

## **Amanda R. Hendrix**

Senior Scientist, Planetary Science Institute; arh@psi.edu

### **Education**

- Ph.D., Aerospace Engineering Sciences, University of Colorado, 1996  
*thesis title: The Galileo Ultraviolet Spectrometer: In-Flight Calibration and the Ultraviolet Albedos of the Moon, Gaspra, Ida and Europa*  
*thesis advisor: Professor Charles Barth*
- M.S., Aerospace Engineering Sciences, University of Colorado, 1994
- B.S., Aeronautical Engineering, California Polytechnic State University, 1991

### **Research Focus**

- UV spectroscopy of planetary surfaces: icy satellites, asteroids, Earth's moon, Mars; weathering processes and radiation products; Jupiter's moon Io

### **Experience**

Principal Investigator, TREX SSERVI Node (2017 – present)  
Deputy Project Scientist, Cassini Mission to Saturn, May 2010-September 2012  
Co-investigator, Cassini UVIS, August 1999 - present  
Co-investigator, LRO LAMP, January 2008 – present  
Co-investigator, Galileo UVS, September 1997-2003  
Principal Investigator: HST, CDAP, PDART, LASER, OPR, PG&G, JSDAP, MDAP, PDART research programs

- **Planetary Science Institute**, October 2012- present
  - Senior Scientist
- **Jet Propulsion Laboratory**, December 2000 – September 2012
  - Research Scientist, Asteroids, Comets and Planetary Satellites Group
  - Cassini mission to Saturn
    - Deputy Project Scientist (May 2010-September 2012)
    - UVIS Investigation Scientist
    - Co-chair, Satellites Orbiter Science Team
    - Chair, Enceladus Plume Working Group
  - Europa Orbiter of the Jupiter Joint Science Definition Team
    - Deputy Study Scientist (February 2008-April 2009)
  - Jovian System Orbiter Science Definition Team, 2007
- **Johnson Space Center**, Earth Science and Solar System Exploration Div., June-August, 1999
  - fellow, NASA-ASEE Summer Faculty Program
- **Univ. Colorado**, Lab for Atmospheric and Space Physics, Aug 1996 – Nov 2000
  - Postdoctoral research associate

### **Teaching Experience**

- **Univ. Colorado**, Lab for Atmospheric and Space Physics, Aug 1996 – Nov 2000
  - Postdoctoral research associate
  - Lecturer, Astrophysical and Planetary Sciences Dept.
    - “Astronomy of the Solar System”
    - “Planets, Moons and Rings”
- **Mount San Antonio College**, February 2013-December 2014
  - adjunct professor, Astronomy and Earth Science Dept., ASTR7 “Geology of the Solar System”
- **Cal Poly Pomona**, April –December 2014
  - adjunct professor, Geological Sciences Dept, GSC 495, “Planetary Science”  
GSC 116, “Introductory Astronomy”

### **Student/Post-doc advisor**

Emilie Royer, JPL post-doc, April 2012-September 2013  
Timothy Cassidy, JPL post-doc, November 2009-July 2011  
Mark Elowitz, Open University, Ph.D. thesis co-advisor  
Lizeth Magana, UTSA, Ph.D. thesis committee (2018-  
Elizabeth Czajka, UTSA, Ph.D. thesis committee (2019-

### **Publications: Selected Journal Articles and Book Chapters**

- Trumbo, S., T. Becker, M. Brown, W. Denman, P. Molyneux, A. Hendrix, K. Retherford, L. Roth, J. Alday 2022. A New UV Spectral Feature on Europa: Confirmation of NaCl in Leading-hemisphere Chaos Terrain. *The Planetary Science Journal*, 3, 27, doi 10.3847/PSJ/ac4580
- Byron, B., K. Retherford, E. Czajka, J. Cahill, **A. Hendrix**, T. Greathouse 2021. Lunar Surface Composition Constraints from Maturity-Corrected Far-Ultraviolet Reflectance Maps. *Planetary Science Journal*, Volume 2, Issue 5, id.189, 11 pp
- Cable, M., ... A. Hendrix, et al. 2021. The Science Case for a Return to Enceladus. *Planetary Science Journal*, Volume 2, Issue 4, id.132, 12 pp
- Sen, A., ... A. Hendrix, et al. 2021 Spectral Effects of Varying Texture and Composition in Two-component “Mudpie” Simulations: Insights for Asteroid (101955) Bennu. *Meteoritics & Planetary Science*, Volume 56, Issue 6, pp. 1173-1190
- Elowitz, M., B. Sivaraman, A. Hendrix, et al. 2021. Possible detection of hydrazine on Saturn's moon Rhea. *Science Advances*, vol. 7, issue 4, p. eaba5749
- Howett, C., ... A. Hendrix, et al. 2021. Persephone: A Pluto-system Orbiter and Kuiper Belt Explorer. *Planetary Science Journal*, Volume 2, Issue 2, id.75, 18 pp
- DellaGiustina, D.N. and 49 co-authors (incl. A. R. Hendrix) Diverse Color and Reflectance of Asteroid (101955) Bennu. *Science* 10.1126/science.abc3660 (2020).
- Byron, B., K. Retherford, T. Greathouse, D. Wyrick, J. T. Cahill, A. R. Hendrix, U. Raut, K. Mandt, B. Denevi. Far-UV Observations of Lunar Rayed Craters with LRO-LAMP, *Journal of Geophysical Research* Volume 125, Issue 3, article id. e06269. DOI: 10.1029/2019JE006269

