

Henry Ngo

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education

- 2017 **PhD, Planetary Sciences**, California Institute of Technology
- Thesis: Formation and migration histories of giant exoplanets in multi-stellar systems
 - Advisor: Prof. Heather A. Knutson
 - MS, Planetary Sciences, 2014
- 2012 **MSc, Astronomy**, Queen's University at Kingston, Ontario
- Thesis: Numerical Simulations of Giant Planetary Core Formation
 - Advisor: Prof. Martin J. Duncan
- 2010 **BSc (Hons), Physics & Astronomy**, University of British Columbia
- with 16 months of full-time co-op work placements
 - Thesis: Pointing Strategy for Observation of Near Earth Objects with NEOSSat
 - Advisor: Prof. Brett J. Gladman

research positions

- 2017 – **Plaskett Fellow**, NRC Herzberg Astronomy & Astrophysics
- 2012 – 2017 **Graduate Research Assistant**, California Institute of Technology
- 2010 – 2012 **Graduate Research Assistant**, Queen's University
- 2007 – 2010 **Undergraduate Research Assistant**, University of British Columbia
- Including two full-time co-op work placements (2008-2009)

awards

- 2015 – 2017 **NASA Fellowship (NESSF)**, California Institute of Technology
- 2012 – 2015 **NSERC PGS (Doctoral level)**, California Institute of Technology
- Declined the CGS-D to take the PGS-D outside of Canada
- 2011 – 2012 **Ontario Graduate Scholarship**, Queen's University
- 2010 – 2011 **NSERC CGS (Masters level)**, Queen's University
- 2010 – 2011 **Robert Sutherland Fellowship**, Queen's University
- 2008 **NSERC USRA (Undergraduate level)**, University of British Columbia
- 2007 **Trek Excellence Scholarship**, University of British Columbia
- 2005 **President's Entrance Scholarship**, University of British Columbia
- 2005 **Governor General's Academic Medal (Bronze)**

observing experience

51 nights at Keck Observatory, 4 nights at Subaru Telescope, and 1 night at Palomar Observatory

student supervision

- 2015 Co-supervisor for Paige Gannon (Caltech undergraduate)
 2017 Co-supervisor for Wenhao Xuan (Pomona College undergraduate)

teaching

- 2015 – 2016 **TA training organizer**, California Institute of Technology
 2014 – 2016 **Teaching Assistant**, California Institute of Technology
 2010 – 2011 **Teaching Assistant**, Queen's University
 2008 – 2010 **Civilian Instructor / Drill Team Coach**, 609 Air Cadet Squadron
 2007 – 2010 **Alma Mater Society Tutoring Services**, University of British Columbia
 2007 – 2008 **Undergraduate Teaching Assistant**, University of British Columbia
 2005 **Staff Cadet Instructor**, Air Cadet Training Centre Albert Head

outreach

- 2017 **Volunteer instructor**, Huntington Library, Art Collection & Gardens
 2016 – 2017 **Volunteer instructor**, Institute for Educational Advancement
 2013 – 2014 **Volunteer judge**, Pasadena schools science fairs
 2010 – 2012 **Volunteer**, Queen's University Observatory Public Outreach Program
 2007 **Volunteer**, University of British Columbia Cedar Science Camp

professional activities

- 2016 – **External reviewer**, Canadian Telescope Time Allocation Committee
 2016 – **Referee**, ApJ, AJ, A&A
 2016 **Organizing committee member**, ExSoCal 2016
 2014-2015 **Co-organizer**, Caltech Planetary Discussion Group

service

- 2013 – 2017 **Board of Directors**, Caltech Graduate Student Council
 2011 – 2012 **TA Union Department Steward**, Queen's University/PSAC 901
 2008 – 2010 **Editor**, Canadian Undergraduate Physics Journal
 2007 – 2010 **Physics Society Executive Council**, University of British Columbia

seminars

- “Direct imaging searches for giant planets around small stars”
 · NRC Herzberg, Astronomy Seminar, September 5, 2017
 “Constraining warm and hot Jupiter dynamics with direct imaging surveys”
 · Université de Montréal, Astronomy & Astrophysics seminar, December 1, 2016
 · University of California, Santa Cruz lunch-time astrophysics seminar, November 7, 2016

- NASA Ames Center for Exoplanet studies seminar, October 13, 2016
- University of California Berkeley Center for Integrative Planetary Sciences seminar, October 12, 2016
- University of California, Los Angeles, September 29, 2016
- Las Cumbres Observatory Global Telescope science seminar, August 25, 2016

publications

Peer-reviewed, first author

[3] **Ngo, H.**, Knutson, H., Bryan, M., Blunt, S., Nielsen, E., Batygin, K., Bowler, B., Crepp, J., Hinkley, S., Howard, A., Mawet, D. (2016), “No difference in orbital parameters of RV-detected giant planets between 0.1-5 au in single vs multi-stellar systems.” *Astronomical Journal*, 153, 242.

