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, Teaching Professor,**
  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-conductive-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, Summer, and Fall 2021; Spring, Summer, and Fall 2022; Spring, Summer, and Fall 2023; Spring 2024
ASTRO 103 - Evening Star	Summer 2020; Spring and Fall 2021; Spring and Fall 2022; Spring and Fall 2023; Spring 2024
ASTRO 120 - The Sky And Solar System	Fall 2019; Spring and Fall 2020; Spring, Summer, and Fall 2021; Spring and Summer 2022; Spring and Summer 2023; Spring 2024
ASTRO 342 - Solar System Astrophysics	Fall 2022; Fall 2023
PHYS 199 - Introductory Seminar	Fall 2021; Fall 2022; Fall 2023
PHYS 299 - Intermediate Seminar	Spring 2023; Spring 2024

- **Professor, Arapahoe Community College**

MET 105 - Introduction to Meteorolgy — 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 Trition 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 — 2021–present
  Learning Community Facilitator — 2021–present
  Test-out Coordinator — 2021–2022
  Transfer Credit Evaluator — 2021–present
  Learning Group Coordinator — 2021–present
  Student Recruitment Committee Member — 2021–2022
- **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**
  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 Gephysical 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 "Exploring Planetary Climate" by Ralph D. Lorenz, Cambridge University Press, 2019, pp. 130.
- **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," *Exoclimes 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*)
- Univeristy of Colorado at Boulder LASP Journal Club - "An analysis of Pluto occultation light curves using an atmospheric radiative-conductive model" (*January 29, 2010*)
- Southwest Research Institute Boulder Colloquium - "An analysis of Pluto occultation light curves using an atmospheric radiative-conductive 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" (*March19, 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 N2 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.

Awards

- **Letters to a Pre-Scientist** 2021
  In recognition of exceptionally engaging letters.
- **Iowa State University Student Government Award of Excellence** 2020
  In recognition of excellence for use of Open Educational Resources.
- **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.

Grants

- **NASA High-End Computing (HEC) Supercomputing Allocation** 2016–2017
  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.

Professional Blog Posts

- Letters to a Pre-Scientist blog, "Teaching higher education courses where online is the only option" 10 February 2021. `https://www.prescientist.org/2021/02/10/teaching-higher-education-courses-where-online-is-the-only-option/`
- 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

- WHO AM 1040, "Iowans enjoying planetary show this fall" September 29, 2021
- 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
- Biothechniques (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 Aren't 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/

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

- **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
  Faculty/Staff/Post-Doc winner, station: Bismark, ND, Feb. 8–18, 2022
  Faculty/Staff/Post-Doc winner, station: Augusta, ME, Feb. 20–Mar. 6, 2023
- **Volunteer, Ames Humane Society and Animal Rescue League** (2019–2020)
- **Volunteer, Animal Rescue League of Iowa** (2019–2021)
- **The Weather Dance (national weather forecasting competition)** 2007–2009
  In the top 8 forecasters, 2007 and 2008
  In the top 16 forecasters, 2009
- **The Tech (MIT's student newspaper)** 2005–2010
  Staff Meteorologist
- **National Collegiate Weather Forecasting Competition** 2004–2006
  Team champions 2004–2005