

# Jason A. Dittmann

51 Pegasi b Postdoctoral Fellow

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CONTACT	Massachusetts Institute of Technology MIT Kavli Institute: 37-438f 70 Vassar St. Cambridge, MA 02139	617-258-5928 (office) 520-820-0928 (cell) Jason.Dittmann@gmail.com
EDUCATION	<b>Harvard University</b> , Cambridge, MA PhD, Astronomy and Astrophysics, May 2016 <ul style="list-style-type: none"><li>• Advisor: David Charbonneau, PhD</li></ul> <b>University of Arizona</b> , Tucson, AZ BS, Astronomy, Physics, May 2010 <ul style="list-style-type: none"><li>• Advisor: Laird Close, PhD</li></ul>	
RECENT RESEARCH POSITIONS	<b>51 Pegasi b Postdoctoral Fellow</b> Earth and Planetary Science Department, MIT Faculty Contact: Sara Seager	July 2017 – Present
	<b>Postdoctoral Researcher</b> Kavli Institute, MIT Supervisor: Sarah Ballard	Feb 2017 – June 2017
	<b>Postdoctoral Researcher</b> Center for Astrophysics, Harvard University Supervisor: David Charbonneau	July 2016 – Jan 2017
	<b>Research Assistant</b> Center for Astrophysics, Harvard University Advisors: David Charbonneau	Sep 2010 – May 2016
PUBLICATION SUMMARY	16 first and second authored publications 22 additional co-authored publications 1 first-authored publication in <i>Nature</i> 1 co-authored publication in <i>Nature</i>	
SELECTED AWARDS AND HONORS	<b>51 Pegasi b Postdoctoral Fellowship</b> <b>Pierce Fellowship</b> Certificate of Distinction in Teaching Best Project Award, Physics Ugrd. Research Symp. Best Undergraduate Research (Steward Observatory)	2017 – Present 2010 – 2013 2012 2009 2009 – 2010
GRANTS AWARDED	<b>Principal Investigator</b> , <i>Hubble Space Telescope</i> “Initial Reconnaissance of a Transiting Rocky Planet in a Nearby M-Dwarf’s Habitable Zone”  <b>Principal Investigator</b> , <i>Spitzer Space Telescope</i> “A Search for Sub-Earth Sized Transiting Planets 12 parsecs from the Sun”  <b>Principal Investigator</b> , <i>XMM-Newton</i> “Assessing the high-energy environment of the habitable zone planet LHS 1140b”	2017, 10 orbits (maximum award)  100 hr. (2015) (maximum award)  63 kiloseconds (2017) 63 kiloseconds (2017)

COMPETITIVELY **Principal Investigator**

- AWARDED
- OBSERVING TIME
- *Hubble Space Telescope*  
 “Initial Reconnaissance of a Transiting Rocky Planet in a Nearby M-Dwarf’s Habitable Zone” Mid-cycle 24, 10 orbits (maximum award)
  - *Spitzer Space Telescope*  
 “A Search for Exomoons and TTVs from LHS 1140b, a nearby super-Earth orbiting in the habitable-zone of an M dwarf” 39 hr. (2017)
  - *Spitzer Space Telescope*  
 “A Search for Sub-Earth Sized Transiting Planets 12 parsecs from the Sun” 100 hr. (2015) (maximum award)
  - *XMM-Newton*  
 “Assessing the high-energy environment of the habitable zone planet LHS 1140b” 63 kiloseconds (2017)
  - Schmidt 48-inch at Mt. Hopkins  
 “Absolute Sloan photometry for the MEarth M dwarfs” 21 nights (2015-2017)
  - Tillinghast 60-inch at Mt. Hopkins  
 “High Resolution Reconnaissance Spectroscopy of MEarth Targets” 20 nights (2014-2016)
  - 6.5 meter MMT at Mt. Hopkins  
 “Uncovering close M dwarf binaries with AO imaging” 1 night (2012)

