

Dr. Konstantin Batygin
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Curriculum Vitae
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Education

Ph.D., Planetary Science (2012) California Institute of Technology
doctoral advisors: David J. Stevenson & Michael E. Brown
M.S., Planetary Science (2010) California Institute of Technology
B.S., Astrophysics (2008) (with honors) University of California, Santa Cruz
undergraduate advisor: Gregory Laughlin

Academic Employment

Professor of Planetary Science, Caltech	May 2019 - present
Van Nuys Page Scholar, Caltech	May 2017 - May 2019
Assistant Professor of Planetary Science, Caltech	Jun. 2014 - May 2019
Harvard ITC Postdoctoral Fellow, Harvard Center for Astrophysics	Nov. 2012 - Jun. 2014
Postdoctoral Fellow, Observatoire de la Cote d'Azur, Nice, France	Jul. 2012 - Nov. 2012
Visiting Scientist, Observatoire de la Cote d'Azur, Nice, France	Feb. 2011 - Mar. 2011
Graduate Research Assistant/Teaching Assistant, Caltech	Sep. 2008 - Jun. 2012
Research Assistant, UCO/Lick Observatory	Mar. 2006 - Sep. 2008
Supplemental Instructor, University of California, Santa Cruz	Mar. 2006 - Jun. 2006
Research Assistant, NASA Ames Research Center	Jul. 2005 - Jan. 2006

Awards

Sloan Fellowship in Physics - 2018
Packard Fellowship for Science & Engineering - 2017
Genius100 Visionary Award, Albert Einstein Legacy Foundation - 2017
Garfinkel Lectureship in Celestial Mechanics (Yale) - 2017
AAS WWT Prize in Research - 2016
Popular Science Brilliant 10 - 2016
Forbes 30 Under 30: Science - 2015
Harvard ITC Prize Fellowship - 2012
Recognition of Excellence in Teaching Assistance (Caltech) - 2011
NASA NESSF Graduate Fellowship (Caltech) - 2010
Steck Award (Best Senior Thesis in UC Santa Cruz) - 2008
Dean's Award (UC Santa Cruz) - 2008
Chancellor's Award (UC Santa Cruz) - 2008

Teaching

Astro/Geo 133 "Formation and Evolution of Planetary Systems" undergraduate/graduate class
Astro/Geo 137 "Planetary Physics" undergraduate/graduate class
Astro/Geo 198 "Extrasolar Planets" special topics seminar

Students & Postdocs

Marguerite Epstein-Martin, Caltech (Graduate Student, Planetary Science) 2019 - present
Max Goldberg, Caltech (Graduate Student, Astrophysics) 2019 - present
Juliette Becker, Caltech (Postdoc, Astrophysics) 2019 - present
Tobias Koehne, Caltech (Graduate Student, Geophysics) 2018 - present
Walker Melton, Caltech (Undergraduate Student, Physics) 2016 - present
Talia Khain, Caltech/Univ. of Michigan (Undergraduate Student, Mathematics) 2017 - 2018
Siteng Fan, Caltech (Graduate Student, Planetary Science) 2016 - 2017
Natalia Storch, Caltech (Postdoc, Physics/Astronomy) 2016 - 2019
Elizabeth Bailey, Caltech (Graduate Student, Planetary Science), 2016 - 2020
Abhijit Puranam, Caltech (Undergraduate Student, Physics/Planetary Science), 2015 - 2017
Stephen Markham, Caltech (Graduate Student, Planetary Science), 2016
Bhawna Motwani, Caltech (Graduate Student, Astronomy) 2015 - 2017
Henry Ngo, Caltech (Graduate Student, Planetary Science, joint with H. Knutson) 2015
Peter Buhler, Caltech (Graduate Student, Planetary Science, joint with H. Knutson) 2015
Katherine Deck, Caltech (Postdoc, Planetary Science/Astronomy), 2014 - 2017
Christopher Spalding, Caltech (Graduate Student, Planetary Science), 2013 - 2018
Gongjie Li, Harvard (Graduate Student, Astrophysics, joint with A. Loeb, S. Naoz), 2012 - 2014
Juliette Becker, Caltech (Undergraduate Student, Astrophysics), 2011 - 2013
Hayden Betts, Polytechnic School (High School Student), 2011