[2] **Ngo, H.**, Knutson, H., Hinkley, S., Bryan, M., Crepp, J., Batygin, K., Crossfield, I., Hansen, B., Howard, A., Johnson, J., Mawet, D., Morton, T., Muirhead, P., Wang, J. (2016), “Friends of Hot Jupiters. IV. Stellar companions beyond 50 AU might facilitate giant planet formation, but most are unlikely to cause Kozai-Lidov migration.” *Astrophysical Journal*, 827, 8.

[1] **Ngo, H.**, Knutson, H., Hinkley, S., Crepp, J., Bechter, E., Batygin, K., Howard, A., Johnson, J., Morton, T., Muirhead, P. (2015), “Friends of Hot Jupiters II: No Correspondence Between Hot-Jupiter Spin-Orbit Misalignment and the Incidence of Directly Imaged Stellar Companions.” *Astrophysical Journal*, 800, 138.

Peer-reviewed, co-author

[20] Huby, E., Bottom, M., Femenia, B., **Ngo, H.**, Mawet, D., Serabyn, E., Absil, O. (2017) “On-sky performance of the QACITS pointing control technique with the Keck/NIRC2 vortex coronagraph.” *Astronomy & Astrophysics*, 600, A46.

[19] Oberst, T., Rodriguez J., Colón, K., Angerhausen, D., Bieryla, A., **Ngo, H.**, Stevens, D., Stassun, K., Gaudi, B. S., Pepper, J., Penev, K., Mawet, D., Latham, D., Heintz, T., Osei, B., Collins, K., Kielkopf, J., Visgaitis, T., Reed, P., Escamilla, A., Yazdi, S., McLeod, K., Lunsford, L., Spencer, M., Joner, M., Gregorio, J., Gaillard, C., Matt, K., Dumont, M., Stephens, D., Cohen, D., Jensen, E., Novati, S. C., Bozza, V., Labadie-Bartz, J., Siverd, R., Lund, M., Beatty, T., Eastman, J., Penny, M., Manner, M., Zambelli, R., Fulton, B., Stockdale, C., DePoy, D., Marshall, J., Pogge, R., Gould, A., Trueblood, M., Trueblood, P. (2017) “KELT-16b: A Highly Irradiated, Ultra-short Period Hot Jupiter Nearing Tidal Disruption.” *The Astronomical Journal*, 153, 97.

[18] Rappaport, S., Vanderburg, A., Borkovits, T., Kalomeni, B., Halpern, J.P., **Ngo, H.**, Mace, G. N., Fulton, B.J., Howard, A.W., Isaacson, H., Petigura, E.A., Mawet, D., Kristiansen, M.H., Jacobs, T.L., LaCourse, D., Bieryla, A., Forgacs-Dajka, E., Nelson, L. (2017), “EPIC 220204960: A Quadruple Star System Containing Two Strongly Interacting Eclipsing Binaries.” *Monthly Notices of the Royal Astronomical Society*, stx143.

[17] Cartier, K., Beatty, T., Zhao, M., Line, M., **Ngo, H.**, Mawet, D., Stassun, K., Wright, J., Kreidberg, L., Fortney, J., Knutson, H. (2017), “Near-IR emission spectrum of WASP-103b using Hubble Space Telescope/Wide Field Camera 3.” *Astronomical Journal*, 153, 34.

[16] Bowler, B., Liu, M., Mawet, D., **Ngo, H.**, Malo, L., Mace, G., McLane, J., Lu, J., Tristan, I., Hinkley, S., Hillenbrand, L., Shkolnik, E., Benneke, B., Best, W. (2017), “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.” *Astronomical Journal*, 153, 18.

