

# John Asher Johnson

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## Education

### University of California, Berkeley

Ph.D. Astrophysics May 2007

Thesis: *Planet Hunting In New Stellar Domains*

Advisor: Geoffrey W. Marcy

M.A. Astrophysics December 2002

### University of Missouri-Rolla

B.S. Physics (Mathematics minor) December 1999

## Employment History

NSF Astronomy and Astrophysics Postdoctoral Fellowship 2007-present

Graduate Research Assistant, UC Berkeley 2001-2007

Research Scientist, LIGO Project, Caltech Jan 2000 – August 2000

## Honors and Awards

UC Berkeley Uhl Prize for Outstanding Scholarly Achievement

UC Berkeley Chancellor's Opportunity Fellowship

UC Berkeley Outstanding Graduate Student Instructor Award

UC Berkeley Teaching Effectiveness Award

University of Missouri-Rolla Bright Flight Scholar

University of Missouri-Rolla Dean's List

Karl Hasselman Scholarship (UMR)

Minority Engineering Program Scholarship (UMR)

## Collaborators

*Please refer to final page for summaries of collaborative efforts*

Geoff Marcy (UC Berkeley)

Josh Winn (MIT)

Debra Fischer (San Francisco State University)

Andrew Howard (UC Berkeley)

Jason Wright (Cornell)

Kathryn Peek (UC Berkeley)

Jeff Valenti (STScI)

Jay Anderson (STScI)

Nikolai Piskunov (Uppsala University, Sweden)

Sabine Reffert (ZAH – Landessternwarte, Germany)

Michael Liu (UH Institute for Astronomy)

John Tonry (UH Institute for Astronomy)

## Publications (1<sup>st</sup> and 2<sup>nd</sup> author)

As of Nov 21, 2008, I have 11 refereed, first-author publications (148 citations), 32 total refereed publications (1085 citations), and my h-index is 18 (for all refereed publications). For links to the filtered ADS listings of all my papers please refer to <http://ifa.hawaii.edu/~johnjohn/Research.html>

### *A Smaller Radius for the Transiting Exoplanet WASP-10b*

**Johnson, J. A.**, Winn, J. N., Cabrera, N., E., Carter, J. 2008, ApJ Letters, submitted Oct 23  
Preprint available at: <http://ifa.hawaii.edu/~johnjohn/wasp10.pdf>

### *Measurement of the Spin-Orbit Angle of Exoplanet HAT-P-1b*

**Johnson, J. A.**, Winn, J. N., Narita, N., Enya, K., et al., 2008, ApJ, 686, 649

### *The Prograde Orbit of Exoplanet TrES-2b*

Winn, J. N., **Johnson, J. A.**, Narita, N., Suto, Y., Turner, E. L., et al., 2008, ApJ, 682, 1283

### *Retired A Stars and Their Companions II: Jovian planets orbiting kappa CrB and HD167042*

**Johnson, J. A.**, Marcy, G. W., Fischer, D. A., et al., 2008, ApJ, 675, 784

### *Planets Around Massive Subgiants*

**Johnson, J. A.**, 2008, ASP Conference Series: Extreme Solar Systems, 398, 59

### *A New Planet Around an M Dwarf: Revealing a Correlation Between Exoplanets and Stellar Mass*

**Johnson, J. A.**, Butler, R. P., Marcy, G. W., Fischer, et al., 2007, ApJ, 670, 833

### *Retired A Stars and Their Companions: Exoplanets Orbiting Three Intermediate-Mass Subgiants*

**Johnson, J. A.**, Fischer, D. A., Marcy, G. W., Butler, R. P., Wright, et al., 2007, ApJ, 665, 785

### *An Eccentric Hot Jupiter Orbiting the Subgiant HD 185269*

**Johnson, J. A.**, Marcy, G. W., Fischer, D. A., Henry, G., Wright, J. T. et al. 2006, ApJ, 652, 1724

### *The N2K Consortium VI: Doppler Shifts Without Templates and Three New Short-Period Planets*

**Johnson, J. A.**, Marcy, G. W., Fischer, D., Laughlin, G., Butler, R. P., et al. 2006, ApJ, 647, 600

### *A Long-period Jupiter-mass Planet Orbiting the Nearby M Dwarf GL 849*

Butler, R. P., **Johnson, J. A.**, Marcy, G. W., Wright, J. T., Vogt, S. S., Fischer, D. A., 2006, PASP, 118, 1685