**Co-Investigator**

- *Hubble Space Telescope*  
 “The M Dwarf UV Spectra Irradiating Nearby Transiting Terrestrial Planets” Cycle 25, 20 orbits
- *Chandra X-ray Telescope*  
 “Direct Observation of Accretion onto a Hypernova’s Newly Formed Black Hole” 15 kiloseconds (2017)
- Tillinghast 60-inch at Mt. Hopkins  
 “High Resolution Reconnaissance Spectroscopy of MEarth Targets” 16 nights (2012-2014)
- Tillinghast 60-inch at Mt. Hopkins  
 “Activity, metallicity, and rotation in mid-to-late M dwarfs” 15 nights (2015)

TEACHING AND ADVISING

- Undergraduate supervisor to Sophie Anderson (Freshman and sophomore years)  
 Obtained 2 semesters of MIT undergraduate research funding (UROP)  
 Resulted in a 1st-author publication of student.
- Methods of Observational Astronomy Spring 2012  
 Instructor: Alicia Soderberg  
 Astronomy Department, Harvard University
- Galactic and Extragalactic Astronomy Fall 2011  
 Instructor: Christopher Stubbs  
 Physics Department, Harvard University
- Stellar and Planetary Astronomy Spring 2011  
 Instructor: Douglas Finkbeiner  
 Astronomy Department, Harvard University

COLLOQUIA AND SEMINARS

	<ul style="list-style-type: none"> <li>• Discovery of LHS 1140b by the MEarth Project: a super-Earth orbiting in the habitable-zone of a nearby M dwarf <b>Invited talk</b>, American Museum of Natural History</li> </ul>	April 2017
	<ul style="list-style-type: none"> <li>• M dwarfs in the MEarth Planet Survey Louisiana State University</li> </ul>	Oct 2014
	<ul style="list-style-type: none"> <li>• Trigonometric parallaxes from the MEarth survey <b>Invited talk</b>, <i>Boston University</i></li> </ul>	March 2013
RECENT CONFERENCE TALKS	<ul style="list-style-type: none"> <li>• LHS 1140b: A temperate super-Earth around a nearby M dwarf <i>The 2nd Rencontres du Vietnam on Exoplanetary Science</i></li> <li>• The MEarth Project - Searching for Small Planets around the Smallest, Closest Stars to the Sun <b>Keynote talk</b> <i>Hartness House Workshop Stellafane Convention</i>   Stellafane, VT</li> <li>• M dwarf Metallicities from Photometry and Parallaxes <i>Opportunity M</i>   Cambridge, MA</li> <li>• Priming the solar neighborhood M dwarfs for future planet searches</li> </ul>	Feb 2018  July 2017  Aug 2016
SUMMER SCHOOLS AND WORKSHOPS	<ul style="list-style-type: none"> <li>• Machine Learning Online Course   <i>Stanford University</i></li> <li>• CASA Data Workshop   <i>Socorro, NM</i></li> <li>• Astrobiology Summer School   <i>Santander, Spain</i></li> </ul>	Fall 2011 September 2011 June 2010
PROFESSIONAL SERVICE	<ul style="list-style-type: none"> <li>• <b>Grant review panelist</b> National Science Foundation</li> <li>• <b>Referee</b> for <i>Nature Astronomy</i> and IOP journals</li> <li>• <b>Telescope Allocation Committee member</b> NASA</li> </ul>	2017-2018 2017-Present 2017-2019
PUBLIC TALKS AND PRESS	<ul style="list-style-type: none"> <li>• EAPS exoplanet short video <i>Filmed January 2019, to be released in 2019</i></li> <li>• Appearance on NHK Public television <i>Filmed January 2019, to be aired in summer 2019</i></li> <li>• The MEarth Project - Searching for Small Planets around the Smallest, Closest Stars to the Sun <b>Keynote talk</b> <i>Hartness House Workshop Stellafane Star Convention</i>   Stellafane, VT</li> <li>• <b>Innovation Showcase TV Segment (link)</b> The Discovery of habitable-zone super-Earth LHS 1140b</li> <li>• <b>The Starspot Podcast (link)</b> The Best Candidate for Life, with Jason Dittmann</li> <li>• News coverage of the discovery of LHS 1140b <b>featured in over 400 news organizations</b>, including: ABC News, AFP News, Astronomy Magazine,, The Atlantic, The Australian, BBC, CNN, El Mundo, Fox News, Gizmodo, IB Times UK, National Geographic, The New York Times, Scientific American, Sky and Telescope Magazine, Space.com, Tra Scienza &amp; Coscienza, USA Today, and Voice of America</li> </ul>	July 2017 June 2017 May 2017

