

KURT D. RETHERFORD

Institute Scientist

Department of Space Research, Space Science Division, Southwest Research Institute
Adjoint Professor in Department of Physics & Astronomy, University of Texas at San Antonio

Ph.D., Physics & Astronomy, The Johns Hopkins University, 2002

M.S., Physics, The Johns Hopkins University, 1997

B.S., Applied Math Engineering & Physics, University of Wisconsin - Madison, 1994

Dr. Retherford is a planetary scientist specializing in the use of space-based UV observations to study planetary atmospheres and surfaces. Areas of expertise include lunar volatiles, atmospheres, exospheres, aurora, plasma environment interactions, surface reflectance mapping, surface composition, and volatile transport related planetary processes. These investigations span from the Moon, Mars, Ceres, Psyche, Io, Europa, Ganymede, Callisto, and the Jupiter system, to Pluto, Charon, Arrokoth and the interstellar medium. He has technical expertise in areas of UV spectrograph instrument development, mission science operations planning, Raman spectrograph and UV detector technology development studies, vacuum laboratory investigations, and both ground- and space-based observational astronomy programs. Recent efforts are expanding into both astrobiology and exoplanetary studies.

Mission activities include PI on the Europa Clipper Ultraviolet Spectrograph (UVS), PI on the LRO Lyman Alpha Mapping Project (LAMP), PI on JUICE-UVS, CoI on Mars Express SPICAM, and New Horizons Encounter Team and Alice instrument team member. Earlier mission activities include Project Scientist on a Mars Scout 2013 Phase A Concept Study (TGE), and (as a graduate student) team memberships on the Far Ultraviolet Spectroscopic Explorer (FUSE) and Space Telescope Imaging Spectrograph (STIS). Dr. Retherford has been PI and CoI on numerous guest investigator and other observational astronomy programs using several NASA facilities, including the Hubble Space Telescope (HST; PI of program 13805 and large program 17470), the James Webb Space Telescope (JWST; PI of program 4565), Gemini-South, and the Infrared Telescope Facility (IRTF). He developed a vacuum-UV chamber for planetary volatile reflectivity studies, led a Planetary Instrument Design Development program (PIDDP) to develop UV sensitive CMOS detectors, and presently leads a Development of Advanced Lunar Instrumentation (DALI) program to develop a Raman deep-UV visible spectrograph for lunar volatile investigations. He has experience with several instrument and mission design studies, the latest of which focus on integrating cavity enhanced deep-UV Raman spectroscopy.

As an Adjoint Prof. in the University of Texas at San Antonio (UTSA) Dept. of Physics & Astronomy he mentors grad students, leads courses and lectures in Planetary Sciences, Ionospheres, and Exoplanets, and is a full faculty member. His leadership and management approach emphasizes improving diversity, equity, inclusion, and accessibility.

PROFESSIONAL CHRONOLOGY: Undergraduate Researcher, University of Wisconsin - Madison, 1991-95; Research and Teaching Assistant, The Johns Hopkins University, 1995-2002; Postdoctoral Researcher, Southwest Research Institute, 2002-2004; Research Scientist, SwRI 2004-2007; Senior Research Scientist, SwRI 2007-2012; Principal Scientist, SwRI 2012-2016; Staff Scientist SwRI 2016-2022; Planetary Sciences Section Manager 2017-2020; Sr. Program Manager-R&D 2022-2024; Institute Scientist 2024-present. University of Texas at San Antonio, Department of Physics & Astronomy: Adjoint Professor, 2015-present.

MEMBERSHIPS: AAS Division for Planetary Sciences (DPS), Europlanet Society (EPS), American Geophysical Union (AGU), European Geophysical Union (EGU), SPIE, American Association for the Advancement of Science (AAAS), and The Planetary Society.