### *Spin-Orbit Alignment for the Eccentric Exoplanet HD 147506b*

Winn, J. N., **Johnson, J. A.**, Peek, K. M. G., Marcy, G. W., 2007, ApJ, 665L, 167

### *Measurement of the Spin-Orbit Alignment in the Exoplanetary System HD 189733*

Winn, J. N., **Johnson, J. A.**, Marcy, G. W., et al. 2006, ApJL, 653, L69

### *KH 15D: A Spectroscopic Binary*

**Johnson, J. A.**, Marcy, G. W., Hamilton, C. M., Herbst, W., & Johns-Krull, C. M. 2004, AJ, 128, 1265

### *The History of the Mysterious Eclipses of KH 15D: Asiago Observatory, 1967-1982*

**Johnson, J. A.** & Winn, J. N. 2004, AJ, 127, 2344

### *The History of the Mysterious Eclipses of KH 15D II.*

**Johnson, J. A.**, Winn, J. N., Rampazzi, F., Barbieri, C., Mito, H., et al. 2005, AJ, 129, 1978

## Other Publications

### *Five Planets Orbiting 55 Cancri*

Fischer, D. A.; Marcy, G. W.; Butler, R. P.; Vogt, S. S.; Laughlin, G.; Henry, G. W.; Abouav, D.; Peek, K. M. G.; Wright, J. T.; **Johnson, John A.**, et al. 2008 ApJ, 675, 790

### *HAT-P-10b: A light and moderately hot Jupiter transiting a K dwarf*

Bakos, G. A.; Pal, A.; Torres, G.; Sipocz, B.; Latham, D. W.; Noyes, R. W.; Kovacs, Geza; Hartman, J.; Esquerdo, G. A.; Fischer, D. A.; **Johnson, J. A.**, et al. 2008 arXiv:0809.4295

### *HD 147506b: A Supermassive Planet in an Eccentric Orbit Transiting a Bright Star*

Bakos, G. Á.; Kovács, G.; Torres, G.; Fischer, D. A.; Latham, D. W.; Noyes, R. W.; Sasselov, D. D.; Mazeh, T.; Shporer, A.; Butler, R. P.; **Johnson, J. A.** et al., 2007 ApJ, 670, 826

### *HAT-P-1b: A Large-Radius, Low-Density Exoplanet Transiting One Member of a Stellar Binary*

Bakos, G. Á.; Noyes, R. W.; Kovács, G.; Latham, D. W.; Sasselov, D. D.; Torres, G.; Fischer, D. A.; Stefanik, R. P.; Sato, B.; **Johnson, J. A.**, 2007 ApJ, 656, 552

### *The Transit Light Curve Project. VII. The Not-So-Bloated Exoplanet HAT-P-1b*

Winn, J. N., Holman, M. J., Bakos, G., Pal, A., **Johnson, J. A.**, et al. 2007 AJ, 134, 1707

### *The N2K Consortium. III. Short-Period Planets Orbiting HD 149143 and HD 109749*

Fischer, D.A., Laughlin, G., Marcy, G.W., Butler, R.P., Vogt, S.S., **Johnson, J.A.**, 2006 ApJ, 637, 1094

### *The Orbit and Occultations of KH 15D*

Winn, J. N.; Hamilton, C. M.; Herbst, W. J.; Hoffman, J. L.; Holman, M. J.; **Johnson, J. A.**; Kuchner, M. J., 2006 ApJ, 644, 510

