

William M. J. Best

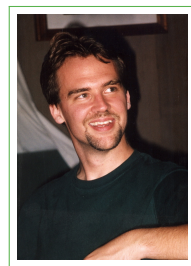
Curriculum Vitae

Institute for Astronomy
2680 Woodlawn Drive
Honolulu, HI 96822

☎ mobile 808 782 0027

✉ wbest@ifa.hawaii.edu

🌐 www.ifa.hawaii.edu/users/wbest



Citizenship

United States of America

Education

- 2014–present **PhD Candidate**, *Institute for Astronomy, University of Hawai'i*, Honolulu, HI.
Advisors: Michael C. Liu, Eugene A. Magnier. Expected graduation: Summer 2018.
- 2013 **MS in Astronomy**, *Institute for Astronomy, University of Hawai'i*, Honolulu, HI.
- 2009 **MEd in Private School Leadership**, *University of Hawai'i*, Honolulu, HI.
- 1994 **BA in Physics, BA in Astronomy**, *Haverford College*, Haverford, PA.

Research Interests

star and planet formation, brown dwarfs, extrasolar planets, low-mass stellar populations, all-sky surveys, protoplanetary disks

Employment

Astronomy

- Summer 2010, **Research Assistant**, *Institute for Astronomy, University of Hawai'i*, Honolulu, HI.
Advisors: Dr. Michael C. Liu, Dr. Eugene A. Magnier, Dr. Jonathan P. Williams
- 2011–present
- Brown dwarf demographics and formation history using population synthesis.
 - Parallax measurements (infrared) with UKIRT for over 300 low-mass stars and brown dwarfs.
 - Adaptive optics imaging of brown dwarf binaries with Keck + LGS adaptive optics.
 - Large-scale searches for brown dwarfs using Pan-STARRS, 2MASS, SDSS, WISE, and UKIDSS.
 - Modeling of gas and dust in protoplanetary disks.
 - Models for infrared filters, optimized for brown dwarf astrometry.
- Summer 1992 **KNAC Research Program**, *Williams College*, Williamstown, MA.
Advisor: Dr. Jay M. Pasachoff
- Deuterium abundances from high-resolution spectra of B stars.

Teaching

- 2001–2011, **Mathematics and Physics Teacher**, *Punahou School*, Honolulu, HI.
- 1994–1999
- Math Department Head for five years. Supervised 24 teachers, focusing on professional growth.
 - Taught all levels of high school math, A.P. Physics C (with calculus), Astronomy, Introduction to Counseling Psychology, 9th Grade Guidance.
 - Chaired search committee for an Academy Dean position.
 - Served on Academy Curriculum Committee for three years.

Awards, Fellowships, and Honors

- May 2017 **Student Excellence in Research Award**, University of Hawaii
1 of 3 given across all departments
- May 2017 **ARCS Foundation 2017 Columbia Award in Astronomy**
1 University of Hawaii astronomy student awarded each year
- January 2014 **Chambliss Student Poster Award Honorable Mention**, 223rd AAS Meeting, National Harbor, MD
- May 2013 **Friends of the IfA Award**, Institute for Astronomy, University of Hawaii
Top 2nd year research project
- Sept. 2012 **Friends of the IfA Award**, Institute for Astronomy, University of Hawaii
Top 1st year research project
- August 2011 **Director's Award**, Institute for Astronomy, University of Hawaii
1-2 awarded each year to incoming graduate students

Refereed Publications

19 total, including 5 first author and 1 second author

First Author

20. **Photometry and Proper Motions of M, L, and T Dwarfs from the Pan-STARRS1 3π Survey.** Best, W. M. J., Magnier, E. A., Liu, M. C., Aller, K. M., et al (15 total authors). 2018, ApJS, 234, 1.
19. **The Young L Dwarf 2MASS J11193254–1137466 Is a Planetary-mass Binary.** Best, W. M. J., Liu, M. C., Dupuy, T. J., and Magnier, E. A. 2017, ApJL, 843, L4.
18. **A Search for L/T Transition Dwarfs With Pan-STARRS1 and WISE. III. Young L Dwarf Discoveries and Proper Motion Catalogs in Taurus and Scorpius-Centaurus.** Best, W. M. J., Liu, M. C., Magnier, E. A., Bowler, B. P., et al (16 total authors). 2017, ApJ, 837, 95.
17. **A Search for L/T Transition Dwarfs With Pan-STARRS1 and WISE. II. L/T Transition Atmospheres and Young Discoveries.** Best, W. M. J., Liu, M. C., Magnier, E. A., Deacon, N. R., et al (16 total authors). 2015, ApJ, 814, 118.
16. **A Search for L/T Transition Dwarfs With Pan-STARRS1 and WISE: Discovery of Seven Nearby Objects Including Two Candidate Spectroscopic Variables.** Best, W. M. J., Liu, M. C., Magnier, E. A., Aller, K. M., et al (16 total authors). 2013, ApJ, 777, 84.