RECENT COMMUNITY SERVICE:

- AAS/DPS – EPSC 2023 Meeting Local Organizing Chair Oct. 1-6, 2023
- AAS/DPS Federal Relations Subcommittee (FRS) Officer Oct. 2016 – 2022

- AAS Committee on Astronomy and Public Policy (CAPP) Oct. 2016 – Present
- AAS/DPS Federal Relations Subcommittee (FRS) member 2014 – 2016, 2022-Present.
- Lead/Co-Lead for 4 Science Meetings and member of 6 Science/Local Organizing Committees.
- Participated in 24 NASA and NSF Proposal Review Panels (1 as Chair)
- Refereed 40 Papers (Outstanding Reviewer *Icarus*, 2016; Acknowledgements for review of top downloaded and/or cited AGU article, 2020)

AWARDS: UTSA Running to Ph.D. Faculty Recognition Award 2020. NASA SMD Planetary Science Division Early Career Fellow 2008. 13 Group Achievement Awards.

MENTORSHIP: 22 Undergraduate Researchers, 10 Full Graduate Students (6 currently), and 6 Postdocs.

RECENT PUBLIC OUTREACH, LECTURES, EDUCATION, AND DIVERSITY EVENTS:

- TheResearchRoomSA Student Talk Show, 2026 June 1
- NPR Politics Podcast timestamp about Europa Clipper launch, 2024 October 15
- Technology Today Podcast on Europa Clipper <https://www.swri.org/podcast/ep71>, 2024 September 16
- San Antonio Teacher Training Astronomy Academy lecture, 2024 July 15
- Solar Eclipse at Pedernales Cellars, Stonewall, TX, 2024 April 8
- Europa Clipper Public Engagement & Education Outreach, San Juan, Puerto Rico, 2023 November 10
- San Antonio Museum of Science And Technology STEMclipse event, 2023 October 14
- Astronomy on Tap San Antonio Speaker – Space Policy Brought Down to Earth, 2023 April 5
- San Antonio Philharmonic Exhibitor for Holst's The Planets, 2022 November 18
- Tech Bloc Facebook Live Speaker (S.A.'s Growing Role in Off-Planet Exploration), 2020 August 6
- UTSA Pre-freshman Engineering Program (PREP) Guest Lecturer 2019 July 16
- San Antonio College Staff Development Day Keynote Address 2019 May 24
- Astronomy on Tap San Antonio contributor, 2019 Witte Museum event Expert
- Conference on Undergraduate Women in Physics 2019 panelist, Corpus Christy, TX, 2019 Jan. 18-20
- Astronomy on Tap San Antonio contributor ("In the News" segment), 2018 several events
- Alamo City Comic Con Exhibitor and Panel Leader, San Antonio, TX, 2018 Oct. 26-28
- Taste of Science San Antonio – Super Blue Blood Moon, San Antonio, TX, 2018 Jan. 31
- Alamo City Comic Con Exhibitor, San Antonio, TX, 2017 Oct. 27-29
- Taste of Science San Antonio Kickoff – Moons, Storms, & Toys in Space, San Antonio, TX, 2017 Sept. 12
- Scobee Planetarium Solar Eclipse Event, SAC, San Antonio, TX, 2017 Aug. 21

EXAMPLE RECENT PUBLICATIONS:

175 total (134 peer reviewed, 41 proceedings/notes/white-papers): 6 first authored, 19 second authored, and 29 third authored peer-reviewed. <https://orcid.org/my-orcid?orcid=0000-0001-9470-150X>

More at <https://scholar.google.com/citations?hl=en&user=bh2fxq8AAAAJ> (H-Index 46, i10-Index 115)

Roth, L., **K. D. Retherford**, J. Saur, and 13 coauthors, "Europa's Lyman- α emissions from HST/STIS observations, *Astronomy & Astrophysics*," 709, A59 <https://doi.org/10.1051/0004-6361/202659406>, 2026.

Gladstone, G. R., J. M. Shull, W. R. Pryor, J. Slavin, J. A. Kammer, T. M. Becker, T. R. Lauer, M. Postman, J. R. Spencer, J. Wm. Parker, **K. D. Retherford**, and 14 coauthors "The Ly α sky as observed by New Horizons at 57 AU," *The Astronomical Journal*, 169:275, doi:10.3847/1538-3881/adc000, 2025

Velez, M. A., **K. D. Retherford**, L. Roth, T. M. Becker, V. Hue, J. A. Kammer, Space Telescope Imaging Spectrograph Observations of Europa's Optical Aurora, *Res. Notes AAS* 9 192, 2025.