Selected Colloquia and Invited Conference Talks (2014-2020)

Gordon Research Conference: Origins of Life, January 20 2020
Cornell University, Astronomy & Astrophysics Colloquium, November 19 2019
University of Tokyo, Astrophysics Lecture, August 27 2019
USI Conference, Paris, Fr., June 25 2019
Observatoire de la Cote d'Azur Planetary Science Seminar, Nice, Fr., June 19 2019
Kavli Institute for Theoretical Physics, UC Santa Barbara, May 21 2019
University of Michigan, Ann Arbor Astronomy Seminar, April 30 2019
National Academy of Sciences, Panel on the Outer Solar System, April 28 2019
Georgia Institute of Technology, School of Physics Lecture Series, April 9 2019
JPL Office of the Chief Scientist and Chief Technologist Lecture Series, March 21 2019
University of Arizona Theoretical Astrophysics Colloquium, October 1 2018
Los Alamos National Laboratory Theoretical Physics Colloquium, July 19 2018
COSPAR Assembly, July 16 2018
JPL Astrophysics Seminar, June 25, 2018
University of Tokyo, IPMU Seminar, April 10 2018
Carnegie DTM Seminar, April 5 2018
Georgia Institute of Technology, CRA Seminar, April 4 2018
Northwestern University, Earth & Planetary Sciences Colloquium, January 26 2018
Columbia University Astronomy Colloquium, November 29, 2017
Kavli Institute for Theoretical Physics, UC Santa Barbara, November 15 2017
Harvard University ITC Seminar, October 2 2017
University of Colorado, Boulder Astrophysical & Planetary Sciences Colloquium, September 18 2017

AAS Conference Plenary Talk, June 6 2017
University of Bern CSH Colloquium, May 10 2017
University of Heidelberg Physics Colloquium, May 5 2017
University of Copenhagen StarPlan Seminar, May 2 2017
Yale University Boris Garfinkel Memorial Lecture, April 24 2017
University of Washington Astronomy Colloquium, April 20 2017
IEEE Aerospace Conference Plenary Talk, March 9 2017
Rice University Physics and Astronomy Colloquium, Feb 1 2017
APS Conference Invited talk, Jan 31 2017
Earnest C. Watson Lecture Series at Caltech, December 7 2016
University of Chicago Astronomy and Astrophysics Colloquium, November 30 2016
Dixie State University Forum, November 16 2016
Princeton University Astrophysics Seminar, November 7 2016
Observatoire de la Cote d'Azur Planetary Science Seminar, November 2 2016
Harvard University CfA Colloquium October 27 2016
USC Center for Applied Mathematical Sciences Colloquium, October 10 2016
UCLA Earth, Planetary and Space Sciences Colloquium, October 6 2016
CalState LA Physics Colloquium, September 29 2016
National Academy of Sciences Annual Meeting, May 1 2016
CSU Northridge Physics & Astronomy Colloquium, April 27 2016
CMA Lecture Series at JPL, April 5 2016
UC Berkeley Astronomy Colloquium, March 10, 2016
University of Toronto Center for Planetary Science Colloquium, February 24 2016
IAU XXIX General Assembly, August 12 2015
UC Santa Cruz Astronomy Colloquium, April 15 2015
SETI Institute Seminar Series, April 14 2015
SPF1 Planet Formation Conference, March 25 2015
UCLA Planetary Science Seminar, CA October 24 2014
US Naval Observatory Scientific Colloquium, October 24 2014
MIRA Circumstellar Disks and Planet Formation Conference, October 14 2014
Cornell University Astronomy and Space Sciences Colloquium, April 13 2014
UCLA Astrophysics Colloquium, Los Angeles, CA, March 5 2014
SWRI Planetary Science Colloquium, March 4 2014

