

Curriculum Vitae

Name: Elizabeth Annah Jensen, PhD, PE, CSP ejensen@psi.edu

History of employment

- Planetary Science Institute (2010 – present) Associate Research Scientist
- ACS Engineering & Safety, LLC (2007 – present) President
- University of California, San Diego (2007 – 2007) Postdoctoral Scholar

Degrees

- Ph.D. (Space Physics) University of California, Los Angeles (2007)
- Sc.M. (Geosystems), Department of Earth, Atmosphere, & Planetary Science, Massachusetts Institute of Technology (1999)
- B.Sc. (Geophysics), Department of Geology & Geophysics, Texas A&M University (1998)

Research experience:

- Faraday Rotation Solar Observing: I am the Instrument Team Lead for the Faraday rotation instrument on a GSFC mission proposal; (a) I developed radio antenna calibration techniques to characterize radio signals with unknown polarization properties collected on uncalibrated radio antennas; (b) I demonstrated the feasibility of using the Apparent-Doppler technique of Giampieri et al. with the DRVID technique of Anderson on the Cassini mission for measuring changes in electron content; (c) I assisted Mike Seiffert with building X- and Ka-band radio receivers; (d) With my team, I discovered that bursty regions trailing Coronal Mass Ejections exhibit strong electrical fields; (e) I investigated Alfvén wave properties in Faraday rotation observations using Cassini and MESSENGER spacecraft; (f) I developed the cheat-sheet for interpreting magnetic flux rope orientation from Faraday rotation observations.
- Micrometeorite Infrared Study: Working with Sue Lederer, PI, I investigated the infrared absorption changes introduced to common asteroid regolith minerals from the passage of a shock wave due to a micrometeoroid impact. As part of this project, I trained and oversaw two undergraduate students. I also discovered that FTIR/ATR calibration standards only address wavelength, not intensity and proposed an approach to calibrate the intensity.
- Streaming Potentials: Masters Thesis work determining the enhancement of electrical current due to streaming potentials (crystalline surface Zeta potential) from Westerly granite under uniaxial compression. I discovered that the ductile failure preceding the sample rupture comprised the greatest release of electrical current, occasionally including brief electromagnetic wave production.
- Lunar Hydration: Working with Faith Vilas, PI, studying reflectance spectra from the Galileo spacecraft, we discovered phyllosilicates in the lunar surface indicating the presence of lunar water in the past.
- Failure analysis: I have conducted forensic investigations in areas including fire, farming, manufacturing, commercial and retail accidents, construction, and more. I discovered that manufacturers and safety leaders were unaware of the international standards that exist in operators' manuals layout and presentation of safety material. The peer reviewed paper on this topic is at the Professional Safety Journal website on the front cover of its November 2021 issue.
- My papers include:
Jensen EA, Gopalswamy N, Wilson LB III, Jian LK, Fung SF, Nieves-Chinchilla T, Shelton M, Li L, Deshpande M, Purves L, Lazio J, Manchester WB IV, Wood BE, Kooi JE, Wexler DB, Bale S, Pevtsov A, Jackson BV and Kenny MN (2023) The Faraday Effect Tracker of Coronal and Heliospheric Structures (FETCH) instrument. *Front. Astron. Space Sci.* 10:1064069.
<https://doi.org/10.3389/fspas.2023.1064069>
Jensen, E. A., Heiles, C., Wexler, D., Kepley, A. A., Kuiper, T., Bisi, M. M., Domingue Lorin,

