

# Angela M. Zalucha

Iowa State University  
Department of Physics and Astronomy  
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## Education

- **Massachusetts Institute of Technology, Cambridge, MA**  
*Department of Earth, Atmospheric, and Planetary Sciences*  
Ph.D. in Atmospheric Science 2010  
Advisor: Prof. R. Alan Plumb  
Thesis title: The Effect of Topography on the Martian Atmospheric Circulation and Determining Pluto's Atmospheric Thermal Structure from Stellar Occultations
- **Massachusetts Institute of Technology, Cambridge, MA**  
*Department of Earth, Atmospheric, and Planetary Sciences*  
Master of Science (S. M.) in Atmospheric Science 2007  
Advisor: Prof. James L. Elliot  
Thesis title: Analysis of Light Curves from the 2003 Nov 14 Occultation by Titan of TYC 1343-1865-1
- **University of Illinois at Urbana-Champaign, Urbana, IL**  
*Department of Physics*  
B.S. in Physics, Minor in Astronomy, Minor in Mathematics 2004  
Magna Cum Laude and Highest Distinction in the Curriculum

## Work Experience

- Lecturer,
  - **Iowa State University** 2019-present  
Ames, IA
- Data Scientist,
  - **Panasonic** 2018–2019  
Denver, CO
- Research Scientist/Principal Investigator,
  - **SETI Institute** 2012–2018  
Mountain View, CA  
Numerical modeling of Pluto's atmosphere on global scales. Modeling of planetary atmospheres (Mars, Triton, Titan, Venus, super-Earth exoplanets).
- Adjunct Instructor (meteorology),
  - **Arapahoe Community College** Fall 2017  
Littleton, CO
- Consultant,
  - **contract with Southwest Research Institute, Boulder, CO** 2010–2012  
*Sponsor: Dr. Scot Rafkin*  
General circulation of the atmosphere of Mars.  
Gravity wave drag schemes in a Venus thermosphere general circulation model.
- Postdoctoral Associate,
  - **Massachusetts Institute of Technology, Cambridge, MA** 2010–2012  
*Sponsor: Dr. Amanda Gulbis*

Development of a Pluto General Circulation model.  
 Analysis of Pluto occultation light curves using an atmospheric  
 radiative-convective-convective model.

- **Graduate Research Assistant and Graduate Teaching Assistant,**  
**Massachusetts Institute of Technology, Cambridge, MA** 2004–2010  
*Advisors: Prof. R. Alan Plumb and Prof. James L. Elliot (Co-advisor Dr. Amanda Gulbis)*  
 Research related to Ph.D. and Masters theses.  
 Teaching assistant of various undergraduate atmospheric science and astronomy courses.
- **REU Student, MIT Haystack Observatory, Westford, MA** Summer 2003  
*Advisors: Drs. John M. Holt and Shun-Rong Zhang*  
 Created an empirical model of the ionosphere using incoherent scatter radar data.  
 Attended 2003 and 2004 CEDAR workshops and presented poster at 2004 workshop.
- **Undergraduate Research Assistant, University of Illinois** 2002–2004  
*Advisor: Prof. Margaret Meixner*  
 Analyzed BIMA radio interferometer data of planetary nebulae.  
 Presented research at January 2003 and 2004 AAS meetings.
- **Office Assistant and Weather Broadcaster, WILL radio, Urbana, IL** 2000–2004  
*Supervisor: Ed Kieser*  
 Prepared weather forecasts and read them on the air.  
 Performed weather office related tasks.

