

THADDEUS D. KOMACEK  
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EDUCATION

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**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

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PUBLICATIONS

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**Peer-Reviewed Articles**

1. Komacek T.D. and Youdin A.N., Structure and Evolution of Internally Heated Hot Jupiters, 2017, ApJ, 844, 94.
2. 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.
3. Komacek T.D. and Abbot D.S., Effect of Surface-Mantle Water Exchange Parameterizations on Exoplanet Ocean Depths, 2016, ApJ, 832, 54.
4. Komacek T.D. and Showman A.P., Atmospheric Circulation of Hot Jupiters: Dayside-Nightside Temperature Differences, 2016, ApJ, 821, 16.
5. 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.

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HONORS AND AWARDS

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1. Recipient of 2017 Gerard P. Kuiper Memorial Award
2. Recipient of 2015 and 2016 University of Arizona Galileo Circle Scholarship
3. Recipient of 2014-2017 NASA Earth and Space Science Fellowship Program Award
4. Recipient of 2013-2014 Lieutenant Colonel Kenneth Rondo Carson and Virginia Bryan Carson LPL Graduate Fellowship

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TEACHING, SERVICE & OUTREACH

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**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.
- 2014 U.S.A. team leader, mentored students and 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

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### 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 Abbot D.S. (2017) Effect of surface-mantle water exchange parameterizations on the prevalence of waterworlds. *AbSciCon*.
2. 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*.

3. Komacek T.D. and Showman A.P. (2016) A Predictive Theory for the Atmospheric Circulation of Hot Jupiters. *DPS* **48**.
4. Komacek T.D. and Showman A.P. (2016) A Predictive Theory for the Atmospheric Circulation of Hot Jupiters. *Exoclimes* **IV**.
5. Komacek T.D. and Youdin A.N. (2015) Structure and Evolution of Internally Heated Hot Jupiters. *DPS* **47**.
6. 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**.
7. 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**.

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### 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