

# Zarah Brown

Lunar and Planetary Laboratory  
1629 E. University Blvd.  
Tucson, AZ 85721

[zbrown@lpl.arizona.edu](mailto:zbrown@lpl.arizona.edu)  
520-621-7274  
[www.lpl.arizona.edu/~zbrown](http://www.lpl.arizona.edu/~zbrown)

## EDUCATION

---

*University of Arizona*, Tucson, AZ, 2017-present

Masters in Planetary Science, 2020  
Certificate in Science Communication, 2020  
Degree expected: Ph.D. in Planetary Sciences  
Minor in Planetary Atmospheres  
Advisor: Tommi Koskinen

*University of Colorado*, Boulder, CO, 2013-2017

Hon. B.A. Astrophysics and Planetary Science  
Advisor: Larry Esposito

*University of Denver*, Denver, CO, 2001-2005

B.A. Biology and Fine Art  
Minor in Chemistry

## PEER-REVIEWED PUBLICATIONS

---

J. Moses, **Z. Brown**, [and 13 others]. *Saturn's atmospheric response to the large influx of ring material inferred from Cassini INMS measurements*. *Icarus*. (submitted)

**Z. Brown**, A. Medvedev, E. Starichenko, T. Koskinen, I. Müller-Wodarg. *Evidence for Gravity Waves in the Thermosphere of Saturn and Implications for Global Circulation*. *Geophysical Research Letters*. 49, id. E97219 (2022)

T. Koskinen, D.F. Strobel, **Z. Brown**. *An empirical model of the Saturn thermosphere*. *Icarus*. 632, 114396 (2021)

**Z. Brown**, T. Koskinen, I. Müller-Wodarg, R. West, A. Jouchoux, L. Esposito. *A Pole-to-Pole Pressure-Temperature Map of Saturn's Thermosphere from Cassini Grand Finale Data*. *Nature Astronomy*, 4, 872-879 (2020).

J.W. Noonan, V. Reddy, [and 23 others, including **Z. Brown**]. *Search for the H Chondrite Parent Body among the Three Largest S-type Asteroids: (3) Juno, (7) Iris, and (25) Phocaea*. *The Astronomical Journal*. 158, 213-221 (2019).

V. Reddy, M.S. Kelley, [and 68 others, including **Z.L. Brown**]. *Near-Earth asteroid 2012 TC4 observing campaign: Results from a global planetary defense exercise*. *Icarus*. 326, 133-150 (2019).

M.E. Rehnberg, **Z.L. Brown**, L.W. Esposito, N. Albers. *Direct Detection of Gaps in Saturn's A Ring*. *Icarus*. 297, 110-118 (2017).

M.E. Rehnberg, L.W. Esposito, M. Sremcevic, **Zarah L. Brown**, G.R. Stewart. *A Traveling Feature in Saturn's Rings*. *Icarus*. 279, 100-108 (2016).

## CONFERENCE ABSTRACTS/PRESENTATIONS

---

*DPS Meeting 2022*, London, Ontario, Canada

Talk: Investigating Photochemical Products in Saturn's Mesosphere

*AGU Meeting 2021*, New Orleans, Louisiana

Talk: Observations of Gravity Waves in Saturn's Thermosphere and Implications for Meridional Circulation

*DPS Meeting 2021*, Online

Talk: A Snapshot of Photochemical Products in Saturn's Mesosphere.

*Stars and Planets in the Ultraviolet 2021*, Online

Talk: A 2D Snapshot of Saturn's Upper Atmosphere from Cassini Grand Finale Stellar Occultations.

*DPS Meeting 2020*, Online

Talk: The distribution of hydrocarbons in Saturn's mesosphere from Cassini's Grand Finale

*Titan after Cassini-Huygens Workshop 2019*, Madrid, Spain

Poster: Saturn's Pole-to-Pole Thermosphere from Cassini Grand Finale Occultations

*DPS/EPSC Meeting 2019*, Geneva, Switzerland

Talk: Thermospheric Circulation and Pole-to-Pole Temperatures from Cassini Grand Finale Occultations

*LPLC Department Conference, 2019*, Tucson, AZ

Talk: What's heating Saturn's thermosphere? Cassini Grand Finale observations show connection between circulation and heating

*Cassini Science Symposium 2018*, Boulder, CO

Talk: Polar Temperature Profiles of Saturn from Grand Finale UVIS stellar occultations.

*DPS/EPSC Meeting 2016*, Pasadena, CA

Poster: Small-Scale Gaps Near Resonance Locations in Saturn's A Ring

*DPS Meeting 2015*, National Harbor, MD

Poster: Characteristics of Small Scale Wave Structure Near Strong Janus Inner Lindblad Resonances

## INVITED TALKS

---

*SWRI, 2020*, Boulder, Colorado

What's heating Saturn's thermosphere? Cassini Grand Finale observations show a connection between dynamics and heating.

## PUBLIC OUTREACH

---

*Creator and Project Lead*, The Arizona Scale Model Solar System, 2020-present.

*TAPS Talk*, Butterfield Elementary, March 2020, The Art of Space Travel.

*Invited Talk*, Tucson Amateur Astronomy Association (TAAA), September Meeting 2020, Using stars to understand Saturn's atmosphere.

*Talk, Ms. Leeder's Class 2020, On Terraforming (support for Global Issues Problem Solving conference/competition).*

*Pen Pal, Letters to a Pre-Scientist, 2019-2020.*

*LPL Graduate Student Representative, Tucson Festival of Books, 2019.*

*Volunteer, Sahuarita Middle School Math in Science Program, 2018-2019.*

*LPL Graduate Student Representative, Space Fest, 2018, 2019.*

*Graduate Student Representative, LPL Summer Science Saturday, 2018.*

*Leader, The Art of Planetary Science, 2017-2019.*

*Executive Member, The Art of Planetary Science, 2017-2019.*

*Planning Committee, Conference for Undergraduate Women in Physics, 2016-2017.*

*Member, CU STARS, high school outreach club, 2015-2017.*

*Outreach Committee Chair, CU Astronomy Club, 2014-2015.*

## ***PROFESSIONAL EXPERIENCE***

---

*Education and Public Outreach Assistant, The National Solar Observatory, 1/2017-8/2017.*

*Technical Intern on the James Webb Space Telescope, Northrop Grumman, 6/2014 - 10/2014.*

## ***TEACHING EXPERIENCE***

---

*Teaching Assistant, The Universe and Humanity: Origins and Destiny, The University of Arizona, Fall 2017.*

*Learning Assistant, Planetary Atmospheres, The University of Colorado, Spring 2017.*

## ***AWARDS***

---

*Leif Andersson Award for Service and Outreach, 2021.*

*College of Science Graduate Award for Excellence in Service, 2021.*

*Arizona Space Grant Fellowship, 2020-2022.*

*GPSC Travel Grant, 2019*

*Best Student Talk, LPLC, 2019.*

*Susan E. Wesley Endowed Scholarship, distinguished undergraduate astrophysics students, 2017.*