## Teaching

- **Lecturer, Iowa State University**  
 ASTRO 102 - North Star Fall 2019, Summer 2020, Spring 2021  
 ASTRO 103 - Evening Star Summer 2020, Spring 2021  
 ASTRO 120 - The Sky And Solar System Fall 2019, Spring and Fall 2020, Spring 2021
- **Professor, Arapahoe Community College**  
 MET 105 - Introduction to Meteorology Fall 2017
- **CosmoAcademy Instructor**  
 Four week online class titled “Pluto and the Icy Moons” July, 2014
- **Teaching Assistant, MIT**  
 12.003 - Physics of the Atmosphere and Ocean Fall 2005 and Fall 2008  
 12.310 - Introduction to Weather Forecasting IAP 2008, IAP 2009, and IAP 2010  
 12.333 - Atmospheric and Ocean Circulations Spring 2006  
 12.402 - Introduction to Astronomy Spring 2007  
 12.409 - Hands-on Astronomy Spring 2005  
 “Discover EAPS” freshmen pre-orientation workshop August 21–24, 2007  
 August 19–22, 2008  
 August 25–28, 2009
- **Guest Classroom Lectures**  
 CU ASTR 5810-001 - Planetary Atmospheres: The Atmospheric Circulation  
 of Pluto and Triton as Predicted by a General Circulation Model  
 March 11, 2014  
 MIT 12.616 - Occultation Studies of the Solar System: Titan occultations lecture  
 March 19, 2007

## Committee Services

- **ISU Dept. of Physics and Astronomy**

Advising Coordinator	2020–present
Learning Community Facilitator	2020–present
Test-out Coordinator	2020–present
Transfer Credit Evaluator	2020–present

**Invited participant, “COSPAR Refining Planetary Protection**

- **Requirements for Human Missions” workshop** 25-27 October 2016
  - **AAS Working Group on Accessibility and Disability (WGAD)** 2016–present
  - **NASA proposal review panel** 2011, 2013, 2014, 2019, 2020
  - **MIT Atmospheric Science Seminar Committee** 2008–2010
  - **MIT EAPS Graduate Student Advisory Council**
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|----------------|-----------|
| Vice President | 2007–2008 |
| President      | 2006–2007 |
| Secretary      | 2005–2006 |

**Publications**

- Zalucha, A., and J. Cook “The Structure and Dynamics of the Atmospheres of Pluto and Triton,” in *Oxford Research Encyclopedia of Planetary Science*. Oxford University Press, 2019 (doi: <http://dx.doi.org/10.1093/acrefore/9780190647926.013.113>).
- **Zalucha, A. M.**, “An Atmospheric General Circulation Model for Pluto with Predictions for New Horizons,” *Monthly Notices of the Royal Astronomical Society*, 459, 902, 2016 (arXiv: 1501.02848).
- **Zalucha, A. M.**, and T. I. Michaels, “A 3D General Circulation Model for Pluto and Triton with Fixed Volatile Abundance and Simplified Surface Forcing,” *Icarus* 223, 819, 2013 (arXiv:1211.0009).
- **Zalucha, A. M.**, T. I. Michaels, and N. Madhusudhan, “An Investigation of a Super-Earth Exoplanet with a Greenhouse-gas Atmosphere using a General Circulation Model” *Icarus* 226, 1743, 2013 (arXiv:1204.4453).
- **Zalucha, A. M.**, A. S. Brecht, S. Rafkin, S. W. Bougher, and M. J. Alexander, “Incorporation of a Gravity Wave Momentum Deposition Parameterization into the Venus Thermosphere General Circulation Model (VTGCM),” *Journal of Geophysical Research - Planets* 118, 147, 2013 (doi:10.1029/2012JE004168).
- **Zalucha, A. M.** and A. A. S. Gulbis, “Comparison of a simple 2D Pluto general circulation model with stellar occultation light curves and implications for atmospheric circulation,” *Journal of Geophysical Research - Planets* 117, E05002, 2012 (doi:10.1029/2011JE003957).
- **Zalucha, A. M.**, X. Zhu, A. A. S. Gulbis, D. F. Strobel, and J. L. Elliot, “An Investigation of Pluto’s Troposphere Using Stellar Occultation Light Curves and an Atmospheric Radiative-conductive-convective Model,” *Icarus* 214, 685, 2011 (doi:10.1016/j.icarus.2011.05.015).
- **Zalucha, A. M.**, A. A. S. Gulbis, X. Zhu, D. F. Strobel, and J. L. Elliot, “An Analysis of Pluto Occultation Light Curves Using an Atmospheric Radiative-conductive Model”, *Icarus* 211, 804, 2011 (doi:10.1016/j.icarus.2010.08.018).
- **Zalucha, A. M.**, R. A. Plumb, and R. J. Wilson, “An Analysis of the Effect of Topography on the Martian Hadley Cells,” *Journal of the Atmospheric Sciences* 67, 673, 2010 (doi: 10.1175/2009JAS3130.1).
- **Zalucha, A.**, A. Fitzsimmons, J. L. Elliot, J. Thomas-Osip, H. B. Hammel, V. S. Dhillon, T. R. Marsh, F. W. Taylor, and P. G. J. Irwin, “The 2003 November 14 Occultation by Titan of TYC 1343-1865-1 II. Analysis of Light Curves,” *Icarus*, 192, 503, 2007 (doi:10.1016/j.icarus.2007.08.008), (arXiv:0712.0834).