FIRST AND  
SECOND  
AUTHORED  
REFEREED  
PUBLICATIONS

1. Ment, Kriso, **Dittmann, Jason A.**, Astudillo-Defru, Nicola; Charbonneau, David; Irwin, Jonathan; Bonfils, Xavier; Murgas, Felipe; Almenara, Jose-Manuel; Forveille, Thierry; Agol, Eric; and 20 coauthors. “A Second Terrestrial Planet Orbiting the Nearby M Dwarf LHS 1140”, *AJ* 157, 32, 2019.
2. **Dittmann, J.A.**, Irwin, J.M., Charbonneau, D., Bonfils, X., Astudillo-Defru, N., Berta-Thompson, Z.K., Newton, E.R., Rodriguez, J.E., Winters, J.G., Almenara, J-M., Bouchy, F., Delfosse, X., Forveille, T., Lovis, C., Murgas, F., Pepe, F., Santos, N.C., Udry, S., Wünsche, A., “Limits on additional planets in the LHS 1140 system through TESS and Spitzer”, *APJ*, *in prep*
3. **Dittmann, J.A.**, Charbonneau, D., Irwin, J.M., Berta-Thompson, Z.K., Newton, E.R., “Hubble observations of the atmosphere of LHS 1140b”  
*ApJ*, *in prep*
4. **Dittmann, J.A.**, Irwin, J.M., Charbonneau, D., Bieryla, A., West, A.A.  
“Absolute Sloan *griz* Photometry of 135 Mid-to-Late Northern Solar Neighborhood M Dwarfs and a Color-Magnitude-Metallicity Relation with 0.10 Dex Precision”  
*ApJ*, *submitted*
5. **Dittmann, J.A.**, Irwin, J.M., Charbonneau, D., Bonfils, X., Astudillo-Defru, N., Haywood, R., Berta-Thompson, Z.K., Newton, E.R., Rodriguez, J.E., Winters, J.G., Tan, T.G., Almenara, J-M., Bouchy, F., Delfosse, X., Forveille, T., Lovis, C., Murgas, F., Pepe, F., Santos, N.C., Udry, S., Wünsche, A., Esquerdo, G.A., Latham, D.W., and Dressing, C.D.  
“A temperate rocky super-Earth transiting a nearby cool star”  
*Nature*, 544, 333, 2017.
6. **Dittmann, J.A.**, Irwin, J.M., Charbonneau, D., Berta-Thompson, Z. K., Newton, E.R.  
“A Search for Additional Bodies in the GJ 1132 Planetary System from 21 Ground-based Transits and a 100 Hour Spitzer Campaign”  
*ApJ*, 154, 142, 2017.
7. **Dittmann, J.A.**, Irwin, J.M., Charbonneau, D., Berta-Thompson, Z.K., Newton, E.R., Latham, D.W., Latham, C.A., Esquerdo, G., Berlind, P., and Calkins, M.  
“Discovery and Precise Characterization by the MEarth Project of LP 661-13, an Eclipsing Binary Consisting of Two Fully Convective Low-mass Stars”  
*ApJ*, 836, 124, 2017.
8. **Dittmann, J.A.**, Irwin, J.M., Charbonneau, D., and Newton, E.  
“Calibration of the MEarth Photometric System: Optical Magnitudes and Photometric Metallicity Estimates for 1802 Nearby M-dwarfs”  
*ApJ*, 818, 153, 2016.