- Hendrix, A. R. and F. Vilas 2019. C-complex asteroids: UV-visible spectral characteristics and implications for space weathering effects. *Geophys. Res. Lett.*, 46. <https://doi.org/10.1029/2019GL085883>
- Hansen, C. J., Ian Stewart, Larry Esposito, Ganna Portyankina, Joshua Colwell, Robert West, Amanda Hendrix 2020. The Composition and Structure of Enceladus' Plume from the complete set of Cassini UVIS Occultation Observations. *Icarus*, Volume 344, p. 256-260.
- Castillo-Rogez et al. Ceres: Astrobiological Target and Possible Ocean World. *Astrobiology* 20, DOI: 10.1089/ast.2018.1999
- Hansen, C. J., L. W. Esposito, **A. R. Hendrix**. Ultraviolet observations of Enceladus' plume in transit across Saturn, compared to Europa. *Icarus*, Volume 330, p. 256-260
- Buratti, B., P. C. Thomas, E. Roussos, C. Howett, M. Seiß, **A. R. Hendrix**, P. Helfenstein, R. H. Brown, R. N. Clark, T. Denk, G. Filacchione, H. Hoffmann, G. Jones, N. Khawaja, P. Kollmann, N. Krupp, J. Lunine, T. S. Momary, C. Paranicas, F. Postberg, M. Sachse, F. Spahn, J. Spencer, R. Srama, T. Albin, K. H. Baines, M. Ciarniello, T. Economou, J. Hsu, S. Kempf, S. M. Krimigis, D. Mitchell, G. Moragas-Klostermeyer, P. D. Nicholson, C. C. Porco, H. Rosenberg, J. Simolka, L. A. Soderblom First results from Cassini's Five Fabulous Flybys of Saturn's Ring Moons, *Science* 14 Jun 2019 Vol. 364, Issue 6445
- Hendrix, A. R., D. M. Hurley, W. Farrell, B. T. Greenhagen, P. O. Hayne, K. D. Retherford, F. Vilas, J. T. S. Cahill, J. J. Poston 2019. Diurnally-Migrating Lunar Water: Evidence from Ultraviolet Data. *Geophys. Res. Lett.* Volume 46, Issue 5, pp. 2417-2424
- Byron, B. D., K. D. Retherford, T. K. Greathouse, K. E. Mandt, **A. R. Hendrix**, M. J. Poston, Y. Liu, J. T. Cahill, E. Mazarico. Effects of Space Weathering and Porosity on the Far-UV Reflectance of Amundsen Crater. *Journal of Geophysical Research: Planets*, Volume 124, Issue 3, pp. 823-836
- Cahill, J.T.S., Anna Wirth, Amanda R. Hendrix, Kurt D. Retherford, Thomas K. Greathouse, Kathleen E. Mandt, Yang Liu, Benjamin T. Greenhagen, Brett W. Denevi, Angela M. Stickle, and Dana M. Hurley. An examination of several discrete lunar photometric anomalies observed in Lyman-alpha. *Journal of Geophysical Research: Planets*, 123. <https://doi.org/10.1029/2018JE005754>
- Hendrix, A. R. and 25 co-authors. The NASA Roadmap to Ocean Worlds. *Astrobiology*, Vol 19, Issue 1, 2019, pp.1-27
- Liu, Y., K. D. Retherford, T. K. Greathouse, A. R. Hendrix, J. T. S. Cahill, K. E. Mandt, G. R. Gladstone, C. Grava, A. F. Egan, D. E. Kaufmann, W. R. Pryor 2018. The Far Ultraviolet Wavelength Dependence of the Lunar Phase Curve as seen by LRO LAMP. *JGR Planets*, Volume 123, Issue 10, pp. 2550-2563
- Campins, H., J. DeLeon, J. Licandro, A.R. Hendrix, Sanchez, J. A., Ali-Lagoa, V. 2017. Compositional Diversity Among Primitive Asteroids. chapter 5 in *Primitive Meteorites and Asteroids, Physical, Chemical, and Spectroscopic Observations Paving the Way to Exploration*; doi:10.1016/C2016-0-05001-5
- Hendrix, A. 2017. Europa: Habitability and Future Studies. *Capeia*: 20171114.021
- Howett, C.J.A., A. R. **Hendrix**, T.A. Nordheim, C. Paranicas, J.R. Spencer, A. J. Verbiscer 2018. Ring and Magnetosphere Interactions with Satellite

