgaard J., Townsend R. H. D. et al. 2020: 'The Aarhus red giants challenge. II. Stellar oscillations in the red giant branch phase', *A&A*, **635**, 165
56. Silva Aguirre V., Townsend R. H. D. et al. 2020: 'The Aarhus red giants challenge. I. Stellar structures in the red giant branch phase', *A&A*, **635**, 164
57. Keszthelyi Z., Meynet G., Shultz M. E., David-Uraz A., ud-Doula A., Townsend R. H. D., Wade G. A., Georgy C., Petit V., Owocki, S. P. 2020: 'The effects of surface fossil magnetic fields on massive star evolution — II. Implementation of magnetic braking in MESA and implications for the evolution of surface rotation in OB stars', *MNRAS*, **493**, 518
58. Paxton B., Smolec R., Schwab J., Gautschy A., Bildsten L., Cantiello M., Dotter A., Farmer R., Goldberg J. A., Jermyn A. S., Kanbur S. M., Marchant P., Thoul A., Townsend, R. H. D., Wolf W., Zhang M., Timmes, F. X., 2019: 'Modules for Experiments in Stellar Astrophysics (MESA): Pulsating Variable Stars, Rotation, Convective Boundaries, and Energy Conservation', *ApJS*, **243**, 10
59. Timmes F. X., Townsend R. H. D., Bauer E. B., Thoul Anne., Fields C. E., Wolf W. M., 2018: 'The Impact of White Dwarf Luminosity Profiles on Oscillation Frequencies', *ApJL*, **867**, 30
60. Van Reeth T.. Mombarg J. S. G., Mathis S., Tkachenko A., Fuller J., Bowman D. M., Buysschaert B., Johnston C., García Hernández A., Goldstein J., Townsend R. H. D., Aerts C., 2018: 'Sensitivity of gravito-inertial modes to differential rotation in intermediate-mass main-sequence stars', *A&A*, **618**, 24
61. Wolf W. M., Townsend R. H. D., Bildsten L., 2018: 'Nonradial Pulsations in Post-outburst Novae', *ApJ*, **855**, 127
62. Paxton B., Schwab J., Bauer E. B., Bildsten L., Blinnikov S., Duffell P., Farmer R., Goldberg J.

A.; Marchant P., Sorokina E., Thoul A., Townsend R. H. D., Timmes F. X., 2018: 'Modules for Experiments in Stellar Astrophysics (MESA): Convective Boundaries, Element Diffusion, and Massive Star Explosions', *ApJS*, **234**, 34

63. Fletcher C. L., Petit V., Cohen D. H., Townsend R. H., Wade G. A., 2017: 'Detailed ADM-based Modeling of Shock Retreat and X-ray Emission of τ Sco', *Con. Ast. Obs. Skalnaté Pleso*, **48**, 144
64. Shokry A., Rivinius Th., Mehner A., Martayan C., Hummel W., Townsend R. H. D., Mérand A., Mota B., Faes D. M., Hamdy M. A., Beheary M. M., Gadallah K. A. K., Abo-Elazm M. S., 2017: 'Stellar parameters of Be stars observed with X-shooter', *A&A*, **609**, 108
65. Owocki S. P., Townsend R. H. D., Quataert E., 2017: 'Super-Eddington stellar winds: unifying radiative-enthalpy vs. flux-driven models', *MNRAS*, **472**, 3749
66. Petit V., Keszthelyi Z., MacInnis R., Cohen D. H., Townsend R. H. D., Wade G.A., Thomas S. L., Owocki S. P., Puls J., ud-Doula A., 2017: 'Magnetic massive stars as progenitors of 'heavy' stellar-mass black holes', *MNRAS*, **466**, 1052
67. Kurapati Sushma, Chandra Poonam, Wade Gregg, Cohen David H., David-Uraz Alexandre, Gagné Marc, Grunhut Jason, Oksala Mary E., Petit Veronique, Shultz Matt, Sundqvist Jon, Townsend Richard H. D., ud-Doula Asif, 2017: 'A JVLA survey of the high-frequency radio emission of the massive magnetic B- and O-type stars', *MNRAS*, **465**, 2160
68. Owocki S. P., ud-Doula A., Sundqvist J. O., Petit V., Cohen D. H., Townsend R. H. D., 2016: 'An analytic dynamical magnetosphere formalism for X-ray and optical emission from slowly rotating magnetic massive stars', *MNRAS*, **462**, 3830
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