9. **Dittmann, J. A.**; Soderberg, A. M.; Chomiuk, L.; Margutti, R.; Goss, W. M.; Milisavljevic, D.; Chevalier, R. A.  
“A Mid-life Crisis? Sudden Changes in Radio and X-Ray Emission from Supernova 1970G”  
*ApJ*, 788, 38, 2014.
10. **Dittmann, J. A.**; Irwin, Jonathan M.; Charbonneau, David; Berta-Thompson, Zachory K.  
“Trigonometric Parallaxes for 1507 Nearby Mid-to-late M Dwarfs”  
*ApJ*, 784, 156, 2014.
11. **Dittmann, J. A.**; Close, L. M.; Scuderi, L. J.; Turner, J.; Stephenson, P. C.  
“A revised orbital ephemeris for HAT-P-9b”  
*New Ast*, 17, 438, 2012.
12. **Dittmann, J. A.**; Close, L. M.; Scuderi, L. J.; Morris, M. D.  
“Transit Observations of the WASP-10 System”  
*ApJ*, 717, 235, 2010.
13. Scuderi, Louis J.; **Dittmann, J. A.**; Males, J. R.; Green, E. M.; Close, L. M.  
“On the Apparent Orbital Inclination Change of the Extrasolar Transiting Planet TrES-2b”  
*ApJ*, 714, 462, 2010.
14. **Dittmann, J. A.**; Close, L. M.; Green, E. M.; Fenwick, M.  
“A Tentative Detection of a Starspot During Consecutive Transits of an Extrasolar Planet from the Ground: No Evidence of a Double Transiting Planet System Around TrES-1”  
*ApJ*, 701, 756, 2009.
15. **Dittmann, J. A.**; Close, L. M.; Green, E. M.; Scuderi, L. J.; Males, J. R.  
“Follow-up Observations of the Neptune Mass Transiting Extrasolar Planet HAT-P-11b”  
*ApJL*, 699, 48, 2009.

STUDENT-LED  
PAPERS

1. Anderson, S., **Dittmann, Jason A.**  
“Evidence for metallicity preferences in the architecture of planetary systems around M dwarfs”  
*ApJ*, *submitted*.

WHITE PAPERS

1. Yee, J.C., and 47 coauthors including **Dittmann, Jason A.**  
“The Science Case for an Extended Spitzer Mission”

ADDITIONAL  
PUBLICATIONS

1. Guenther, Maximilian N.; Pozuelos, Francisco J.; **Dittmann, Jason A.**; Dragomir, Diana; Kane, Stephen; Daylan, Tansu; Feinstein, Adina; Huang, Chelsea; Morton, Tim; Bonfanti, Andrea; and 49 coauthors.  
“A Super-Earth and two sub-Neptunes transiting the bright, nearby, and quiet M-dwarf TOI-270”, *ApJ*, *submitted*