Professional Service

Referee for *Astrophysical Journal*, *Astrophysical Journal Letters*, *Astronomical Journal*, *Astronomy & Astrophysics*, *Nature*, *Nature Astronomy*, *Science*, *Science Advances*, *Monthly Notices of the Royal Astronomical Society*, *Icarus*, *Celestial Mechanics and Dynamical Astronomy*, *Proceedings of the National Academy of Sciences*, *Earth Moon and Planets*, panelist for various NASA and NSF programs, LOC/SOC for various conferences, chair of the LOC for 2015 AAS/DDA conference, member of the board of directors of the Caltech Management Association, member of the Caltech institutional postdoctoral studies committee, member of committee on undergraduate education at Caltech, elected member of the faculty board at Caltech.

Refereed Publications (1st-3rd author)

1. Formation of Giant Planet Satellites (2020) **K. Batygin** & A. Morbidelli, *Astronomical Journal*, *under review*
2. Dynamics of Planetary Systems within Star Clusters: Aspects of the Solar System's Early Evolution (2020) **K. Batygin**, F. Adams, Y. Batygin, E. Petigura, *Astronomical Journal*, 159, 101
3. Energy Optimization in Extrasolar Planetary Systems: The Transition from Peas-in-a-Pod to Runaway Growth (2020) F. Adams, **K. Batygin**, G. Laughlin, A. Bloch, *Monthly Notices of the Royal Astronomical Society*, *in press*
4. Energy Optimization in Binary Star Systems: Explanation for Equal Mass Members in Close Orbits (2020) F. Adams, **K. Batygin**, A. Bloch, *Monthly Notices of the Royal Astronomical Society*, *under review*
5. K2-19b and c are in a 3:2 Commensurability but out of Resonance: A Challenge to Planet Assembly by Convergent Migration (2020) E. Petigura, J. Livingston, **K. Batygin**, and 11 collaborators, *The Astronomical Journal*, 159, 2
6. Aero-Resonant Migration (2019) N. Storch, **K. Batygin**, *Monthly Notices of the Royal Astronomical Society*, 490, 1861
7. The Planet Nine Hypothesis (2019) **K. Batygin**, F. C. Adams, M. E. Brown, J. C. Becker, *Physics Reports*, 805, 1
8. On the Anomalous Acceleration of 1I/2017 U1 'Oumuamua (2019) D. Seligman, G. Laughlin, **K. Batygin**, *The Astrophysical Journal*, 876, 26
9. Excitation of Planetary Obliquities through Planet–Disk Interactions (2019) S. Millholland, **K. Batygin**, *The Astrophysical Journal*, 876, 119
10. The Role of Dissipative Evolution for Three-Planet, Near-Resonant Extrasolar Systems (2019) G. Pichierri, **K. Batygin**, A. Morbidelli, *Astronomy & Astrophysics*, 625, 7
11. Orbital Clustering in the Distant Solar System (2019) M. Brown & **K. Batygin**, *The Astronomical Journal*, 157, 62
12. The Hot Jupiter Period-Mass Distribution as a Signature of In Situ Formation (2018) E. Bailey, **K. Batygin**, *The Astrophysical Journal Letters*, 866, 2
13. Feasibility of a Resonance-Based Planet Nine Search (2018) E. Bailey, M. E. Brown, **K. Batygin**, *The Astronomical Journal*, 156, 74
14. The Generation of the Distant Kuiper Belt by Planet Nine from an Initially Broad Perihelion Distribution (2018) T. Khain, **K. Batygin**, M. E. Brown, *The Astronomical Journal*, 155, 250
15. On the Terminal Rotation Rates of Giant Planets (2018) **K. Batygin**, *The Astronomical Journal*, 155, 178
16. Schrödinger Evolution of Self-Gravitating Discs (2018) **K. Batygin**, *Monthly Notices of the Royal Astronomical Society*, 475, 5070
17. The Resilience of Kepler Systems to Stellar Obliquity (2018) C. Spalding, N. Marx, **K. Batygin**, *The Astronomical Journal*, 155, 165
18. Chaotic Excitation and Tidal Damping in the GJ 876 System (2018) A. Puranam & **K. Batygin**, *The Astronomical Journal*, 155, 157
19. Dynamical Evolution Induced by Planet Nine (2017) **K. Batygin** & A. Morbidelli, *The Astronomical Journal*, 154, 229
20. A Secular Resonant Origin for the Loneliness of Hot Jupiters (2017) C. Spalding & **K. Batygin**, *The Astronomical Journal*, 154, 93

