

Benjamin M. Tofflemire
51 Pegasi b Postdoctoral Fellow

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RESEARCH INTERESTS	Planet formation and evolution, structure and evolution of protoplanetary disks, binary star formation, T Tauri stars, accretion diagnostics	
APPOINTMENTS	51 Pegasi b Postdoctoral Fellow, UT Austin Postdoctoral Fellow, UT Austin	Sept 2020 - present August 2018 - August 2020
EDUCATION	Ph.D. Astronomy University of Wisconsin-Madison • Advisor: Professor Robert D. Mathieu • Thesis: <i>Pulsed Accretion in Eccentric Binaries</i> B.S. Astronomy & Physics University of Washington	July 2018 Madison, WI, USA June 2011 Seattle, WA, USA
RESEARCH	THYME – <i>TESS</i> Hunt for Young and Maturing Exoplanets • Lead spectroscopic followup of <i>TESS</i> planet candidates discovered in young associations • Characterizing stellar host properties and radial-velocity variability Characterizing Young Eclipsing Binaries • Determine orbital solutions and fundamental stellar parameters for a sample of pre-main sequence eclipsing binaries to test models of stellar evolution • Utilize NIR spectra from IGRINS and light curves from <i>K2</i> and <i>Spitzer</i> Graduate Research – Binary Accretion • Measured the accretion rate for a sample of 9 pre-main sequence binaries as a function of orbital phase to test numerical models of binary accretion • Characterized the kinematics and spatial distribution of accretion streams feeding young binary star systems with time-series, high-resolution spectroscopy from the SALT telescope	July 2018 - present July 2018 - present June 2012 - July 2018
PEER-REVIEWED PUBLICATIONS	First Author Publications 7. Tofflemire , B. M., Mathieu, R. D., Johns-Krull, C. 2019, AJ, 158, 245 – <i>Accretion Kinematics in the T Tauri Binary TWA 3A: Evidence for Preferential Accretion onto the TWA 3A Primary</i> 6. Tofflemire , B. M., Mathieu, R. D., Herczeg, G. J., Akeson, R. L., & Ciardi, D. R. 2017b, ApJL, 842, L12 – <i>Pulsed Accretion in the Classical T Tauri Binary TWA 3A</i> 5. Tofflemire , B. M., Mathieu, R. D., Ardila, D. R., Akeson, R. L., Ciardi, D. R., Johns-Krull, C., Herczeg, G. J., & Quijano-Vodniza, A. 2017a, ApJ, 835, 8 – <i>Accretion and Magnetic Reconnection in the Classical T Tauri Binary DQ Tau</i> 4. Tofflemire , B. M., Gosnell, N. M., Mathieu, R. D., & Platais, I. 2014, AJ, 148, 61 – <i>WIYN Open Cluster Study. LIX. Radial Velocity Membership of the Evolved Population of the Old Open Cluster NGC 6791</i> 3. Tofflemire , B. M., Orio, M., Page, K. L., Osborne, J. P., Ciroi, S., Cracco, V., Di Mille, F., & Maxwell, M. 2013, ApJ, 779, 22 – <i>X-Ray Grating Observations of Recurrent Nova T Pyxidis during the 2011 Outburst</i> 2. Tofflemire , B. M., Wisniewski, J. P., Kowalski, A. F., Schmidt, S. J., Kundurthy, P., Hilton, E. J., Holtzman, J. A., & Hawley, S. L. 2012, AJ, 143, 12 – <i>The Implications of M Dwarf Flares on the Detection and Characterization of Exoplanets at Infrared Wavelengths</i> 1. Tofflemire , B. M., Burkhart, B., & Lazarian, A. 2011, ApJ, 736, 60 – <i>Interstellar Sonic and Alfvénic Mach Numbers and the Tsallis Distribution</i>	

AWARDS	University of Wisconsin Jansky Award for Outstanding Research 2017 UW-Madison Graduate School Conference Presentation Award (\$2,400) 2015, 2016, 2017 Sigma Xi Grants in Aid of Research (\$2,500) 2015 University of Wisconsin Vilas Research Travel Grant (\$600) 2015 University of Wisconsin Bautz Travel Fellowship (\$1200) 2015 AAS 225 Chambliss Student Prize Honorable Mention 2015 University of Wisconsin – University Housing Honored Instructor 2012 University of Washington’s Astronomy Bear Prize Recipient 2011 University of Washington Mary Gates Research Scholarship (\$4,000) 2010, 2011
OBSERVING PROPOSALS & EXPERIENCE	ALMA Cycle 7 <ul style="list-style-type: none"> • PI: Planet Formation and Survival in Newly-Forming Binary Systems (16 hrs: Grade B) Spitzer DDT <ul style="list-style-type: none"> • PI: Precision Measurements of Stellar Radii in Young Eclipsing Binaries (94 hrs: Priority 1) Southern African Large Telescope <ul style="list-style-type: none"> • PI: Time-Series Spectroscopy of Pre-Main Sequence Binaries (42.5 hrs of P0/P1) WIYN 3.5-m Telescope <ul style="list-style-type: none"> • PI: Radial velocity survey of accreting stars in NGC 2264 (2 nights) • PI: Time-series spectroscopy of flare stars in Pleiades star cluster (3 nights) Las Cumbres Observatories Global Telescope Network <ul style="list-style-type: none"> • PI: Characterizing Eclipsing Binaries in Young Clusters (240 hrs over 2 semesters) • Co-I: Time-series photometry of Pre-Main Sequence Binaries (980 hours over 5 semesters) SMARTS 1.3m <ul style="list-style-type: none"> • PI: Time-series photometry of Pre-Main Sequence Binaries (107 hours over 4 semesters) • PI: Time-series spectroscopy of Pre-Main Sequence Binary V4046 Sgr (42 hours)
TALKS	Cool Stars 20 August 2018 Plenary Talk Boston, MA AAS 231 January 2018 Dissertation Talk National Harbor, MD Institute for Theory and Computation (Harvard-CfA) March 2017 Stars and Planets Seminar (Invited) Cambridge, MA American Museum of Natural History March 2017 Astronomy Seminar New York, NY Space Telescope Science Institute March 2017 Exoplanets, Star and Planet Formation Seminar Baltimore, MD University of Texas-Austin October 2016 Stars Seminar (Invited) Austin, TX Cool Stars 19 June 2016 Contributed Talk Uppsala, Sweden
MENTORING EXPERIENCE	TAURUS Mentor Training Summer 2019 <ul style="list-style-type: none"> • Developed and facilitated a mentor training seminar for professors, postdocs, and grad students advising TAURUS Scholars TAURUS & NSF REU Advising Summer 2019 <ul style="list-style-type: none"> • Advisor to two students (Miguel Gutierrez, Victoria Catlett) on a project to measure accretion-tracing emission lines in NIR spectra UW-Madison Undergrad Thesis June 2015 - June 2017 <ul style="list-style-type: none"> • Advisor to UW-Madison undergrad Nathan Eggen on project to produce and model the light curves of pre-main sequence binary stars NSF REU Advising Summer 2014 <ul style="list-style-type: none"> • Co-advised two undergrads (Sarah Kessler, Francis Klein) on a project searching for triple companions to spectroscopic binaries in open cluster M67 using <i>HST</i>