Significant Contributions

15. **The Pan-STARRS1 Proper-Motion Survey for Young Brown Dwarfs in Nearby Star-Forming Regions. I. Taurus Discoveries and a Reddening-Free Classification Method for Ultracool Dwarfs.** Zhang, Z., Liu, M. C., Best, W. M. J., Magnier, E. A., et al (14 total authors). 2018, ApJ, in press.
14. **Identification of partially resolved binaries in Pan-STARRS1 data.** Deacon, N. R., Magnier, E. A., Best, W. M. J., Liu, M. C., et al (12 total authors). 2017, MNRAS, 468, 3499.

13. **Brown Dwarfs in Young Moving Groups from Pan-STARRS1. I. AB Doradus.** Aller, K. M., Liu, M. C., Magnier, E. A., Best, W. M. J., et al (15 total authors). 2016, ApJ, 821, 120.
12. **The Brightening of Re50N: Accretion Event or Dust Clearing?** Chiang, H.-F., Reipurth, B., Walawender, J., Connelley, M. S., Pessev, P., Geballe, T. R., Best, W. M. J., and Paegert, M. 2015, ApJ, 805, 54.
11. **Wide, Cool and Ultracool Companions to Nearby Stars from Pan-STARRS1.** Deacon, N. R., Liu M. C., Magnier, E. A., Aller, K. M., Best, W. M. J., et al (21 total authors). 2014, ApJ, 792, 119.
10. **A Parametric Modeling Approach to Measuring the Gas Masses of Circumstellar Disks.** Williams, J. P. and Best, W. M. J. 2014, ApJ, 788, 59.
9. **Two Extraordinary Substellar Binaries at the T/Y Transition and the Y-band Fluxes of the Coolest Brown Dwarfs.** Liu, M. C., Dupuy, T. J., Bowler, B. P., Leggett, S. K., and Best, W. M. J. 2012, ApJ, 758, 57.

Minor Contributions

8. **Variability of the Lowest Mass Objects in the AB Doradus Moving Group.** Vos, J. M., Allers, K. N., Biller, B., A., Liu, M. C., Dupuy, T. J., Gallimore, J. F., Adenuga, D., and Best, W. M. J. 2018, MNRAS, 474, 1041.
7. **The UKIRT Hemisphere Survey: Definition and J-band Data Release.** Dye, S., et al (26 total authors). 2018, MNRAS, 473, 5113.
6. **2MASS 0213+3648 C: A wide T3 benchmark companion to an an active, old M dwarf binary.** Deacon, N. R., et al (17 total authors). 2017, MNRAS, 467, 1126.
5. **Planets Around Low-Mass Stars (PALMS). VI. Discovery of a Remarkably Red Planetary-mass Companion to the AB Dor Moving Group Candidate 2MASS J22362452+4751425.** Bowler, B. P., et al (14 total authors). 2017, AJ, 153, 18.
4. **Planet Hunters IX. KIC 8462852 – Where's the Flux?** Boyajian, T. S., et al (30 total authors). 2016, MNRAS, 457, 3988.
3. **Two Transiting Earth-Size Planets Near Resonance Orbiting a Nearby Cool Star.** Petigura, E. A., et al (14 total authors). 2015, ApJ, 811, 102.
2. **Planets Around Low-Mass Stars (PALMS). V. Age-dating Low-mass Companions to Members and Interlopers of Young Moving Groups.** Bowler, B. P., et al (25 total authors). 2015, ApJ, 806, 62.
1. **The 2011 June 23 Stellar Occultation by Pluto: Airborne and Ground Observations.** Person, M. J., et al (47 total authors). 2013, AJ, 146, 83.

Scientific Talks

June 2016 **Cool Stars 19**, Uppsala, Sweden

Discovery of Young L Dwarfs in Taurus and Scorpius-Centaurus.