- Fong, D., M. Meixner, E. C. Sutton, **A. Zalucha**, and W. J. Welch, “Evolution of the Circumstellar Molecular Envelope. I. A BIMA CO Survey of Evolved Stars,” *The Astrophysical Journal*, 652, 1626, 2006 (doi:10.1086/508127).
- Zhang, S.-R., J. M. Holt, **A. M. Zalucha**, and C. Amory-Mazaudier, “Mid-Latitude Ionospheric Plasma Temperature Climatology and Empirical Model Based on Saint Santin Incoherent Scatter Radar Data from 1966 to 1987,” *Journal of Geophysical Research - Space Physics*, 109, A11311, 2004 (doi:10.1029/2004JA010709).
- Meixner, M., **A. Zalucha**, T. Ueta, D. Fong, and K. Justtanont, “The Molecular and Dust Envelope of HD 56126,” *The Astrophysical Journal*, 614, 371, 2004 (doi:10.1086/423606).

### Citations in Books

- **Zalucha, A. M.** in, “The Exo-Weather Report” by David S. Stevenson, Springer, 2016, pp. 350–351.
- **Zalucha, A. M.** in, “Celestial Shadows: Eclipses, Transits, and Occultations” by John Westfall and William Sheehan, Springer, 2015, pp. 533, 536.

### Conference Talks

- **Zalucha, A. M.**, “Condensation Flows and Frost Cycles on Bodies with Volatile Atmospheres: The Case of Pluto, Triton, and Mars,” Comparative Climates of Terrestrial Planets II: Understanding How Climate Systems Work, 2015
- **Zalucha, A. M.** and T. I. Michaels, “A General Circulation Model of Triton’s Atmosphere,” Workshop on the Study of the Ice Giant Planets, 2014.
- **Zalucha, A. M.**, “The Effect of Dust on the Martian Hadley Cells,” 5th International Workshop on the Mars Atmosphere: Modeling and Observations, 2014.
- **Zalucha, A. M.**, T. I. Michaels, and S. Rafkin, “The Effect of Surface Albedo on Pluto’s Atmospheric Circulation,” *American Astronomical Society Division for Planetary Sciences Meeting #45*, Abstract 404.04, 2013.
- **Zalucha, A. M.**, S. C. R. Rafkin, and T. I. Michaels, “Predictions of radio occultation temperature profiles from a general circulation model,” *The Pluto System on the Eve of Exploration by New Horizons: Perspectives and Predictions*, 2013.
- **Zalucha, A. M.**, A. S. Brecht, S. Rafkin, S. W. Bougher, and M. J. Alexander, “Incorporation of a Gravity Wave Momentum Deposition Parameterization into the Venus Thermosphere General Circulation Model (VTGCM),” *International Venus Workshop*, 2013.
- **Zalucha, A. M.**, N. Madhusudhan, and T. I. Michaels, “The atmospheric dynamics of the super-Earth GJ 1214b,” *Exoclimates 2012: The diversity of planetary atmospheres*, 2012.
- **Zalucha, A. M.** and A. A. S. Gulbis, “The wind, temperature, and surface pressure on Pluto from a Pluto general circulation model,” *American Geophysical Union Meeting*, 2011.
- **Zalucha, A. M.** and A. A. S. Gulbis, “The wind, temperature, and surface pressure on Pluto from a Pluto general circulation model,” *American Astronomical Society Division for Planetary Sciences Meeting #43*, Abstract 1225, 2011.
- **Zalucha, A. M.**, A. A. S. Gulbis, X. Zhu, D. F. Strobel, and J. L. Elliot, “Investigating Pluto’s Troposphere Using a Radiative-conductive-convective Model and Stellar Occultation Data,” *American Astronomical Society Division for Planetary Sciences Meeting #42*, Abstract 20.04, 2010.
- **Zalucha, A. M.**, A. A. S. Gulbis, X. Zhu, D. F. Strobel, and J. L. Elliot, “An Analysis of Pluto Occultation Light Curves Using an Atmospheric Radiative-conductive Model,” *American Astronomical Society Division for Planetary Sciences Meeting #41*, Abstract 6.06, 2009.