- [15] Bayliss, D., Hojjatpanah, S., Santerne, A., Dragomir, D., Zhou, G., Shporer, A., Colón, K. D., Almenara, J., Armstrong, D. J., Barrado, D., Barros, S. C. C., Bento, J., Boisse, I., Bouchy, F., Brown, D. J. A., Brown, T., Cameron, A., Cochran, W. D., Demangeon, O., Deleuil, M., Díaz, R. F., Fulton, B., Horne, K., Hébrard, G., Lillo-Box, J., Lovis, C., Mawet, D., **Ngo, H.**, Osborn, H., Palle, E., Petigura, E., Pollacco, D., Santos, N., Sefako, R., Siverd, R., Sousa, S. G., Tsantaki, M. (2017), “EPIC201702477b: A Transiting Brown Dwarf from K2 in a 41 day orbit.” *Astronomical Journal*, 153, 15.
- [14] Rappaport, S., Lehmann, H., Kalomeni, B., Borkovits, T., Latham, D., Bieryla, A., **Ngo, H.**, Mawet, D., Howell, S., Horch, E., Jacobs, T. L., LaCourse, D., Sodor, A., Vanderburg, A., Pavlovski, K. (2016), “A quintuple star system containing two eclipsing binaries.” *Monthly Notices of the Royal Astronomical Society*, 462, 1812.
- [13] Bryan, M., Knutson, H., Howard, A., **Ngo, H.**, Batygin, K., Crepp, J., Fulton, B., Hinkley, S., Isaacson, H., Johnson, J., Marcy, G., Wright, J. (2016), “Statistics of long period gas giant planets in known planetary systems.” *Astrophysical Journal*, 821, 89.
- [12] Lehmann, H., Borkovits, T., Rappaport, S., **Ngo, H.**, Mawet, D., Csizmadia, Sz., Forgács-Dajka (2016), “KIC 7177553: A quadruple system of two close binaries.” *Astrophysical Journal*, 819, 33.
- [11] Piskorz, D., Knutson, H., **Ngo, H.**, Muirhead, P., Batygin, K., Crepp, J., Hinkley, S., Morton, T. (2015), “Friends of Hot Jupiters III: An Infrared Spectroscopic Search for Low-Mass Stellar Companions.” *Astrophysical Journal*, 814, 148.
- [10] Zhao, M., O’Rourke, J., Wright, J., Knutson, H., Burrows, A., Fortney, J., **Ngo, H.**, Fulton, B., Baranec, C., Riddle, R., Law, N., Muirhead, P., Hinkley, S., Showman, A., Curtis, J., Burrus, R. (2014), “Characterization of the Atmosphere of the Hot Jupiter HAT-P-32Ab and the M-Dwarf Companion HAT-P-32B.” *Astrophysical Journal*, 796, 115.
- [9] Bechter, E., Crepp, J., **Ngo, H.**, Knutson, H., Batygin, K., Hinkley, S., Muirhead, P., Johnson, J., Howard, A., Montet, B., Matthews, C., Morton, T. (2014), “WASP-12b and HAT-P-8b are Members of Triple Star Systems.” *Astrophysical Journal*, 788, 2.
- [8] Knutson, H., Fulton, B., Montet, B., Kao, M., **Ngo, H.**, Howard, A., Crepp, J., Hinkley, S., Bakos, G., Batygin, K., Johnson, J., Morton, T., Muirhead, P. (2014), “Friends of Hot Jupiters. I. A Radial Velocity Search for Massive, Long-Period Companions to Close-In Gas Giant Planets.” *Astrophysical Journal*, 785, 126.
- [7] Greenstreet, S., Gladman, B., **Ngo, H.**, Granvik, M., Larson, S. (2012), “Production of Near-Earth Asteroids on Retrograde Orbits.” *Astrophysical Journal Letters*, 749, L39.
- [6] Greenstreet, S., **Ngo, H.**, Gladman, B. (2012), “The Orbital Distribution of Near-Earth Objects Inside Earth’s Orbit.” *Icarus*, 217, 355.
- [5] Dinelle, K., **Ngo, H.**, Blinder, S., Vafai, N., Topping, G., Sossi, V. (2011), “Frame-to-frame image realignment assessment tool for dynamic brain positron emission tomography.” *Medical Physics*, 38, 773.
- [4] Braglia, F., Ade, P. A. R., Bock, J. J., Chapin, E. L., Devlin, M. J., Edge, A., Griffin, M., Gundersen, J. O., Halpern, M., Hargrave, P. C., Hughes, D. H., Klein, J., Marsden, G., Mauskopf, P., Moncelsi, L., Netterfield, C. B., **Ngo, H.**, Olmi, L., Pascale, E., Patanchon, G., Pimblet, K. A., Rex, M., Scott, D., Semisch, C., Thomas, N., Truch, M. D. P., Tucker, C., Tucker, G. S., Valiante, E., Viero, M. P., Wiebe, D. V. (2011), “Submillimetre observations of galaxy clusters with BLAST: the star formation activity in Abell 3112.” *Monthly Notices of the Royal Astronomical Society*, 412, 1187.