21. On the Consequences of the Detection of an Interstellar Asteroid (2017) G. Laughlin & **K. Batygin**, AAS Research Notes, 1, 43
22. Simulations of the Solar System's Early Dynamical Evolution with a Self-gravitating Planetesimal Disk (2017) S. Fan & **K. Batygin**, The Astrophysical Journal Letters, 851, 37
23. An Analytic Criterion for Turbulent Disruption of Planetary Resonances (2017) **K. Batygin** & F. Adams, The Astrophysical Journal, 153, 120
24. Generation of Highly Inclined Trans-Neptunian Objects by Planet Nine (2016) **K. Batygin** & M. Brown, The Astrophysical Journal Letters, 833, 3
25. Solar Obliquity Induced by Planet Nine (2016) E. Bailey, **K. Batygin**, M. Brown, The Astronomical Journal, 152, 126
26. Dynamical Constraints on the Core Mass of Hot Jupiter HAT-P-13b (2016) P. B. Buhler, H. A. Knutson, **K. Batygin**, B. J. Fulton, J. J. Fortney, The Astrophysical Journal, 821, 26
27. In Situ Formation and Dynamical Evolution of Hot Jupiter Systems (2016) **K. Batygin**, P. H. Bodenheimer, G. Laughlin, The Astrophysical Journal, 829, 114
28. Spin-orbit Misalignment as a Driver of the Kepler Dichotomy (2016) C. Spalding & **K. Batygin**, The Astrophysical Journal, 830, 5
29. Observational Constraints on the Orbit and Location of Planet Nine in the Outer Solar System (2016) M. Brown & **K. Batygin**, The Astrophysical Journal Letters, 824, 2
30. Resonant Removal of Exomoons During Planetary Migration (2016) C. Spalding, **K. Batygin**, F. Adams, The Astrophysical Journal, 817, 18
31. Evidence for a Distant Giant Planet in the Solar System (2016) **K. Batygin** & M. Brown, The Astronomical Journal, 151, 22
32. Magnetic Origins of the Stellar Mass-Obliquity Correlation in Planetary Systems (2015) C. Spalding & **K. Batygin**, The Astrophysical Journal, 811, 82
33. Spin-Spin Coupling in the Solar System (2015) **K. Batygin** & A. Morbidelli, The Astrophysical Journal, 810, 110B
34. Capture of Planets Into Mean-Motion Resonances and the Origins of Extrasolar Orbital Architectures (2015) **K. Batygin**, Monthly Notices of the Royal Astronomical Society, 451, 2589B
35. Jupiter's Decisive Role in the Inner Solar System's Early Evolution (2015) **K. Batygin** & G. Laughlin, Proceedings of the National Academy of Sciences, 112, 4214B
36. Migration of Two Massive Planets Into (and Out of) First Order Mean Motion Resonances (2015) K. Deck & **K. Batygin**, The Astrophysical Journal, 810, 119
37. Dynamical Evolution of Multi-Resonant Systems: the Case of GJ876 (2015) **K. Batygin**, K. Deck, M. Holman, The Astronomical Journal, 149, 167B
38. Chaotic Disintegration of the Inner Solar System (2015) **K. Batygin**, A. Morbidelli, M. J. Holman, The Astrophysical Journal, 799, 120B
39. Alignment of Protostars and Circumstellar Disks During the Embedded Phase (2014) C. Spalding, **K. Batygin**, F. Adams, The Astrophysical Journal Letters, 797, L29
40. Non-axisymmetric Flows on Hot Jupiters with Oblique Magnetic Fields (2014) **K. Batygin**, S. Stanley, The Astrophysical Journal, 794, 10B
41. Pre-Late Heavy Bombardment Evolution of the Earth's Obliquity (2014) G. Li & **K. Batygin**, The Astrophysical Journal, 795, 67L
42. Early Excitation of Spin-Orbit Misalignments in Close-in Planetary Systems (2014) C. Spalding & **K. Batygin**, The Astrophysical Journal, 790, 42S