- **Zalucha, A. M.**, R. A. Plumb, and R. J. Wilson, “A Mechanism for the Effect of Topography on the Martian Hadley Cells,” *Third International Workshop on the Mars Atmosphere: Modeling and Observations*, Abstract 9061, 2008.
- **Zalucha, A. M.**, R. A. Plumb, and R. J. Wilson, “A Mechanism for the Effect of Topography on the Martian Hadley Cells,” *American Astronomical Society Division of Planetary Sciences Meeting #40*, Abstract 3.09, 2008.

### Invited Talks

- American Physical Society, March meeting session B53 “Stress and Strain: Mental Health and Graduate School”, panelist 13 March 2017.
- SETI Institute – “But What about the Stellar Occultation Data of Pluto’s Atmosphere?”, 10 May, 2016.
- University of Houston – “Pluto’s Atmosphere: More Questions than Answers”, 29 September, 2015.
- SETI Institute – “The atmospheric circulation of Pluto and Triton as predicted by a general circulation model”, 8 January, 2013.
- University of Houston – “Coming up Next: Your Weather Forecast for Pluto and Triton”, 17 December, 2012.
- Johns Hopkins Applied Physics Lab, Pluto Atmospheres Workshop – “Pluto General Circulation Models”, 29 November, 2012.
- Buffalo State College, The Jack Mack Lecture in Astronomy and Planetary Science – “Analyzing Pluto’s Atmosphere Using Stellar Occultations”, March 17, 2010.

### Other Talks

- University of Colorado at Boulder ASTR 5810-001 (Planetary Atmospheres) - Guest lecture on Pluto and Triton’s atmospheres (*March 11, 2014*)
- University of Colorado at Boulder LASP Journal Club - “An analysis of Pluto occultation light curves using an atmospheric radiative-convective model” (*January 29, 2010*)
- Southwest Research Institute Boulder Colloquium - “An analysis of Pluto occultation light curves using an atmospheric radiative-convective model” (*January 26, 2010*)
- MIT Planetary Science Internal Colloquium Series - “Predicting the Boundaries of the Martian Hadley Cells” (*March 3, 2009*)
- MIT Program in Atmospheres, Oceans, and Climate prospective students open house - “Studying the Martian Hadley Cells with a Simplified General Circulation Model” (*March 21, 2008*)
- MIT Planetary Science Internal Colloquium Series - “Studying the Martian Hadley Cells with a Simplified General Circulation Model” (*March 19, 2008*)
- MIT Planetary Science Internal Colloquium Series - “A Brief History of Mars General Circulation Models” (*March 20, 2007*)
- MIT Program in Atmospheres, Oceans, and Climate prospective students open house - “Analysis of light curves from the 2003 Nov 14 occultation by Titan of TYC 1343-1865-1” (*March 13, 2006*)
- MIT Planetary Science Internal Colloquium Series - “Analysis of light curves from the 2003 Nov 14 occultation by Titan of TYC 1343-1865-1” (*March 1, 2006*)

### Conference Posters

- **Zalucha, A. M.**, “Long-term Simulations of Pluto’s Atmosphere and Surface as a Coupled System,” *American Astronomical Society Division for Planetary Sciences Meeting #47*, Abstract 210.24, 2015.