- Surfaces. In: Schenk, P.M., Clark, R.N., Howett, C.J.A., Verbiscer, A. J., Waite, J.H (Eds.), *Enceladus and the Icy Moons of Saturn*. U. Arizona Press.
- Buratti, B. J., C. J. Hansen, A. R. Hendrix, L. W. Esposito, J. A. Mosher 2018. The Search for Activity on Dione and Tethys with *Cassini* VIMS and UVIS. *Geophysical Research Letters*, Volume 45, Issue 12, pp. 5860-5866
- Raut, U., P. L. Karnes, K. D. Retherford, M. W. Davis, Y. Liu, G.R. Gladstone, E.L. Patrick, Thomas K. Greathouse, A. R. Hendrix, P. Mokashi 2018. Far-Ultraviolet Photometric Response of Apollo Soil 10084. *Journal of Geophysical Research: Planets*, Volume 123, Issue 5, pp. 1221-1229 .
- Becker, T. M., K. D. Retherford, L. Roth, A. R. Hendrix, M. A. McGrath, J. Saur 2018. The Far-UV Albedo of Europa from HST Observations. *Journal of Geophysical Research: Planets*, Volume 123, Issue 5, pp. 1327-1342
- Buratti, B. J. R.N. Clark, F. Crary, C.J. Hansen, A.R. Hendrix, C.J.A. Howett, J. Lunine, C. Parnicas 2019. Cold cases: What we don't know about Saturn's Moons. *Planetary and Space Science*, Volume 155, p. 41-49.
- Cuzzi, J. C, R. G. French, A. R. Hendrix, D. M. Olson, T. Roush, S. Vahidinia 2018 HST-STIS spectra and the Redness of Saturn's Rings. *Icarus*, Volume 309, p. 363-388
- Applin, D. M., M. R. M. Izawa, E. A. Cloutis, J. Gillis-Davis, K. Pitman, T. L. Roush, **A. R. Hendrix**, P. G. Lucey 2018. Ultraviolet spectral reflectance of carbonaceous phases and applications to remote sensing of planetary surfaces. *Icarus*, Volume 307, p. 40-82
- Hendrix, A.R., B.J. Buratti, D.P. Cruikshank, R.N. Clark, F. Scipioni, C.J.A. Howett 2018. Surface Composition of Icy Moons. In: Schenk, P.M., Clark, R.N., Howett, C.J.A., Verbiscer, A. J., Waite, J.H (Eds.), *Enceladus and the Icy Moons of Saturn*. U. Arizona Press.
- Parnicas, C., C. A. Hibbitts, P. Kollmann, N. Ligier, E. Roussos, N. Krupp, A. R. Hendrix, T. A. Nordheim, D. Blaney, T. A. Cassidy, G. Clark 2018. Magnetospheric considerations for solar system ice state. *Icarus*, Volume 302, p. 560-564.
- Buratti B. J., R. N. Clark, F. Crary, C. J. Hansen, A. R. Hendrix, C. J. A. Howett, J. Lunine, C. Parnicas 2018. Cold Cases: What we don't know about Saturn's Moons *Planetary and Space Science*, Volume 155, p. 41-49
- Hendrix, A. R., G. Filacchione, C. Parnicas, P. Schenk, F. Scipioni 2018. Icy saturnian satellites: Disk-integrated UV-IR spectral characteristics and links to exogenic processes. *Icarus* 300, 103-114.
- Hendrix, A. R. and Y. Yung 2017. Energy options for future humans on Titan. *J. Astrobiol. Outreach* 5, DOI: 10.4172/2332-2519.1000157
- Nordheim T. A., K.P. Hand, C. Parnicas, C. J. A. Howett, **A. R. Hendrix**, G.H. Jones, A. J. Coates 2016. The near-surface electron radiation environment of Saturn's moon Mimas. *Accepted, January 2017*.
- Cuzzi, J. C., L. Chambers, **A. R. Hendrix** 2016. Rough Surfaces: is the dark stuff just shadow? *Icarus* 289, 281-294.
- Hendrix, A. R., F. Vilas, and J.-Y. Li 2016. Ceres: Sulfur deposits and graphitized carbon, *Geophys. Res. Lett.* , 43, doi:10.1002/2016GL070240.