43. On the Spin-Axis Dynamics of a Moonless Earth (2014) G. Li & **K. Batygin**, *The Astrophysical Journal*, 790, 69L
44. Spin-Orbit Angle Distribution and the Origin of (Mis)Aligned Hot Jupiters (2014) A. Crida & **K. Batygin**, *Astronomy & Astrophysics*, 567A, 42C
45. Magnetic and Gravitational Disk-Star Interactions: An Interdependence of PMS Stellar Rotation Rates and Spin-Orbit Misalignments (2013) **K. Batygin** & F. Adams, *The Astrophysical Journal*, 778, 169B
46. Dynamical Measurements of the Interior Structure of Exoplanets (2013) J. C. Becker & **K. Batygin**, *The Astrophysical Journal*, 778, 2
47. Magnetically Controlled Circulation on Hot Extrasolar Planets (2013) **K. Batygin**, S. Stanley, D. J. Stevenson, *The Astrophysical Journal*, 776, 53
48. Analytical Treatment of Planetary Resonances (2013) **K. Batygin** & A. Morbidelli, *Astronomy & Astrophysics*, 566, 28B
49. Mass-Radius Relationships for Very Low Mass Gaseous Planets (2013) **K. Batygin** & D. J. Stevenson, *The Astrophysical Journal Letters*, 769, 9B
50. Dissipative Divergence of Resonant Orbits (2013) **K. Batygin** & A. Morbidelli, *The Astronomical Journal*, 145, 1B
51. The Mass, Orbit, and Tidal Evolution of the Quaoar–Weywot System (2013) W. C. Fraser, **K. Batygin**, M. E. Brown, A. Bouchez, *Icarus* 222, 357
52. A Primordial Origin for Misalignments Between Stellar Spin Axes and Planetary Orbits (2012) **K. Batygin**, *Nature*, 491, 418
53. Instability-Driven Dynamical Evolution Model of a Primordially 5-Planet Outer Solar System (2012) **K. Batygin**, M. E. Brown, H. Betts, *The Astrophysical Journal Letters*, 744, L1
54. Explaining Why the Uranian Satellites Have Equatorial Prograde Orbits Despite the Large Planetary Obliquity (2012) A. Morbidelli, K. Tsiganis, **K. Batygin**, A. Crida, R. Gomes, *Icarus*, 219, 737M
55. Formation and Evolution of Planetary Systems in Presence of Highly Inclined Stellar Perturbors (2011) **K. Batygin**, A. Morbidelli, K. Tsiganis, *Astronomy & Astrophysics*, 533, 7B
56. Onset of Secular Chaos in Planetary Systems: Period Doubling and Strange Attractors (2011) **K. Batygin**, A. Morbidelli, *Celestial Mechanics and Dynamical Astronomy*, 111, 219
57. Retention of a Primordially Cold Classical Kuiper Belt in an Instability-Driven Model for Solar System Formation (2011) **K. Batygin**, M. E. Brown, W. C. Fraser, *The Astrophysical Journal*, 738, 13B
58. Evolution of Ohmically Heated Hot Jupiters (2011) **K. Batygin**, D. J. Stevenson, P. H. Bodenheimer, *The Astrophysical Journal*, 738, 1B
59. Resolving the Sin(i) Degeneracy in Low-Mass Exoplanets (2011) **K. Batygin**, G. Laughlin, *The Astrophysical Journal*, 730, 98B
60. Early Dynamical Evolution of the Solar System: Pinning Down the Initial Conditions of the Nice Model (2010) **K. Batygin** & M. Brown, *The Astrophysical Journal*, 716, 1323
61. Inflating Hot Jupiters with Ohmic Dissipation (2010) **K. Batygin** & D. J. Stevenson, *The Astrophysical Journal Letters*, 714, L238
62. Determination of the Interior Structure of Transiting Planets in Multiple-Planet Systems (2009) **K. Batygin**, P. Bodenheimer, G. Laughlin, *The Astrophysical Journal Letters* 704, 409
63. A Quasi-stationary Solution to Gliese 436b's Eccentricity (2009) **K. Batygin**, G. Laughlin, S. Meschiari, E. Rivera, S. Vogt, P. Butler, *The Astrophysical Journal* 699, 23
64. On the Dynamical Stability of the Solar System (2008) **K. Batygin** & G. Laughlin, *The Astrophysical Journal*, 683, 1207