- **Zalucha, A. M.**, “Extreme Planetary Classes in Our Own Solar System: The Atmospheric Circulation of Pluto and Triton,” *Exoclimes III*, 2014.
- **Zalucha, A. M.**, A. S. Brecht, S. Rafkin, S. W. Bougher, and M. J. Alexander, “Incorporation of a Gravity Wave Momentum Deposition Parameterization into the Venus Thermosphere General Circulation Model (VTGCM),” *American Astronomical Society Division for Planetary Sciences Meeting #44*, Abstract 416.05, 2012.
- **Zalucha, A. M.**, “Demonstration of a GCM for Mars, GJ 1214b, Pluto, and Triton,” *Comparative Climatology of Terrestrial Planets*, 2012.
- **Zalucha, A. M.**, “The Effect of Dust on the Martian Hadley Cells in the Presence of Topography at Equinox,” 4th International Workshop on the Mars Atmosphere: Modeling and Observations, 2011.
- **Zalucha, A. M.**, A. A. S. Gulbis, X. Zhu, D. F. Strobel, and J. L. Elliot, “Investigating Pluto’s Troposphere Using a Radiative-conductive-convective Model and Stellar Occultation Data,” *Exoclimes*, 2010.
- **Zalucha, A. M.**, A. A. S. Gulbis, X. Zhu, D. F. Strobel, and J. L. Elliot, “An Analysis of Pluto Occultation Light Curves Using an Atmospheric Radiative-conductive Model,” Center for Planetary Science (Japan) International School of Planetary Sciences workshop, *Planetary Atmospheres: Sisters, Relatives and Ancestors of Our Own*, 2010.
- **Zalucha, A.**, A. Fitzsimmons, J. L. Elliot, J. Thomas-Osip, H. B. Hammel, V. S. Dhillon, T. R. Marsh, F. W. Taylor, and P. G. J. Irwin, “High Altitude, Wavelength-dependent Extinction in Titan’s Atmosphere from the 2003 Nov 14 Occultation,” *American Astronomical Society Division for Planetary Sciences Meeting #37*, Abstract #45.31, 2005.
- **Zalucha, A. M.**, J. M. Holt, and S.-R. Zhang, “Ionospheric Model Based on Saint Santin Incoherent Scatter Radar Data,” CEDAR Workshop, 2004.
- **Zalucha, A.**, M. Meixner, D. Fong, K. Justtanont, and T. Ueta, “Investigating TiC as the Carrier of the 21-micron Feature: HD 56126,” *American Astronomical Society Meeting #203*, Abstract #11.02, 2003.
- **Zalucha, A.**, D. Fong, and M. Meixner, “BIMA CO Observations of IRAS 07134+1005,” *American Astronomical Society Meeting #201*, Abstract #89.06, 2002.

### Co-authored Posters and Talks

- Spry, J. A., **A. Zalucha**, L. Fenton, “Planetary Protection Considerations of Mars Dust in the Context of Current Human Exploration Concepts,” *47th International Conference on Environmental Systems*, 2017.
- Bullock, M. A., L. A. Young, **A. M. Zalucha**, X. Zhu, and D. F. Strobel, “The Distribution of hydrocarbons on Pluto’s surface: dependence on seasonal behavior of the atmosphere,” *The Pluto System on the Eve of Exploration by New Horizons: Perspectives and Predictions*, 2013.
- Young, E. F. and **A. M. Zalucha**, “Re-analysis of the 2003-Nov-14 Stellar Occultation by Titan with New Haze and Methane Optical Constants: Implications for Vertical Structure and Zonal Winds,” *American Astronomical Society Division for Planetary Sciences Meeting #44*, Abstract 300.05, 2012.
- Young, E. F. and **A. Zalucha**, “Forward Modeling of the 2003 November 14 Titan Occultation: New Retrievals of Temperature, Density and Opacity Profiles from about 350 to 500 km,” *Titan Through Time; Unlocking Titan’s Past, Present and Future*, 2012.
- Brecht, A. S., **A. M. Zalucha**, S.W. Bougher, S.C. Rafkin, and M. Alexander, “Incorporation of a Gravity Wave Momentum Deposition Parameterization into the VTGCM,” *American Geophysical Union Fall Meeting*, 2011.