### *The N2K Consortium. II. A Transiting Hot Saturn around HD 149026 with a Large Dense Core*

Sato, B; Fischer, D. A.; Henry, G. W.; Laughlin, G.; Butler, R. P.; Marcy, G. W.; Vogt, S. S.; Bodenheimer, P.; Ida, S.; Toyota, E.; Wolf, A.; Valenti, J. A.; Boyd, L. J.; **Johnson, J. A.**, et al. 2005 ApJ, 633, 465

### *The N2K Consortium. I. A Hot Saturn Planet Orbiting HD 88133*

Fischer, D. A.; Laughlin, G.; Butler, P.; Marcy, G.; **Johnson, J.**, et al. 2005 ApJ, 620, 481

### *Five New Multicomponent Planetary Systems*

Vogt, S. S.; Butler, R. P.; Marcy, G. W.; Fischer, D. A.; Henry, G. W.; Laughlin, G.; Wright, J. T.; **Johnson, J. A.** 2005 ApJ 632, 638

### *Measurement of Spin-Orbit Alignment in an Extrasolar Planetary System*

Winn, J. N.; Noyes, R. W.; Holman, M. J.; Charbonneau, D.; Ohta, Y.; Taruya, A.; Suto, Y.; Narita, N.; Turner, E. L.; **Johnson, J. A.** 2005 ApJ, 631, 1215

### *Five New Extrasolar Planets*

Marcy, G. W.; Butler, R. P.; Vogt, S. S.; Fischer, D. A.; Henry, G. W.; Laughlin, G.; Wright, J. T.; **Johnson, J. A.** 2005 ApJ, 619, 570

### *KH 15D: Gradual Occultation of a Pre-Main-Sequence Binary*

Winn, J. N., Holman, M. J., **Johnson, J. A.**, Stanek, K. Z., & Garnavich, P. 2004, ApJ, 603, 45

## Teaching and Advising Experience

- 2008 *Research Mentor, Astronomy 699*  
I am mentoring Brendan Bowler, a second-year graduate student in the IfA Ay699 course. The course is designed to introduce students to astrophysical research through a self-contained project lasting 12 months. Brendan is working on a statistical analysis of the semimajor axis distribution of planets around massive stars. [http://ifa.hawaii.edu/gradprog/astro\\_699.htm](http://ifa.hawaii.edu/gradprog/astro_699.htm)
- 2008 *Research Mentor, University of Hawaii NSF REU*  
During the summer of 2008 I mentored two undergraduate students as part of the Research Experience for Undergraduates program. I designed and supervised research projects for Nicole Cabrera (Georgia Tech) and Terreka Hart (Tennessee State University). Nicole's work is featured in a recently submitted ApJ Letter (see publication list) and an upcoming AAS poster.
- 2008 *Lecturer, University of Hawaii HI-STAR Program*  
During the summer of 2008 I taught a lab section on transiting exoplanets for a high-school summer outreach program for native Hawaiian students.
- 2005 *Lecturer, UC Berkeley Astronomy Dept.*  
In the Fall of 2005 I taught a new 3-credit-hour astronomy course: Introduction to IDL Computer Programming. A fundamental tool of modern astronomy is computer programming, yet most astronomy programs lack a computer science course. To fill this conspicuous gap I designed a new course to teach students proper computer programming skills. My tasks involved the preparation of a weekly 2-hour lecture to class of 20 students (17 undergrad, 3 grad); writing and grading weekly problem sets; and holding weekly office hours.
- 2000-2005 *Instructor, UC Berkeley Multicultural Engineering Program Summer Boot Camp*  
I designed a course syllabus, prepared homework assignments and taught lecture sections for a summer preparatory physics course for incoming minority engineering and science students.
- 2002 *Instructor, UC Berkeley Upward Bound Program*  
I taught 3 physics classes for summer college preparatory program for minority and underprivileged high school students.
- 2000 *Founder of The Astronomy Learning Center (TALC) at UC Berkeley*  
TALC is a large, collaborative "office hour" where students work on their homework assignments in an informal, group setting. TALC is staffed by GSIs who serve as guides, rather than tutors, in helping student groups with their homework problems. TALC is now used for all introductory courses in the Berkeley Astronomy Dept.  
<http://astro.berkeley.edu/resources/campbell/talc/>
- 2001 *Head Graduate Student Instructor, UC Berkeley Astronomy Dept.*  
I coordinated the day-to-day administration of 800-student introductory astronomy course for non-majors. I maintained quality of instruction in discussion sections, organized stargazing nights, served as a substitute lecturer, and was a liaison between students and instructors.
- 2000-2001 *Graduate Student Instructor, UC Berkeley*  
I worked as a teaching assistant during 2 semesters for the Ay10 Intro to Astronomy course, a semester for the Ay7 Intro course for majors, and a semester for the Ay120 Advanced Optical Observing Lab course.