[3] Pascale, E., Ade, P. A. R., Bock, J. J., Chapin, E. L., Devlin, M. J., Dye, S., Eales, S. A., Griffin, M., Gundersen, J. O., Halpern, M., Hargrave, P. C., Hughes, D. H., Klein, J., Marsden, G., Mauskopf, P., Moncelsi, L., Netterfield, C. B., **Ngo, H.**, Olmi, L., Patanchon, G., Rex, M., Scott, D., Semisch, C., Thomas, N., Truch, M. D. P., Tucker, C., Tucker, G. S., Viero, M. P., Wiebe, D. V. (2009), "BLAST: A Far-Infrared Measurement Of The History Of Star Formation ." *Astrophysical Journal*, 707, 1740.

[2] Marsden, G., Ade, P. A. R., Bock, J. J., Chapin, E. L., Devlin, M. J., Dicker, S. R., Griffin, M., Gundersen, J. O., Halpern, M., Hargrave, P. C., Hughes, D. H., Klein, J., Mauskopf, P., Magnelli, B., Moncelsi, L., Netterfield, C. B., **Ngo, H.**, Olmi, L., Pascale, E., Patanchon, G., Rex, M., Scott, D., Semisch, C., Thomas, N., Truch, M. D. P., Tucker, C., Tucker, G. S., Viero, M. P., Wiebe, D. V. (2009), "BLAST: Resolving The Cosmic Submillimeter Background." *Astrophysical Journal*, 707, 1729.

[1] Devlin, M. J., Ade, P. A. R., Aretxaga, I., Bock, J. J., Chapin, E. L., Griffin, M., Gundersen, J. O., Halpern, M., Hargrave, P. C., Hughes, D. H., Klein, J., Marsden, G., Martin, P. G., Mauskopf, P., Moncelsi, L., Netterfield, C. B., **Ngo, H.**, Olmi, L., Pascale, E., Patanchon, G., Rex, M., Scott, D., Semisch, C., Thomas, N., Truch, M. D. P., Tucker, C., Tucker, G. S., Viero, M. P., Wiebe, D. V. (2009), "Over half of the far-infrared background light comes from galaxies at $z \geq 1.2$." *Nature*, 458, 737.

Selected Conference Presentations and Proceedings

[15] "Giant planet formation and migration in multi-stellar systems," Aspen Winter Conference: Formation and Dynamical Evolution of Exoplanets, 26 March - 1 April, 2017.

[14] "Using direct imaging to investigate the formation and migration histories of gas giant exoplanets," Thesis talk, American Astronomical Society Meeting, 3-7 January 2017.

[13] "Using direct imaging to investigate the formation and migration histories of gas giant exoplanets," Division of Planetary Science Meeting, 16-21 October 2016.

[12] "Giant planets around young M-dwarfs," 1st international vector vortex coronagraph workshop, 15-17 August 2016.

[11] "Friends of hot Jupiters IV," Exoplanets I, 3-8 July 2016.

[10] "Friends of Hot Jupiters: Properties of the Directly Imaged Stellar Companion Population," Canadian Astronomical Society Meeting, 30 May - 2 June 2016.

[9] "Companion-driven dynamics: Trends in stellar companion fraction and giant exoplanet properties," Extreme Solar Systems III, 29 November - 4 December 2015.

[8] "Friends of Hot Jupiters II: No Correspondence Between Hot-Jupiter Spin-Orbit Misalignment and the Incidence of Directly Imaged Stellar Companions," American Astronomical Society Meeting, 4-8 January 2015.

[7] "Friends of Hot Jupiters: Finding Distant Stellar Companions with NIRC2 AO," Characterizing Planetary Systems Across the HR Diagram meeting, 28 July - 1 August 2014.

[6] **Ngo, H.**, Duncan, M., Levison, H. (2014), "LIPAD Simulations of Giant Planet Core Formation." Exploring the Formation and Evolution of Planetary Systems, Proceedings of the International Astronomical Union, IAU Symposium, Volume 299, pp. 171-172.

[5] "Cold Friends of Hot Jupiters: AO Survey," Division of Planetary Science Meeting, 6-11 October 2013.

[4] “Simulations of Giant Planet Core Formation,” Division on Dynamical Astronomy Meeting, 6-10 May 2012.

[3] “NEOSSat’s new NEO orbital model,” Division of Planetary Science Meeting, 3-7 October 2011.

[2] **Ngo, H.**, Dinelle, K., Blinder, S., Vafai, N., Topping, G., Sossi, V. (2009), “Quality Control Protocol for Frame-to-Frame PET Motion Correction.” IEEE Nuclear Science Symposium and Medical Imaging Conference Record 2009, p. 3622-3627.

[1] “BLAST resolves origins of Cosmic Infrared Background,” American Physical Society Northwest Section Meeting, 15 May 2009.