2. Vanderspek, Roland; Huang, Chelsea X.; Vanderburg, Andrew; Ricker, George R.; Latham, David W.; Seager, Sara; Winn, Joshua N.; Jenkins, Jon M.; Burt, Jennifer; **Dittmann, Jason A.**; and 63 coauthors  
“TESS Discovery of an Ultra-short-period Planet around the Nearby M Dwarf LHS 3844”, *ApJ* 871, 24, 2019.
3. Mann, Andrew W.; Dupuy, Trent; Kraus, Adam L.; Gaidos, Eric; Ansdell, Megan; Ireland, Michael; Rizzuto, Aaron C.; Hung, Chao-Ling; **Dittmann, Jason**; Factor, Samuel; and 4 coauthors.  
“How to Constrain Your M Dwarf. II. The Mass?Luminosity?Metallicity Relation from 0.075 to 0.70 Solar Masses”, *ApJ* 871, 63 2019.
4. Huang, Chelsea X.; Burt, Jennifer; Vanderburg, Andrew; Gntner, Maximilian N.; Shporer, Avi; **Dittmann, Jason A.**; Winn, Joshua N.; Wittenmyer, Rob; Sha, Lizhou; Kane, Stephen R.; and 56 coauthors.  
“TESS Discovery of a Transiting Super-Earth in the pi Mensae System”, *ApJ* 868, 39, 2018
5. Irwin, Jonathan M.; Charbonneau, David; Esquerdo, Gilbert A.; Latham, David W.; Winters, Jennifer G.; **Dittmann, Jason A.**; Newton, Elisabeth R.; Berta-Thompson, Zachory K.; Berlind, Perry; Calkins, Michael L.  
“Four New Eclipsing Mid M-dwarf Systems from the New Luyten Two Tenths Catalog”, *AJ* 156, 140, 2018
6. Bonfils, X.; Almenara, J.-M.; Cloutier, R.; Wnsche, A.; Astudillo-Defru, N.; Berta-Thompson, Z.; Bouchy, F.; Charbonneau, D.; Delfosse, X.; Daz, R. F.; **Dittmann, Jason A.**; Doyon, R.; Forveille, T.; Irwin, J.; Lovis, C.; Mayor, M.; Menou, K.; Murgas, F.; Newton, E.; Pepe, F.; Santos, N. C.; Udry, S.  
“Radial velocity follow-up of GJ1132 with HARPS. A precise mass for planet b and the discovery of a second planet” *A&A*, 618, 142, 2018
7. Czekala, Ian, Mandel, K.S., Andrews, S., **Dittmann, Jason A.**, Ghosh, S.K., Montet, B.T., Newton, E.R.  
“Disentangling Time-series Spectra with Gaussian Processes: Applications to Radial Velocity Analysis” *ApJ*, 840, 49, 2017
8. Newton, Elisabeth R.; Irwin, Jonathan; Charbonneau, David; Berta-Thompson, Zachory K.; **Dittmann, Jason A.**  
“The Impact of Stellar Rotation on the Detectability of Habitable Planets around M Dwarfs” *ApJ*, 821L, 19, 2016
9. Newton, Elisabeth R.; Irwin, Jonathan; Charbonneau, David; Berta-Thompson, Zachory K.; **Dittmann, Jason A.**; West, Andrew A.  
“The Rotation and Galactic Kinematics of Mid M Dwarfs in the Solar Neighborhood” *ApJ*, 821, 93, 2016
10. Berta-Thompson, Zachory K.; Irwin, Jonathan; Charbonneau, David; Newton, Elisabeth R.; **Dittmann, Jason A.**; Astudillo-Defru, Nicola; Bonfils, Xavier; Gillon, Michael; Jehin, Emmanuel; Stark, Antony A.; Stalder, Brian; Bouchy, Francois; Delfosse, Xavier; Forveille, Thierry; Lovis, Christophe; Mayor, Michel; Neves, Vasco; Pepe, Francesco; Santos, Nuno C.; Udry, Stephane; Wunsche, Anael