Retherford, K. D., T. M. Becker, M. A. Freeman, G. R. Gladstone, T. K. Greathouse, 24 coauthors and the Europa-UVS Team, "Europa Ultraviolet Spectrograph (Europa-UVS)," *Space Sci Rev* 220:89, <https://doi.org/10.1007/s11214-024-01121-x>, 2024.

Magaña, L. O., **K. D. Retherford**, and 14 coauthors, "LRO-LAMP Survey of Lunar South Pole Cold Traps: Implication for the Presence of Condensed H₂O," *JGR: Planets*, doi:10.1029/2022JE007301, 2022.

Mandt, K.E., O. Mousis, D. Hurley, A. Bouquet, K.D. Retherford et al. "An Exogenic Origin for the Volatiles Sampled by the LCROSS Impact," *Nature Communications*, 13, 642, doi:10.1038/s41467-022-28289-6, 2022.

Becker, T.M., N. Cunningham, P.M. Molyneux, L. Roth, L.M. Feaga, K.D. Retherford et al. "HST UV Observations of Asteroid (16) Psyche", *Planetary Science Journal*, 1:53, <https://doi.org/10.3847/PSJ/abb67e>, 2020.

The AAS/DPS and other professional societies are playing an increasingly important role in defending science against unprecedented federal funding cuts. I'm very passionate about the advocacy role I've played in the DPS since 2014 as member of the Federal Relations Subcommittee (FRS). I've led and participated in dozens of Hill Visits (~2/year), interacting with Congress, NASA, NSF, and White House (OMB, OSTP) personnel to communicate the importance of planetary science to our nation, serving as FRS Chair/Officer from 2016-2022 and coordinating with The Planetary Society. If elected as DPS Vice Chair, I would work to endow another full-time position like the [John Bahcall Public Policy Fellowship](#), as this science advocacy requires more help.

I would also strive for more inclusion of DPS members in broader AAS society roles, as I have gained full appreciation of everything the AAS provides behind the scenes in my role as the DPS liaison to the [Committee on Astronomy and Public Policy](#) since 2016. For example, our DPS subcommittees (professional culture & climate, education, environmental affairs, etc.) would benefit from working more closely with those parallel within AAS, being stronger together.

If elected, I would continue to increase the appeal of the DPS meeting for scientists who typically attend the Lunar and Planetary Science Conference, offering that same sense of community and effective communication for the full range of planetary science topics. As the Principal Investigator (PI) of the Lunar Reconnaissance Orbiter Lyman Alpha Mapping Project and the developer of a DALI-funded Lunar Raman Spectrograph, I've encouraged many of my lunar science colleagues to attend DPS meetings, as the DPS has grown broadly in interdisciplinary areas beyond traditional astronomy.

I'll work hard to continue the strong collaboration between DPS and Europlanet Society. As the lead organizer for the 2023 AAS/DPS – Europlanet Science Congress ([EPSC](#)) meeting in San Antonio I have a full understanding of the importance of annual DPS meetings for both scientific advancement and our organization's finances. My involvement as Ultraviolet Spectrograph (UVS) instrument PI for both the Jupiter Icy Moons Explorer and Europa Clipper missions routinely supports my interaction with European colleagues, including EPSC meetings.

If elected, I would support early career researchers by diversifying meeting networking opportunities. I will enable grad student members still looking for jobs to remain on the DPS newsletter, offering an onramp back into the field through its postdoc announcements. I've mentored almost two dozen undergraduates, and as Adjoint Professor at UTSA, I've mentored over a dozen graduate students, making this issue close to heart for me.

I'm committed to advancing our shared values of diversity, equity, inclusion, and accessibility for the betterment of our community, especially now that related programming is no longer NASA funded. If elected, I would further our professional culture & climate subcommittee efforts with dedicated workshops and forums to evolve previous efforts in new formats. I'm thankful for the opportunity to serve our community by expanding our advocacy capacity and supporting our members in this challenging time.