Additional Refereed Publications

65. [An Excess of Jupiter Analogs in Super-Earth Systems](#) (2019) M. L. Bryan, H. A. Knutson, E. J. Lee, B. J. Fulton, **K. Batygin**, H. Ngo, T. Meshkat, *The Astronomical Journal*, 157, 52
66. [Dynamics and Formation of the Near-resonant K2-24 System: Insights from Transit-timing Variations and Radial Velocities](#) (2018) E. A. Petigura, B. Benneke, **K. Batygin**, B. J. Fulton, M. Werner, J. E. Krick, V. Gorjian, E. Sinukoff, K. M. Deck, S. M. Mills, D. Deming, *The Astronomical Journal*, 156, 89
67. [Constraints on the Spin Evolution of Young Planetary-Mass Companions](#) (2018) M. L. Bryan, B. Benneke, H. A. Knutson, **K. Batygin**, B. P. Bowler, *Nature Astronomy* 2, 138
68. [HAT-P-11: Discovery of a Second Planet and a Clue to Understanding Exoplanet Obliquities](#) (2018) S. W. Yee, E. A. Petigura, B. J. Fulton, H. A. Knutson, **K. Batygin**, G. A. Bakos, J. D. Hartman, L. A. Hirsch, A. W. Howard, H. Isaacson, M. R. Kosiarek, E. Sinukoff, L. M. Weiss, *The Astronomical Journal*, 155, 255
69. [A Direct Imaging Survey of Spitzer-detected Debris Disks: Occurrence of Giant Planets in Dusty Systems](#) (2017) T. Meshkat, D. Mawet, M. L. Bryan, S. Hinkley, B. P. Bowler, K. R. Stapelfeldt, **K. Batygin**, D. Padgett, F. Y. Morales, E. Serabyn, V. Christianens, T. D. Brandt, Z. Wahhaj, *The Astronomical Journal*, 154, 242
70. [Three's Company: An Additional Non-transiting Super-Earth in the Bright HD 3167 System, and Masses for All Three Planets](#) (2017) J. L. Christiansen, A. Vanderburg, J. Burt, B. J. Fulton, **K. Batygin**, B. Benneke, J. M. Brewer, D. Charbonneau, D. R. Ciardi, A. Collier Cameron, and 48 coauthors, *Astronomical Journal*, 154, 122
71. [No Difference in Orbital Parameters of RV-detected Giant Planets between 0.1 and 5 au in Single versus Multi-stellar Systems](#) (2017) H. Ngo, H. A. Knutson, M. L. Bryan, S. Blunt, E. L. Nielsen, **K. Batygin**, B. P. Bowler, J. R. Crepp, S. Hinkley, A. W. Howard, D. Mawet, *The Astronomical Journal*, 153, 242
72. [Planet-induced Stellar Pulsations in HAT-P-2's Eccentric System](#) (2017) J. de Wit, N. K. Lewis, H. A. Knutson, J. Fuller, V. Antoci, B. J. Fulton, G. Laughlin, D. Deming, A. Shporer, **K. Batygin**, N. Cowan, E. Agol, A. S. Burrows, J. J. Fortney, J. Langton, A. P. Showman, *The Astrophysical Journal Letters*, 836, 17
73. [Statistics of Long Period Gas Giant Planets in Known Planetary Systems](#) (2016) M. L. Bryan, H. A. Knutson, A. W. Howard, H. Ngo, **K. Batygin**, J. R. Crepp, B. J. Fulton, S. Hinkley, H. Isaacson, J. A. Johnson, G. W. Marcy, J. T. Wright, *The Astrophysical Journal*, 821, 89
74. [Direct Measure of Radiative and Dynamical Properties of an Exoplanet Atmosphere](#) (2016) J. de Wit, N. K. Lewis, J. Langton, G. Laughlin, D. Deming, **K. Batygin**, J. J. Fortney, *The Astrophysical Journal Letters*, 820, L33
75. [Friends of Hot Jupiters. IV. Stellar Companions Beyond 50 AU Might Facilitate Giant Planet Formation, but Most are Unlikely to Cause Kozai–Lidov Migration](#) (2016) H. Ngo, H. A. Knutson, S. Hinkley, M. Bryan, J. R. Crepp, **K. Batygin**, I. Crossfield, B. Hansen, A. W. Howard, J. A. Johnson, D. Mawet, T. D. Morton, P. S. Muirhead, J. Wang, *The Astrophysical Journal*, 827, 8
76. [Friends of Hot Jupiters. III. An Infrared Spectroscopic Search for Low-Mass Stellar Companions](#) (2015) D. Piskorz, H. A. Knutson, H. Ngo, P. S. Muirhead, **K. Batygin**, J. R. Crepp, S. Hinkley, T. D. Morton, *The Astrophysical Journal*, 814, 148
77. [Friends of Hot Jupiters. II. No Correspondence Between Hot-Jupiter Spin–Orbit Misalignment and the Incidence of Directly Imaged Stellar Companions](#) (2015) H. Ngo, H. A. Knutson, S. Hinkley, J. R. Crepp, E. B. Bechter, **K. Batygin**, A. W. Howard, J. A. Johnson, T. D. Morton, P. S. Muirhead, *The Astrophysical Journal*, 800, 138
78. [Friends of Hot Jupiters. I. A Radial Velocity Search for Massive, Long-Period Companions to Close-in Gas Giant Planets](#) (2014) H. A. Knutson, B. J. Fulton, B. T. Montet, M. Kao, H. Ngo, A. W.

