

THADDEUS D. KOMACEK

1629 E. University Blvd. Tucson, AZ 85721

tkomacek@lpl.arizona.edu • www.lpl.arizona.edu/~tkomacek/

EDUCATION

The University of Arizona August 2013-May 2018 (expected) • Tucson, AZ

Ph.D in progress, Planetary Sciences

The University of Chicago 2009-2013 • Chicago, IL

B.S. Geophysical Sciences with Honors, B.A. Physics with a Specialization in Astrophysics

PUBLICATIONS

Peer-Reviewed Articles

1. Koll D.D.B. and Komacek T.D., Atmospheric Circulations of Hot Jupiters as Planetary Heat Engines, submitted to ApJ.
2. Komacek T.D. and Youdin A.N., Structure and Evolution of Internally Heated Hot Jupiters, 2017, ApJ, 844, 94.
3. Komacek T.D., Showman A.P., and Tan X., Atmospheric Circulation of Hot Jupiters: Dayside-Nightside Temperature Differences. II. Comparison with Observations, 2017, ApJ, 835, 198.
4. Komacek T.D. and Abbot D.S., Effect of Surface-Mantle Water Exchange Parameterizations on Exoplanet Ocean Depths, 2016, ApJ, 832, 54.
5. Komacek T.D. and Showman A.P., Atmospheric Circulation of Hot Jupiters: Dayside-Nightside Temperature Differences, 2016, ApJ, 821, 16.
6. Rogers T.M. and Komacek T.D., Magnetic Effects in Hot Jupiter Atmospheres, 2014, ApJ, 794, 132.

Unrefereed Articles

1. Apai D. and 32 other authors including Komacek T.D., Exploring Other Worlds: Science Questions for Future Direct Imaging Missions (EXOPAG SAG15 Report), 2017, arXiv:1708.02821.

HONORS AND AWARDS

1. Recipient of 2018-2021 Heising-Simons Foundation 51 Pegasi b Postdoctoral Fellowship
2. Recipient of 2017 Gerard P. Kuiper Memorial Award
3. Recipient of 2015 and 2016 University of Arizona Galileo Circle Scholarship
4. Recipient of 2014-2017 NASA Earth and Space Science Fellowship Program Award
5. Recipient of 2013-2014 Lieutenant Colonel Kenneth Rondo Carson and Virginia Bryan Carson LPL Graduate Fellowship

TEACHING, SERVICE & OUTREACH

Referee (The Astrophysical Journal, Geophysical Research Letters)

University of Arizona (Teaching Assistant)

- Teaching assistant for “The Universe and Humanity: Origin and Destiny,” Fall 2017, with Professor Travis Barman

Lunar and Planetary Laboratory (Journal Club Graduate Student Coordinator: 2015-Present)

- Organize, find speakers for, and run the weekly journal club at LPL

Science Olympiad (National Science Olympiad- Astronomy Co-Supervisor: 2009-Present)

- Present at coaches clinics, develop educational materials and events for competitions
- Supervise national competition yearly (held at different institutions across the U.S.A.)

International Olympiad on Astronomy and Astrophysics (United States Team: 2014-Present)

- Member of U.S.A. team board, organize the National Astronomy Olympiad yearly and mentor U.S.A. team members
- 2014 U.S.A. team leader, supervised the 2014 competition in Romania

Ryerson Astronomical Society (UChicago) (President: 2011-2013; Webmaster: 2010-2011)

- Ran weekly meetings and public observing nights
- Organized and led trips for local elementary school students to tour Ryerson observatory

Splash! Chicago (2009-2012)

- Developed and taught introductory astronomy courses for high school students

PRESENTATIONS

Invited Oral Presentations

1. “A predictive theory for the atmospheric circulation of hot Jupiters.” *Planetary lunch*, University of California, Santa Cruz. February 14, 2017.
2. “A predictive theory for vertical mixing in hot Jupiter atmospheres.” *Exoplanet pizza lunch*, Harvard CfA. January 24, 2017.
3. “A predictive theory for the atmospheric circulation of hot Jupiters.” *MIT Atmospheric Sciences seminar*, MIT. January 23, 2017.
4. “Effect of surface-mantle water exchange parameterizations on the prevalence of waterworlds.” *Kavli institute brown bag*, MIT. January 23, 2017.
5. “Partitioning of water between surface and mantle: what makes a waterworld?” *Origins seminar*, University of Arizona. October 31, 2016.
6. “Understanding water cycling between mantle and surface on terrestrial exoplanets using simplified models.” *Lunar and Planetary Laboratory Conference*, University of Arizona. August 19, 2016.