- D., Kuiper, E. V., and Vilas, F. (2018). Plasma Interactions with the Space Environment in the Acceleration Region: Indications of CME-trailing Reconnection Regions. *Astrophys. J.*, 861(2):118. <https://doi.org/10.3847/1538-4357/aac5dd>
- Jensen, E.A., Frazin, R., Heiles, C. et al. The Comparison of Total Electron Content Between Radio and Thompson Scattering. *Sol Phys* 291, 465–485 (2016). <https://doi.org/10.1007/s11207-015-0834-5>
- Jensen, E.A., Bisi, M.M., Breen, A.R. et al. Measurements of Faraday Rotation Through the Solar Corona During the 2009 Solar Minimum with the MESSENGER Spacecraft. *Sol Phys* 285, 83–95 (2013). <https://doi.org/10.1007/s11207-012-0213-4>
- Jensen, E.A., Nolan, M., Bisi, M.M. et al. MESSENGER Observations of Magnetohydrodynamic Waves in the Solar Corona from Faraday Rotation. *Sol Phys* 285, 71–82 (2013). <https://doi.org/10.1007/s11207-012-0162-y>
- Jensen, E.A., Hick, P.P., Bisi, M.M. et al. Faraday Rotation Response to Coronal Mass Ejection Structure. *Sol Phys* 265, 31–48 (2010). <https://doi.org/10.1007/s11207-010-9543-2>
- Jensen, E. A., and Russell, C. T. (2009), Coronal magnetic field analysis with Faraday rotation observations of Alfvén waves, *Geophys. Res. Lett.*, 36, L05104, <https://doi.org/10.1029/2008GL036257>
- Elizabeth A. Jensen, Christopher T. Russell, High-frequency Faraday rotation observations of the solar corona, *Planetary and Space Science*, Volume 56, Issue 11, 2008, Pages 1562-1564, ISSN 0032-0633, <https://doi.org/10.1016/j.pss.2008.07.010>
- Jensen, E. A., and Russell, C. T. (2008), Faraday rotation observations of CMEs, *Geophys. Res. Lett.*, 35, L02103, <https://doi.org/10.1029/2007GL031038>
- Elizabeth A. Jensen and Christopher T. Russell "Measuring the plane of polarization in a strongly circular signal", *Proc. SPIE 6689, Solar Physics and Space Weather Instrumentation II*, 668910 (20 September 2007); <https://doi.org/10.1117/12.734860>
- E.A. Jensen, M.K. Bird, S.W. Asmar, L. Iess, J.D. Anderson, C.T. Russell, The Cassini solar Faraday rotation experiment, *Advances in Space Research*, Volume 36, Issue 8, 2005, Pages 1587-1594, ISSN 0273-1177, <https://doi.org/10.1016/j.asr.2005.09.039>
- Jensen, E. A., Smith, D., Chapela, P., and Lederer, S. M. (2017). Caution in interpreting ftir/atr spectral intensity values. *Analyst*, 142:3797–3799. <https://doi.org/10.1039/C7AN00704C>
- Honors: (12997) Lizjensen = 1981 EV29
https://minorplanetcenter.net/db_search/show_object?utf8=%E2%9C%93&object_id=12997

CURRICULUM VITAE
Elizabeth A. Jensen, Ph.D. P.E. C.S.P.
ACS Engineering & Safety, LLC

EDUCATION

Ph.D. Space Physics, University of California, Los Angeles.
M.S. Earth and Space Science, University of California, Los Angeles.
S.M. Geosystems, Massachusetts Institute of Technology.
B.S. Geophysics (University Honors), Texas A&M University.

SELECTED PUBLICATIONS & PRESENTATIONS

Jensen, E.A. and E.J. Jensen (2021), "Operator's Manual Inspection for the Safety Professional", Professional Safety Journal, ISSN 0099 0027, November, pages 22-25.
Jensen, E.A. (2021), "Forklift Safety", University of Houston Systems Safety Management Invited Talk, October 15th
Jensen, E.A. (2021), "Forensic Engineering in the Houston Area", MIT Club of South Texas Invited Talk, April 13th
Jensen, E.A. (2021), "Safety First", Houston Chronicle Opinion Letters, February 8th , page A13.

QUALIFICATIONS & CURRENT TRAINING

Fire Origin & Cause	Fire Protection Engineering	Scaffolding "Competent Person"
Electrical Fires	Image Analysis	Aerial and Scissor Lifts
Physics of Accidents	Spectroscopy	NFPA 921 & 1033 Updates
Computer Modeling	Workplace Safety	NFPA Means of Egress

CERTIFICATIONS AND ORGANIZATIONS

Licensed Professional Engineer in Texas, Fire Protection Engineering. License #110000.
Certified Safety Professional, Board of Certified Safety Professionals. License #CSP-34348
OSHA Authorized Outreach Trainer for Construction & General Industry
Certified Forklift Operator, 3k-30k lbs. CLASS 1 to 7
American Society of Safety Engineers (ASSP)
International Association of Arson Investigators (IAAI)
National Fire Protection Association (NFPA)
American Astronomical Society (AAS)
American Radio Relay League (ARRL), General Operator, Call Sign KG5BSQ

EXPERIENCE

2007-Present	President, ACS Engineering & Safety
2010-Present	Associate Research Scientist, Planetary Science Institute Experience includes leading instrument development for NASA/GSFC, writing manuals & procedures for experiments, and overseeing the safety of students working in the NASA/JSC High Velocity Impacts Lab
2007	Postdoctoral Scholar, University of California, San Diego
1999-2007	Research Assistant, University of California, Los Angeles
1996-1997	Data Analyst, NASA Johnson Space Center
1994	Emergency Medical Technician Basic, Texas A&M University
1993	Certified Fire Fighter, Recruit Fire Training Academy, Texas Engineering Extension Service
1992-1993	Volunteer Fire Fighter, Spring Volunteer Fire Department