- Vilas, F. and A. R. Hendrix 2016. Space Weathering of S-Complex Asteroids Manifested in the UV/Blue: Recent Insights and Future Directions. Proceedings of the International Astronomical Union, IAU Symposium, Volume 318, pp. 201-205
- Domingue, D. L., Faith Vilas, Teck Choo, Karen R. Stockstill-Cahill, Joshua T. S. Cahill, Amanda R. Hendrix 2016. Regional Spectrophotometric Properties of 951 Gaspra, *Icarus* 280, 340-358
- Hendrix, A.R., T. K. Greathouse, K. D. Retherford, K. E. Mandt, G. R. Gladstone, D. E. Kaufmann, D. M. Hurley, P. D. Feldman, W. R. Pryor, S. A. Stern. 2015. Lunar Swirls: Far-UV characteristics. *Icarus* 273, 68-74.
- Hendrix, A. R., F. Vilas, J.-Y. Li 2015 The UV Signature of Carbon in the Solar System *Meteoritics & Planetary Science* 1–11 doi: 10.1111/maps.12575
- Vilas, F., A. R. Hendrix, E. Jensen 2015. The UV/Blue Effects of Space Weathering Manifested in S-Complex Asteroids II: Probing for Less-Weathered Objects in the Solar System. *Planet. Space Sci.* 118: 273-276.
- Vilas, F. and A. R. Hendrix 2015. The UV/blue effects of space weathering manifested in S-complex asteroids I: Quantifying change with asteroid age, *Astron. J.* 150: 64-78.
- Hurley, D. M., Jason C. Cook, Kurt D. Retherford, Thomas Greathouse, G. Randall Gladstone, Kathleen Mandt, Cesare Grava, David Kaufmann, **Amanda Hendrix**, Paul D. Feldman, Wayne Pryor, Angela Stickle, Rosemary M. Killen, S. Alan Stern. 2016. Contributions of solar wind and micrometeoroids to molecular hydrogen in the lunar exosphere. *Icarus* 283, p. 31-37
- Mandt, K. E. T. K. Greathouse, K. D. Retherford, G. R. Gladstone, A. P. Jordan, M. Lemelin, S. D. Koeber, E. Bowman-Cisneros, G. W. Patterson, M. Robinson, P. G. Lucey, **A. R. Hendrix**, D. Hurley, A. M. Stickle, W. Pryor. LRO-LAMP detection of geologically young craters within lunar permanently shaded regions. *Icarus*, published online Aug 2015.
- Hayne, P. O., **A. R. Hendrix**, E. Sefton-Nash, P. G. Lucey, K. D. Retherford, J.-P. Williams, M. A. Siegler, B. T. Greenhagen, D. A. Paige. 2015. Evidence for Exposed Water Ice in the Moon's South Polar 1 Regions from Lunar Reconnaissance Orbiter Ultraviolet Albedo and Temperature Measurements. *Icarus*, 255, 58-69.
- Shemansky, D. E., Y. L. Yung, X. Liu, J. Yoshii, C. J. Hansen, **A. R. Hendrix**, L. W. Esposito 2014. A New Understanding of the Europa Atmosphere and Limits on Geophysical Activity *Astrophys. J.*, v. 797, article ID 84.
- Royer, E. M. and **A. R. Hendrix** 2014. First far-ultraviolet disk-integrated phase curve analysis of Mimas, Tethys and Dione from the Cassini-UVIS data sets. *Icarus*, 242, 158-171.
- Hendrix, A. R., Nelson, R. M., & Domingue, D. L. 2014. The Solar System at Ultraviolet Wavelengths. In T. Spohn, D. Breuer, & T. V. Johnson (Eds.), *Encyclopedia of the Solar System*, Elsevier (pp. 1047–1071).
- Paranicas, C., E. Roussos, R. B. Decker, R. E. Johnson, **A. R. Hendrix**, P. Schenk, P. Kollmann, T. Cassidy, J. B. Dalton, W. Patterson, K. Hand, T. Nordheim, C. J. A. Howett, N. Krupp, and D. G. Mitchell 2014. The lens feature on the Saturnian satellites. *Icarus* **234**: 155-161.