- Miller, C., N. Chanover, J.R. Murphy, and **A.M. Zalucha**, “Time-varying Atmospheric Circulation Patterns Caused by N<sub>2</sub> Condensation Flows on a Simulated Triton Atmosphere,” *American Geophysical Union Fall Meeting*, 2011.
- Zhang, S.-R. et al., “Ionospheric Models Based on ISR Observations at Millstone Hill, St. Santin, and Shigaraki,” *CEDAR Workshop*, 2004.
- Doering, R., M. Meixner, D. Fong, and **A. Zalucha**, “Millimeter and Near-IR Imaging of the Red Rectangle,” presented at Asymmetrical Planetary Nebulae III, *Astronomical Society of the Pacific conference series*, 313, 337, 2004.
- Zhang, S. R., J. M. Holt, **A. M. Zalucha**, and C. Amory-Mazaudier, “Mid-latitude ionospheric plasma temperature climatology and model based on Saint Santin incoherent scatter radar data from 1966-1987,” *35th COSPAR Scientific Assembly*, 2004.
- Mexiner, M., **A. Zalucha**, D. Fong, and K. Justtanont, “Testing the Hypothesis of TiC as the carrier of the 21 micron feature: HD56126,” *Astrophysics of Dust Conference*, 2003.

### Professional Blog Posts

- The Mighty, “We Need to Talk About the Science Community’s Mental Health Problem” 25 January 2017. <https://themighty.com/2017/01/mental-illness-science-community/>
- Access Astronomy, “Living with Anxiety Disorders in Astronomy” 17 November, 2016. <http://accessastronomy.blogspot.com/2016/11/living-with-anxiety-disorders-in.html>
- Access Astronomy, “What is Mental Illness?” 12 September, 2016 <http://accessastronomy.blogspot.com/2016/09/what-is-mental-illness.html>
- Women in Astronomy, “The Status of Mental Health in Planetary Science” 2 March, 2016. <http://womeninastronomy.blogspot.com/2016/03/the-status-of-mental-health-in.html>

### Appearances in Popular Science Media

- Iowa Public Radio, discussion of comet NEOWISE, 17 July 2020. <https://www.iowapublicradio.org/show/river-to-river/2020-07-20/an-iowan-recounts-his-story-of-witnessing-an-execution>
- Christian Science Monitor, “Could the TRAPPIST-1 worlds harbor alien life?” 27 February, 2017. <http://www.csmonitor.com/Science/2017/0227/Could-the-TRAPPIST-1-worlds-harbor-alien-life>
- BioTechniques (International Journal of Life Science Methods), “Microbes Fit for Space Exploration” 23 January 2017. <http://www.biotechniques.com/news/Microbes-Fit-for-Space-Exploration/biotechniques-365432.html#.WIayL2eYo8q>
- Science News for Students, “Women in STEM reach for the stars” 15 September, 2016. <https://www.sciencenewsforstudents.org/blog/eureka-lab/women-stem-reach-stars>
- Forbes (Tech), “What Do We Know About Pluto’s Atmosphere?” 4 April, 2016. <http://www.forbes.com/sites/quora/2016/04/04/what-do-we-know-about-plutos-atmosphere/#289f550a1e0d>
- Smithsonian.com, “Sorry Pluto, You Still Arent a Planet,” 11 November, 2015. <http://www.smithsonianmag.com/science-nature/sorry-pluto-you-still-arent-planet-180957242/>
- Scientific American Blogs, “Is It Snowing On Pluto?,” 15 July, 2015. <https://blogs.scientificamerican.com/observations/is-it-snowing-on-pluto/>
- Space.com, Yahoo! News, and The Oregon Herald, “Lifting the Veil on Pluto’s Atmosphere

- ,” 8 and 13 July, 2015. <http://www.space.com/29885-pluto-atmosphere-to-be-revealed-by-nasa-new-horizons-spacecraft.html>
- Txchnologist.com, “The Winds of Pluto: Modeling the Atmospheres of Distant Planets,” 30 April 2012. <http://txchnologist.com/post/30812857535/the-winds-of-pluto-modeling-the-atmospheres-of>
  - Canteengirl.org, Profile, 2010. <http://canteengirl.org/livinit/angela-zalucha/>