June 2014 **Cool Stars 18**, Flagstaff, AZ

Building a Volume-Limited Sample of L/T Transition Dwarfs with the Pan-STARRS 1 and WISE Surveys.

Posters

- January 2017 **229th AAS Meeting**, Grapevine, TX
Photometry and Proper Motions of M, L, and T Dwarfs from the Pan-STARRS1 3π Survey.
- June 2016 **Cool Stars 19**, Uppsala, Sweden
Discovery of Young L Dwarfs in Taurus and Scorpius-Centaurus with the Pan-STARRS1 3π Survey.
- January 2016 **227th AAS Meeting**, Kissimmee, FL
Photometry, Astrometry, and Young Discoveries of L and T Dwarfs in the Pan-STARRS1 3π Survey.
- June 2014 **Cool Stars 18**, Flagstaff, AZ
Building a Volume-Limited Sample of L/T Transition Dwarfs with the Pan-STARRS 1 and WISE Surveys.
- January 2014 **223rd AAS Meeting**, National Harbor, MD
Chambliss Student Award Honorable Mention
A Volume-Limited Search for L/T Transition Brown Dwarfs with the Pan-STARRS1 and WISE Surveys.
- June 2013 **IAU Symposium 299: Exploring the formation and evolution of planetary systems**, Victoria, BC
Towards an Accurate Accounting of the Gas Content of Protoplanetary Disks.
- May 2013 **Brown Dwarfs Come of Age**, Fuerteventura, Canary Islands
A Volume-Limited Search for L/T Transition Brown Dwarfs with the Pan-STARRS1 and WISE Surveys.
- Jan 2013 **221st AAS Meeting**, Long Beach, CA
A Volume-Limited Search for L/T Transition Brown Dwarfs with the Pan-STARRS1 and WISE Surveys.

Professional Service

- 2017 Referee for MNRAS
- 2015 University of Hawaii Time Allocation Committee

Observing

IRTF (SpeX) — 45 nights, October 2011–July 2017 — PIs: Aller, Best, Bowler, Deacon, Liu, Magnier, Zhang

Keck (NIRC2+LGSAO) — 30 nights, July 2010–October 2017 — PIs: Best, Dupuy, Liu

UKIRT (WFCAM) — 482 queue hours, June 2013–January 2018 — PI: Best

Gemini-North (GNIRS) — 7.3 queue hours, August 2013–December 2015 — PI: Best

Subaru (IRCS+LGSAO) — 1.5 nights, June 2012 — PIs: Dupuy, Liu

Keck (NIRSPEC) — 1 night, June 2017 — PI: Liu

Languages

English **Fluent**

My native language.

French **Intermediate**

Speaking, reading, and writing.

Outreach

- January 2014 Volunteer at star party for homeschool families
- 2012–2013 StarLab host, Institute for Astronomy Open House, University of Hawaii
- 2011–2013 Guest speaker 5 times, Astronomy class, Punahou School
- 2011 Leader at 2 Punahou School star parties
- 2011–2013 Volunteer for 5 public lectures, Institute for Astronomy, University of Hawaii
- June 2012 Coordinator for 2 StarLab education events, Hawaii public elementary schools
- 2011–2012 Assisted with 2 StarLab education nights, Hawaii public elementary schools
- 2012 Volunteer 2 times, Stargazing at the Zoo, Honolulu Zoo
- June 2012 Volunteer for Transit of Venus event at Waikiki Beach, Institute for Astronomy, U Hawaii

Community Service

- 2008–2015 Common Cause Hawai'i – Treasurer, Director
- 2001–2014 Hawai'i Elections Project – Treasurer, Director
- 2010–2014 Give It Fresh Today volunteer (fresh produce donation program)
- 2003 Habitat For Humanity - Fiji – Led service trip with 20 students
- 2002 Teachers Without Borders - South Africa – Led teacher training workshops

References

Dr. Michael C. Liu, *Professor, Institute for Astronomy, Honolulu, HI.*

mliu@ifa.hawaii.edu +1-808-956-6666

Dr. Eugene A. Magnier, *Professor, Institute for Astronomy, Honolulu, HI.*

eugene@ifa.hawaii.edu +1-808-956-6317

Dr. Jonathan P. Williams, *Professor, Institute for Astronomy, Honolulu, HI.*

jpw@ifa.hawaii.edu +1-808-956-8355