- Cassidy, T. A., C. P. Paranicas, J. H. Shirley, J. B. Dalton III, B. D. Teolis, R. E. Johnson, L. Kamp, **A. R. Hendrix** 2013. Magnetospheric ion sputtering and water ice grain size at Europa. *Planet. Space Sci.* **77**: 64-73.
- Hendrix, A. R., D. L. Domingue, K. S. Noll 2013. UV Properties of Planetary Ices, chapter in *Solar System Ices* (eds. Gudipati and Castillo-Rogez), Springer.
- Paranicas, C. E. Roussos, N. Krupp, P. Kollmann, **A.R. Hendrix**, T. Cassidy, R.E. Johnson, P. Schenk, G. Jones, J. Carbary, D.G. Mitchell, K. Dialynas 2012. Energetic charged particle weathering of Saturn's inner satellites. *Planet Space Sci* **61**, 60-65.
- Hendrix, Amanda R. and 17 co-authors 2012. The Lunar Far-UV Albedo: Indicator of Hydration and Weathering. *J. Geophys. Res.* **117**: E12001, doi:10.1029/2012JE004252
- Hendrix, A. R. and 9 co-authors 2012. Mimas' far-UV albedo: Spatial variations. *Icarus* **220**: 922-931.
- Gladstone, G. R., K. D. Retherford, A. F. Egan, D. E. Kaufmann, P. F. Miles, J. W. Parker, D. Horvath, P. M. Rojas, M. H. Versteeg, M. W. Davis, T. K. Greathouse, D. C. Slater, J. Mukherjee, A. J. Steffl, P. D. Feldman, D. M. Hurley, W. R. Pryor, **A. R. Hendrix**, E. Mazarico, S. A. Stern 2012. Far-ultraviolet reflectance properties of the Moon's permanently shadowed regions. *J. Geophys. Res.*, **117**, E00H04, doi:10.1029/2011JE003913.
- Zastrow, M., J. T. Clarke, A. R. Hendrix, K. S. Noll 2012. UV spectrum of Enceladus. *Icarus* **220**: 29-35.
- Hendrix, A. R., T. A. Cassidy, R. E. Johnson, C. Paranicas 2011. Europa's Disk-Resolved Ultraviolet Spectra: Relationships with Plasma Flux and Surface Terrains. *Icarus* **212**: 736-743.
- Hendrix, A. R., C. J. Hansen, G. M. Holsclaw 2010. The Ultraviolet Reflectance of Enceladus: Implications for Surface Composition, *Icarus* **206**: 608-617.
- McGrath, M. A., C. J. Hansen, A. R. Hendrix 2009. Observations of Europa's Tenuous Atmosphere, in *Europa* (eds. Pappalardo, McKinnon, Khurana), Univ. Arizona Press.
- Jaumann, R., R. Clark, F. Nimmo, A. Hendrix, B. Buratti, T. Denk, J. Moore, P. Schenk, S. Ostro, R. Srama 2009. Icy Satellites: Geological Evolution and Surface Processes, in *Saturn from Cassini/Huygens* (eds. Dougherty, Esposito, Krimigis), Springer.
- Greeley, R., R. T. Pappalardo, L. M. Prockter, A. R. Hendrix 2009. Future Exploration of Europa, in *Europa* (eds. Pappalardo, McKinnon, Khurana), Univ. Arizona Press.
- Hendrix, A. R. and R. E. Johnson 2008. Callisto: New insights from Galileo disk-resolved UV measurements, *Astrophys. J.* **687**: 706.
- Hansen, C. J. *et al.*, 2008. Water vapour jets inside the plume of gas leaving Enceladus, *Nature*, **456**: 477-479.
- Cloutis, E. A. *et al.* 2008. Ultraviolet spectral reflectance properties of common planetary minerals, *Icarus* **197**: 321-347.
- Jones, G. H. *et al.* 2008. The dust halo of Saturn's largest icy moon, Rhea. *Science* **319**: 1380.
- Cruikshank, D. P. *et al.* 2007. Surface Composition of Hyperion. *Nature* **448**: 54-56.