## Grants and Awards

- **NASA High-End Computing (HEC) Supercomputing Allocation** 2016–present  
Computing PI on supercomputing allocation “The Structural and Dynamical Role of Deep Convection in Martian Dust Storm Activity”.
- **Extreme Science and Engineering Discovery Environment (XSEDE) Supercomputing Allocation** 2011–2016  
Computing PI on supercomputing allocation “Discovering Pluto’s Atmospheric Circulation Using a 3D General Circulation Model”.
- **NASA Mars Data Analysis Program** Program year: 2013  
Co-I on grant titled, “The Structural and Dynamical Role of Deep Convection in Martian Dust Storm Activity”. #NNX14AM32G
- **NASA Outer Planets Research Program** Program year: 2011  
Postdoc on grant titled, “An Investigation of the Feedbacks between Pluto’s Atmosphere and Surface”, #NNX12AK41G.
- **NASA Planetary Atmospheres Program** Program year: 2011  
Postdoc on grant titled, “The Structure, Dynamics, and Volatile Cycle in the Atmosphere of Pluto and Similar KBOs”, #NNX12AI70G.
- **Travel Grant** 2009  
Awarded by the Center for Planetary Science International School of Planetary Sciences to attend the workshop Planetary Atmospheres: Sisters, Relatives and Ancestors of Our Own.
- **Student Travel Grant** 2008  
Awarded by the NASA Mars Exploration Program to attend the Third International Workshop on the Mars Atmosphere: Modeling and Observations.
- **Hartmann Student Travel Grant** 2008  
Awarded by the American Astronomical Society Division of Planetary Sciences to attend the annual meeting.
- **NCAR Advanced Study Program** 2008  
Accepted to attend summer colloquium Numerical Techniques for Global Atmospheric Models.
- **Student Travel Grant** 2007  
Awarded by the NASA Mars Exploration Program to attend the Seventh International Conference on Mars.

## Honors

- **Laura B. Eisenstein Award** 2004  
Awarded by the University of Illinois Department of Physics to outstanding undergraduate women in physics.
- **University of Illinois Dean’s List** 2001–2004  
Awarded each semester to students in the top 20 percent of their college class.

## Professional Society Membership

- **American Astronomical Society Division for Planetary Sciences**



Affiliate Member

- **American Geophysical Union**  
Member

## Computing

- **Programming and Computing Languages**  
Fortran 77, Fortran 90, Mathematica, Matlab, C, Python, MySQL
- **Website, Documentation, and Presentation Development**  
HTML, LaTeX, Microsoft Word, Microsoft PowerPoint, Microsoft Excel, Libre Office
- **Operating Systems**  
Unix, Microsoft Windows, Mac OS, Ubuntu, Fedora

## Public Outreach

- **Letters to a pre-scientist** 2015-present
- **Denver Comic Con** July 1, 2017  
Speaker: “Contamination: Mars!”  
Speaker: “The Science of Star Trek”
- **Denver Comic Con** June 18, 2016  
Speaker: “The Science of SETI”  
Speaker: “Is Pluto a Planet?”
- **Denver Comic Con** May 23, 2015  
Panelist: “Science: is it a man’s game?”  
Panelist: “The Science of Star Trek and Back to the Future”

## Languages

- English (native language)
- French (working proficiency)
- Spanish (basic proficiency)

## Selected Extracurricular Activities

- **The Tech (MIT’s student newspaper)** 2005–2010  
Staff Meteorologist
- **The Weather Dance (national weather forecasting competition)** 2007–2009  
In the top 8 forecasters, 2007 and 2008  
In the top 16 forecasters, 2009
- **National Collegiate Weather Forecasting Competition** 2004–2006  
Team champions 2004–2005
- **Wx Challenge** 2006–2012, 2019–present  
Team champions (MIT): 2006–2007, 2007–2008  
Graduate student winner, station: Memphis, TN, Mar. 11–21, 2008  
Graduate student winner, station: St. Louis, MO, Nov. 30–Dec. 10, 2009  
Faculty/Staff/Post-Doc winner, station: Seattle, WA, Jan. 31–Feb. 10, 2011
- **Volunteer, Ames Humane Society and Animal Rescue League** (2019–present)