## Invited Talks

*Unraveling the Mystery of a Mysterious Winking Star*, San Francisco State Colloquium, Sept 2004

*Exploring the Relationship Between Stellar Mass and Planet Formation*, Princeton ISM  
Lunch Talk, Apr 16, 2007

*Exploring the Relationship Between Stellar Mass and Planet Formation*, Harvard CfA OIR  
Seminar Talk, Apr 19, 2007

*Planets Around Massive Subgiants*, Extreme Solar Systems Conference, Santorini, June 25, 2007

*Massive Worlds Orbiting Massive Suns*, NSF AAPF Symposium, Jan 7, 2008

*Retired A Stars and Their Planets*, JPL Astrophysics Colloquium Series, Feb 14, 2008

*Planet Hunting in New Stellar Domains*, U. Washington-Seattle Colloquium, Apr 10, 2008

*Planet Hunting in New Stellar Domains*, IfA Colloquium, Oct 10, 2007

*Massive Planets Around Massive Stars*, UH Astrobiology Institute Seminar Series, Mar 31, 2008

***Other Worlds*, UH Frontiers of Astronomy Community Lecture, Jun 30, 2008**

## Summary of Collaborative Efforts

**Planets Around Massive Stars-** I am conducting a multi-site Doppler survey of massive subgiant stars to study the relationships between stellar mass and exoplanets. I am collaborating with the CPS team members at Keck Observatory; Sabine Reffert (ZAH, Germany), Katie Peek (UCB) and Thomas Lowe (UCO-Lick) at Lick Observatory; Josh Winn (MIT) at Magellan Observatory; and Robert Wittenmyer and Chris Tinney at the Anglo-Australian Observatory. Please see my Research Statement for further details.

**California Planet Search (CPS)-** The CPS is a large team effort that serves as an umbrella for many of the planet search programs at Keck observatory. My fellow CPS team members are Geoff Marcy (UCB), Debra Fischer (SFSU), Andrew Howard (UCB), Gaspar Bakos (CfA), Jason Wright (Cornell), Jeff Valenti (STScI), Jay Anderson (STScI) and Nikolai Piskunov (Uppsala, Sweden). My primary role is to operate and maintain the Doppler reduction pipeline that produces next-day RV measurements for the various planet searches. I also oversee the NASA Keck M Dwarfs Planet Search.

**Measuring Exoplanet Spin-Orbit Angles-** I am working with Josh Winn (MIT), Ed Turner (Princeton) and Norio Narita (U. of Tokyo) to use precise radial velocity measurements from Keck/HIRES and Subaru/HDS to measure the sky-projected angle between the stellar spin axis and planet orbit normal for transiting planetary systems. We take advantage of the anomalous Doppler shift known as the Rossiter-McLaughlin effect, which occurs during transit when the planet blocks the approaching and receding limbs of the rotating stellar surface. Our ultimate goal is to compare the observed distribution of spin-orbit angles to the predictions made by theoretical models of planet migration.

**The HAT-Net Wide-Field Transit Search-** I am collaborating with Gaspar Bakos (CfA), Willie Torres (CfA) and the HAT-Net planet search team. I run the Doppler reductions for their Keck/HIRES observations, and I measure follow-up light curves of transit candidates using the UH 2.2m telescope.