- Hendrix, A. R. and C. J. Hansen 2008. The Albedo Dichotomy of Iapetus Measured at UV Wavelengths, *Icarus* 193: 344-351.
- Hendrix, A. R. and C. J. Hansen, 2008. Ultraviolet Observations of Phoebe from Cassini UVIS, *Icarus* 193: 323-333.
- Hendrix, A. R. and F. Vilas 2006. The Effects of Space Weathering at UV Wavelengths: S-class Asteroids, *Astron. J.*: 132: 1396-1404.
- Hendrix, A. R., R. M. Nelson, D. L. Domingue 2006. The Solar System at Ultraviolet Wavelengths, in *Encyclopedia of the Solar System 2<sup>nd</sup> ed.* (eds. McFadden, Weissman, Johnson), Academic Press.
- Hansen, C. J., L. Esposito, A. I. F. Stewart, J. Colwell, A. Hendrix, W. Pryor, D. Shemansky, R. West 2006. Enceladus's water vapor plume. *Science* 311: 1422-1425.
- Spencer, J. R., J. C. Pearl, M. Segura, F. M. Flasar, A. Mamoutkine, P. Romani, B. J. Buratti, A. R. Hendrix, L. J. Spilker, R. M. C. Lopes 2006. Cassini encounters Enceladus: Background and the discovery of a south polar hot spot. *Science* 311: 4101-1405.
- Hansen, C. J., D. E. Shemansky, A. R. Hendrix 2005. Cassini UVIS Observations of Europa's Oxygen Atmosphere and Torus. *Icarus* 176: 305-315.
- Esposito, L.W., J. E. Colwell, K. Larsen, W. E. McClintock, A. I. F. Stewart, J. Tew Hallett, D. E. Shemansky, J. M. Ajello, C. J. Hansen, A. R. Hendrix, R. A. West, H. U. Keller, A. Korth, W. R. Pryor, R. Reulke, Y. L. Yung 2005. Ultra-Violet Imaging Spectroscopy shows an active Saturn system. *Science* 307, 1251-1255.
- Hendrix, A. R., D. L. Domingue, K. King 2005. The Icy Galilean Satellites: Ultraviolet Phase Curve Analysis. *Icarus* 173: 29-49.
- Domingue, D. L. and Hendrix, A. R. 2005. A Search for Temporal Variability in the Surface Chemistry of the icy Galilean Satellites. *Icarus* 173: 50-65.
- Hendrix, A. R., F. Vilas, M. C. Festou 2003. Vesta's UV Lightcurve: Hemispheric Variation in Brightness and Spectral Reversal. *Icarus* 162: 1-9.
- Herbert, F., Schneider, N. M., Hendrix, A. R., Bagenal, F. 2003. Hubble Space Telescope observations of sulfur ions in the Io plasma torus: New constraints on the plasma distribution. *J. Geophys. Res.* 108.
- Hendrix, A. R., C. A. Barth, C. W. Hord 1999. Io's Patchy SO<sub>2</sub> Atmosphere as Measured by the Galileo Ultraviolet Spectrometer. *J. Geophys. Res.* 104: 11817-11826.
- Hendrix, A. R., C. A. Barth, C. W. Hord 1999. Ganymede's Ozone-Like Absorber: Observations by the Galileo Ultraviolet Spectrometer. *J. Geophys. Res.* 104: 14169-14178.
- Carlson, R. W., M. S. Anderson, R. E. Johnson, W. D. Smythe, A. R. Hendrix, C. A. Barth, L. A. Soderblom, G. B. Hansen, T. B. McCord, J. B. Dalton, R. N. Clark, J. H. Shirley, A. C. Ocampo, D. L. Matson 1999. Hydrogen Peroxide on the Surface of Europa. *Science* 283: 2062-2064.
- Hendrix, A. R., C. A. Barth, C. W. Hord, A. L. Lane 1998. Europa: Disk-Resolved Ultraviolet Measurements using the Galileo Ultraviolet Spectrometer. *Icarus* 135: 79-84.

### **Selected Mission Studies Membership**

- ASTRO-1 Requirements Team (ART), 2015-2016

- Asteroid Retrieval Mission (ARM) Formulation Assessment and Support Team (FAST) 2015
- Jovian System Orbiter (JSO) Science Definition Team, 2007
- Europa Orbiter of the Jupiter Joint Science Definition Team (JJSDT), Deputy Study Scientist (February 2008-April 2009)

### **Professional Societies, Committees, Service**

- science editor, Icarus journal, Jan 2022-•
- co-chair, National Academies Committee on Planetary Protection, 2020-
- HST cycle 29 TAC, chair of solar system panel, 2021
- JWST cycle 1 solar system panel, 2021
- NASA Planetary Protection Independent Review Board member, 2019
- NASA Senior Review panel member, May 6-8 2019
- SOC, 2019 MOP meeting
- Ceres Science Definition Team, 2018
- Science with HabEx community workshop, Oct 2018
- HST TAC Cycle 26, Oct 2018
- AAS Strategic Assembly Steering Committee 2018-
- DPS Vice Chair, 2018-2019, DPS Chair 2019-2020, DPS Past Chair, 2020-2021
- LPSC SOC, 2018
- SOC, Boulder Cassini Symposium 2018
- DPS Federal Relations Subcommittee, 2017-
- JWST Users Committee, 2017-2022
- National Academies Committee on the Review of Progress Toward Implementing the Decadal Survey Vision and Voyages for Planetary Sciences, 2017
- HST Europa Advisory Committee, 2017
- Outer Planets Assessment Group (OPAG) steering committee, 2016-
- Roadmaps to Ocean Worlds (ROW) co-chair, 2016-
- Enceladus and the Icy Moons of Saturn Meeting SOC, 2016
- Outer Planets Assessment Group (OPAG) steering committee, 2016-
- Roadmaps to Ocean Worlds (ROW) co-chair, 2016
- PDS Small Bodies Node review panel, 2015
- Barth Symposium program committee, 2015
- JWST Solar System Observers Advisory Panel (SSOAP)
- DPS 2016 LOC
- American Geophysical Union (AGU) member
- American Astronomical Society (AAS), Division of Planetary Sciences (DPS) member
- International Astronomical Union (IAU) member
- Magnetospheres of the Outer Planets (MOP) 2013 Science Organizing Committee
- DPS 2012 Science Organizing Committee (SOC) member
- LPSC 2012 Program Committee (2009, 2012)
- AGU Fall meeting special session organizer and chair (e.g., 2007, 2012, 2013, 2014...)
- DPS 2010 Meeting Local Organizing Committee (chair) & SOC member
- London Cassini icy satellites meeting co-organizer (July 2009)
- Icarus special issue “Cassini at Saturn” guest editor (2009)
- NASA proposal reviewer (numerous programs)