Contributed Oral Presentations

1. Komacek T.D. and Showman A.P. (2017) The Atmospheric Circulation of Hot Jupiters: A Hierarchical Modeling Approach. *DPS* **49**.
2. Komacek T.D. and Abbot D.S. (2017) Effect of surface-mantle water exchange parameterizations on the prevalence of waterworlds. *AbSciCon*.

3. Komacek T.D. and Abbot D.S. (2016) Partitioning of water between surface and mantle on terrestrial exoplanets: effect of surface-mantle water exchange parameterizations on ocean depth. *AGU*.
4. Komacek T.D. and Showman A.P. (2016) A Predictive Theory for the Atmospheric Circulation of Hot Jupiters. *DPS* **48**.
5. Komacek T.D. and Showman A.P. (2016) A Predictive Theory for the Atmospheric Circulation of Hot Jupiters. *Exoclimes* **IV**.
6. Komacek T.D. and Youdin A.N. (2015) Structure and Evolution of Internally Heated Hot Jupiters. *DPS* **47**.
7. Komacek T.D. and Showman A.P. (2015) Transitions in Efficiency of Heat Redistribution in Hot Jupiter Atmospheres. *International Colloquium of the Paris Institute of Astrophysics* **31**.
8. Komacek T.D., Rogers T.M., Barman, T.S., Showman A.P., Youdin A.N. (2014) Effects of Magnetism on the Atmospheres and Evolution of Hot Jupiters. *DPS* **46**.

Contributed Poster Presentations

1. Komacek T.D., Showman A.P., Tan X., Parmentier V. (2017) A Predictive Theory for Vertical Mixing in Hot Jupiter Atmospheres. *École de Physique des Houches*.
2. Komacek T.D. and Showman A.P. (2016) A Predictive Theory for the Atmospheric Circulation of Hot Jupiters. *Kavli Summer Program in Astrophysics*.
3. Komacek T.D. and Showman A.P. (2015) Dayside-Nightside Temperature Differences in Hot Jupiter Atmospheres. *AGU*.
4. Komacek T.D. and Showman A.P. (2015) Dayside-Nightside Temperature Differences in Hot Jupiter Atmospheres. *ESS* **3**.
5. Komacek T.D., Young D. (2015) Exoplanet Science in the National Science Olympiad. *DPS* **47**.
6. Komacek T.D. and Youdin A.N. (2015) Effects of Turbulent Mixing on the Evolution and Structure of Hot Jupiters. *SPF* **1**.
7. Youdin A.N. and Komacek T.D. (2014) Hot Jupiter Radii: A Turbulent History. *DPS* **46**.
8. Komacek T.D., Young D., Schroeder D.M., Van Hecke M.A. (2014) Star Formation and Exoplanetary Systems in the National Science Olympiad Astronomy Event for High School Students. *DPS* **46**.
9. Komacek T.D., Rogers T.M., Showman A.P. (2014) Magnetohydrodynamic Simulations of Hot Jupiters: Temperature Dependent Magnetic Conductivity. *Exoclimes* **III**.
10. Komacek T.D., Ciesla F.J., Davison T.M. (2013) A Model For the Three-Dimensional Heating of a Planetesimal. *LPSC* **44**.

PROFESSIONAL AFFILIATIONS

1. American Astronomical Society Junior Member
 - American Astronomical Society Division of Planetary Sciences Junior Member
2. American Geophysical Union Student Member
3. University of Arizona Theoretical Astrophysics Program Graduate Student Member