Howard, J. R. Crepp, S. Hinkley, G. A. Bakos, **K. Batygin**, J. A. Johnson, T. D. Morton, P. S. Muirhead, *The Astrophysical Journal*, 785, 126

79. WASP-12b and HAT-P-8b are Members of Triple Star Systems (2014) E. Bechter, J. R. Crepp, H. Ngo, H. A. Knutson, **K. Batygin**, S. Hinkley, P. S. Muirhead, J. A. Johnson, A. W. Howard, B. T. Montet, C. Matthews, T. D. Morton, *The Astrophysical Journal*, 788, 2
80. The Absolute Magnitude Distribution of Kuiper Belt Objects (2014) W. C. Fraser, M. E. Brown, A. Morbidelli, A. Parker, **K. Batygin**, *The Astrophysical Journal*, 782:100
81. A Super-Earth and Two Neptunes Orbiting the Nearby Sun-like Star 61 Virginis (2010) S. S. Vogt, R. A. Wittenmyer, R. P. Butler, S. O'Toole, G. W. Henry, E. J. Rivera, S. Meschiari, G. Laughlin, C. G. Tinney, H. R. A. Jones, J. Bailey, B. D. Carter, **K. Batygin**, *The Astrophysical Journal*, 708, 1366

General Audience Articles

82. Pathway to Planet Nine (2016) **K. Batygin**, *Physics World*, July 2016 issue
83. Born of Chaos: the Violent Biography of Our Solar System (2016) **K. Batygin**, G. Laughlin, A. Morbidelli, *Scientific American*, May 2016 issue (cover story)