- AAS Congressional Visits Day, DPS representative, March 4-5 2008
- NOAO Solar System TAC May 2008-May 2010
- LRO LAMP PDS Review panel October – November 2007
- AAS/DPS Nominating Subcommittee October 2007-2010
- Hubble Space Telescope proposal review panel, 2003, 2007, 2010.
- DPS 2006 meeting SOC & LOC member
- AGU Index Terms Committee (2004) - Planetary Sciences representative

### **Honors and Awards**

- 2019 Global Scholar in Residence, Holy Innocents' Episcopal School, Atlanta
- 2018, Minor Planet 6813 Amandahendrix
- JPL Lew Allen Award for Excellence, 2006
- JPL Section 317 Award for Excellence, 2005 (Cassini Science Planning leadership)
- NASA-ASEE Summer Faculty Fellowship, 1999
- Patricia Roberts Harris Fellowship, 1993-1995
- California Pre-Doctoral Fellowship, 1991

### NASA Group Achievement Awards:

2/10/1995 Galileo Ida Encounter/Dactyl Discovery Team  
 5/5/2008 Cassini Education and Public Outreach Team  
 4/16/2009 Cassini Magnetosphere Target Working Team  
 4/16/2009 Cassini Titan Orbiter Science Team  
 4/16/2009 Cassini Rings Target Working Team  
 4/16/2009 Cassini Satellite Orbiter Science Team  
 4/16/2009 Cassini Ultraviolet Imaging Spectrograph Team  
 4/16/2009 Cassini Saturn Tour Flight Team  
 5/11/2010 The Lunar Reconnaissance Orbiter (LRO) Team  
 6/30/2011 Cassini Solstice Pre-Integration Team  
 6/2/2015 The LRO Extended Science Mission Team

### Cassini-Huygens Project Certificates of Appreciation:

Cassini Science Planning Virtual Team leadership  
 Cassini Probe Support (Probe Relay Activity)  
 Cassini Satellite Orbiter Science Team  
 Enceladus Plume Working Group leadership (7/2007)  
 CHARM telecon management (5/2008)  
 SOST and Icy Satellites Working Group leadership (3/2010)  
 Cassini Senior Review Proposal Team (6/2014)

### Cassini-Huygens Project Certificates of Recognition:

Cassini Science Planning leadership  
 Cassini integrated science plan  
 Cassini TOST integration

## **Recent Selected Seminars, Public Talks, Outreach Activities**

Future In-Space Operations (FISO) Seminar, Feb 9 2022, "Evaluation of Planetary Protection Bioburden Requirements for Mars Lander Missions."

Goddard Engineering Colloquium, Jan 31 2022, "Let's Live on Titan!"

Cork (Ireland) Astronomy Club talk, Jan 20 2022, "Rethinking Planetary Protection Strategies for Robotic Mars Missions."

Longmont (CO) Astronomical Society, "Small Bodies in our Solar System" (Oct 21 2021)

Denver University Summer Enrichment Series, "The Cassini Mission at Saturn and Titan... and Titan as a Destination for Humans" (Sept 29 2021)

Week of May 17, 2021, eclipse lessons for 5th graders at Holy Innocents Episcopal School (Atlanta, GA)

May 14, 2021, create and organize "space exploration" component for Expanding a Dynamic and Gifted Education (EDGE) day at Almaden Country Day School (San Jose, CA)

Junior Job Shadowing (Central Catholic Jr/Sr High School) (Apr 26 2021)

Weekly Space Hangout with Fraser Cain (April 19 2021)

Interview/filming for "The Asteroid Rush" docuseries (Mar 26 2021)

Central Coast New Tech High zoom chat with Advanced Physics students (Mar 22 2021)

Chabot Space and Science Center, "Water on the Moon?" (Mar 6 2021)

Interview for Fiske Planetarium podcast (Feb 22 2021)

November 10 2020, invited colloquium, Penn State Geoscience, "Using UV Spectroscopy to Study Solar System Worlds"

October 9 2020, Women in Space Exploration talks series, "Highlights from the Cassini Mission at Saturn and Titan," Pacific International Space Center for Exploration Systems, Hawaii

Sept 26 2020, International Observe the Moon Night, NASA TV panel discussion

BYU Radio interview for The Lisa Show, July 31 2020

March 31 2020, invited presentation at SSB/CAPS meeting on Enceladus NF missions

Feb 25 2020, invited talk, CLASS seminar, UCF

Organizer, Boulder County Planetary Scientists outreach at Boulder County Farmers Markets (2019, 2021)

Dec 5, 2019, Northern Colorado Astronomical Society, "Ocean Worlds in the Solar System"