- “A rocky planet transiting a nearby low-mass star” *Nature*, 527, 204, 2015
11. West, Andrew A.; Weisenburger, Kolby L.; Irwin, Jonathan; Berta-Thompson, Zachory K.; Charbonneau, David; **Dittmann, Jason A.**; Pineda, J. Sebastian.  
“An Activity-Rotation Relationship and Kinematic Analysis of Nearby Mid-to-Late M Dwarfs” *ApJ*, 812, 3, 2015
  12. Chakraborti, Sayan; Soderberg, Alicia; Chomiuk, Laura; Kamble, Atish; Yadav, Naveen; Ray, Alak; Hurley, Kevin; Margutti, Raffaella; Milisavljevic, Dan; Bietenholz, Michael; Brunthaler, Andreas; Pignata, Giuliano; Pian, Elena; Mazzali, Paolo; Fransson, Claes; Bartel, Norbert; Hamuy, Mario; Levesque, Emily; MacFadyen, Andrew; **Dittmann, Jason**; and 33 coauthors.  
“A Missing-link in the Supernova?GRB Connection: The Case of SN 2012ap” *ApJ*, 805, 187, 2014
  13. Kamble, Atish; Soderberg, Alicia M.; Chomiuk, Laura; Margutti, Raffaella; Medvedev, Mikhail; Milisavljevic, Dan; Chakraborti, Sayan; Chevalier, Roger; Chugai, Nikolai; **Dittmann, Jason**; Drout, Maria; Fransson, Claes; Nakar, Ehud; Sanders, Nathan  
“Radio Observations Reveal a Smooth Circumstellar Environment Around the Extraordinary Type Ib Supernova 2012au” *ApJ*, 797, 2, 2014
  14. Chornock, R.; Berger, E.; Gezari, S.; Zauderer, B. A.; Rest, A.; Chomiuk, L.; Kamble, A.; Soderberg, A. M.; Czekala, I.; **Dittmann, J.**; Drout, M.; Foley, R. J.; Fong, W.; Huber, M. E.; Kirshner, R. P.; and 22 coauthors.  
“The Ultraviolet-bright, Slowly Declining Transient PS1-11af as a Partial Tidal Disruption Event” *ApJ*, 780, 44, 2014.
  15. Milisavljevic, Dan; Soderberg, Alicia M.; Margutti, Raffaella; Drout, Maria R.; Howie Marion, G.; Sanders, Nathan E.; Hsiao, Eric Y.; Lunnan, Ragnhild; Chornock, Ryan; Fesen, Robert A.; Parrent, Jerod T.; Levesque, Emily M.; Berger, Edo; Foley, Ryan J.; Challis, Pete; Kirshner, Robert P.; **Dittmann, Jason**; and 11 coauthors  
“SN 2012au: A Golden Link between Superluminous Supernovae and Their Lower-luminosity Counterparts” *ApJL*, 770, L38, 2013.
  16. Mancini, L., Southworth, J., Ciceri, S., Fortney, J.J., Morley, C.V., **Dittmann, J. A.**, Tregloan-Reed, J.; Bruni, I.; Barbieri, M.; Evans, D. F.; D’Ago, G.; Nikolov, N.; Henning, Th.  
“A Lower Radius and Mass for the Transiting Extrasolar Planet HAT-P-8b” *A&A*, 551:A11, 2013.
  17. Sanders, N. E.; Soderberg, A. M.; Levesque, E. M.; Foley, R. J.; Chornock, R.; Milisavljevic, D.; Margutti, R.; Berger, E.; Drout, M. R.; Czekala, I.; **Dittmann, J. A.**  
“A Spectroscopic Study of Type Ibc Supernova Host Galaxies from Untargeted Surveys” *ApJ*, 758, 132, 2012.
  18. Soderberg, A. M.; Margutti, R.; Zauderer, B. A.; Krauss, M.; Katz, B.; Chomiuk, L.; **Dittmann, J. A.**; Nakar, E.; Sakamoto, T.; Kawai, N.;

and 25 coauthors

“Panchromatic Observations of SN 2011dh Point to a Compact Progenitor Star” *ApJ*, 752, 78, 2012.

19. Chomiuk, L.; Soderberg, A. M.; Moe, M.; Chevalier, R. A.; Rupen, M.P.; Badenes, C.; Margutti, R.; Fransson, C.; Fong, W.; **Dittmann, J.A.**  
“EVLA Observations Constrain the Environment and Progenitor System of Type Ia Supernova 2011fe” *ApJ*, 750, 164, 2012.
20. Irwin, J. M.; Quinn, S. N.; Berta, Z. K.; Latham, D. W.; Torres, G.; Burke, C. J.; Charbonneau, D.; **Dittmann, J. A.**; Esquerdo, G. A.; Stefanik, R. P.; and 6 coauthors  
“LSPM J1112+7626: Detection of a 41 Day M-dwarf Eclipsing Binary from the MEarth Transit Survey” *ApJ*, 742, 123, 2011.
21. For, B.-Q.; Green, E. M.; Fontaine, G.; Drechsel, H.; Shaw, J. S.; **Dittmann, J. A.**; Fay, A. G.; Francoeur, M.; Laird, J.; Moriyama, E.; and 10 coauthors.  
“Modeling the System Parameters of 2M 1533+3759: A New Longer Period Low-Mass Eclipsing sdB+dM Binary” *ApJ*, 708, 253, 2010.
22. Kurtze, D.A.; Restrepo, J.M., **Dittmann, J.A.**  
“Convective Adjustment in Box Models” *Ocean Modelling*, 34, 92, 2010.