July 18, 2019, Apollopalooza at Wings over the Rockies Museum (Denver)

June 25 2019, Astronomy on Tap talk (Water on the Moon), Gunbarrel Brewing

June 20, 2019, Boulder Prep talk on Cassini mission

May 13, 2019 Friends of Lunar Volatiles talk on LAMP hydration results

May 1, 2019, invited panel member for NAS/SSB meeting on lunar science

"Ocean Worlds," 18 April 2019, Longmont Astronomical Society, Longmont

April 13-14 2019, Museum of Flight, Destination Moon kickoff weekend, Water on the Moon talks

April 1-5, 2019 Global Scholar in Residence, Holy Innocents' Episcopal School, Atlanta

March 27 2019, Weekly Space Hangout

March 13, 2019, interview with BBC radio on lunar water results

Frasier Meadows (Boulder retirement community) talk (Cassini's Grand Finale), Feb 27 2019

Fort Collins Book Fest Oct 20 2018

Junior Scholastic opinion piece on Should NASA Send Humans to Mars

Astronomy on Tap talk (Cassini's Grand Finale), Gunbarrel Brewing Sept 25 2018

Coal Creek Canyon Skywatcher talk Sept 22 2018

Don't Panic Geocast, recorded July 30 2018

Rocky Mountain Star Stare talk June 16 2018

Altona Middle School summer session on career planning June 13, 2018

Ocean View Middle School Google Hangout June 6, 2018

Dawson school visit April 11, 2018

Science Friday Q&A March 27 2018

Dawson school visit March 15 2018

Talk Nerdy podcast February 2018

Denver Museum talk Feb 13 2018

IHeartRadio interview Feb 9 2018

New Scientist phone interview Jan 29 2018

NPR blog post, Oct 16 2017. Confession Of A Planetary Scientist: 'I Do Not Want To Live On Mars'

The Cassini Mission Comes to an End, UT San Antonio Department of Physics and Astronomy seminar, 29 Sept 2017

“Farewell to Cassini,” Fiske Planetarium, Sept 21-22 2017

Mead High talk: Cassini & Titan Energy options, Sept 20 2017

Colorado Public Radio interview, Sept 13, Colorado Matters, on end of Cassini mission

Dubois WY eclipse talk Aug 20 2017

“The Cassini Mission Comes to an End in 2017,” 15 August 2017, Powderkeg Brewery, Niwot

IPPW-14 short course, June 10 2017: Plumes talk; Colonization of Titan talk

Numerous presentations, late 2016-2017, covering Beyond Earth

Mead Middle School 8<sup>th</sup> grade science classes, 15-16 May 2017, Cassini mission

“UV Characteristics of Ices,” 12 May 2017, Rosetta Alice webinar

Cassini CHARM telecon, The Fabulous Five Flybys of Small Moons During the F Ring Orbits,” 25 April 2017

“The Cassini Mission Comes to an End in 2017,” 20 April 2017, Longmont Astronomical Society, Longmont

Oregon Episcopal School visit, 7 April 2017, Cassini mission

“Icy Satellite Surfaces: New Insights from UV Spectroscopy,” 17 March 2017, Southwest Research Institute, San Antonio

“The Cassini Mission Comes to an End,” 2 February 2017, Northern Colorado Astronomical Society, Fort Collins

Invited keynote talk, “Far-UV Albedo: Diurnal Variations in Hydration and a Probe for the Lunar Cryosphere,” Microsymposium 57, “Polar Volatiles on the Moon and Mercury: Nature, Evolution and Future Exploration,” Houston, March 2016

“New Insights into Solar System Surfaces using Ultraviolet Spectroscopy,” Southwest Research Institute, Boulder, 13 October 2015.

“Ultraviolet Spectroscopy of Moons in the Solar System,” Charles Barth Memorial Symposium, May 2015

“Ultraviolet Spectroscopy of Solar System Moons,” Freie Universitaet Geokolloquium, June 2014

“Ultraviolet Spectroscopy of Solar System Moons,” LASP Seminar, Oct 2013

“Revisiting the Wet Moon,” The Planetary Report (radio interview + article), June 2013

“Lunar Exploration: From the Apollo Era to the Future,” 2013 Kepler Lecture, Mt. San Antonio College, April 11 2013.

“Titan, Enceladus and the Other Moons of Saturn,” AAAS meeting invited talk, Feb 15 2013, Boston

“Multi-Wavelength Observations of Saturn's Icy Moons,” UCF Physics Dept. colloquium, Feb 17 2012, Orlando

“Saturn's Icy Moons: Understanding the Effects of Exogenic Processes,” UCF planetary seminar, Feb 17 2012, Orlando

“New Light on the Moon: Charting Lunar Ice with LRO-LAMP,” National Space Society's LA Chapter, Nov 13 2010, Long Beach