

Sarah M. Hörst

Assistant Professor
Department of Earth and Planetary Sciences
Hopkins Extreme Materials Institute (HEMI)
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Education

The University of Arizona , Tucson, AZ	2011
PhD in Planetary Sciences	
Dissertation: Post-Cassini Investigations of Titan Atmospheric Chemistry	
California Institute of Technology , Pasadena, CA	2004
BS in Planetary Science with honors	
BS in Literature with honors	
Additional Training	
NASA JPL Planetary Science Summer School- Project Manager for Trojan and Centaur reconnaissance mission concept	2009
Center for Astronomy Education Legacy Teaching Excellence Workshop Participant	2011
University of Hawai'i Astrobiology NASA-Nordic Winter School	2014
Johns Hopkins University SafeZone Training	2016
Step UP! Bystander Intervention Facilitator Training	2017

Positions Held

Assistant Professor, Johns Hopkins University	2014-Present
Department of Earth and Planetary Sciences	
Hopkins Extreme Materials Institute Fellow	
NSF Astronomy and Astrophysics Postdoctoral Fellow, University of Colorado	2011-2014
Supervisor: Margaret A. Tolbert	
Experimental investigation of the effect of oxygen bearing molecules on the formation and composition of planetary atmospheric aerosols (HR-ToF-AMS, SMPS, PIT-MS)	
Graduate Research Assistant, The University of Arizona	2005-2011
Advisor: Roger V. Yelle	
Titan photochemical modeling	
Titan aerosol analogues ("tholins")	
Visiting Student, Laboratoire de Planétologie de Grenoble	2008-2011
Collaborators: Roland Thissen, Véronique Vuitton, Odile Dutuit, Didier Voisin	
Titan tholin high resolution mass spectrometry (ESI-Orbitrap)	
Contractor, NASA Jet Propulsion Laboratory	2004-2005
Supervisor: Ashwin R. Vasavada	
Investigations of Saturn's southern hemisphere winds and vortices (Cassini ISS data)	
Undergraduate Research Assistant, California Institute of Technology	2001-2003
Advisor: Michael E. Brown	
Iterative blind deconvolution (IDAC) of Galilean satellite images	
Investigation of magnesium around Io and Europa (analysis of HST-FOS data)	
Ground-based observations of clouds on Titan	

Teaching Experience

Johns Hopkins University (* indicates course is team taught)	
AS.270.114 Guided Tour of the Planets* (Undergraduate)	Spring 2017
AS.270.366 Spacecraft Instrumentation Project* (Undergraduate, new course)	Spring 2017

AS.270.423 Planetary Atmospheres (Undergraduate/Graduate, new course)	Spring 2016
AS.270.662 Seminar in Planetary Science (Undergraduate/Graduate, new course)	Fall 15, 17, Spring 16, 17
AS.270.316 Planets (Undergraduate, new course)	Fall 2015
AS.270.630 Physics and Chemistry of Aerosols (Graduate, new course)	Spring 2015, Fall 2017
European Research Course on Atmospheres (Winter School)	
Instructor (2 lectures)	Spring 2014
University of Colorado	
Guest Lecturer (2 lectures) ASTR 3720 Planets and Their Atmospheres	Spring 2014
Guest Lecturer (1 lecture) ASTR 3720 Planets and Their Atmospheres	Spring 2012
The University of Arizona	
Guest Lecturer (1 lecture) NATS 102 Universe and Humanity: Origin and Destiny	Spring 2010
Guest Lecturer (4 lectures) PTYS 206 The Golden Age of Planetary Exploration	Fall 2009
Teaching Assistant NATS 102 The Universe and Humanity: Origin and Destiny	Fall 2009
Teaching Assistant NATS 101 Planet Earth: Evolution of a Habitable World	Spring 2008
California Institute of Technology	
Teaching Assistant Ge 1 Earth and the Environment	Spring 2004

Students and Postdoctoral Scholars

Undergraduate Students

Sydney Riemer (Senior, Earth and Planetary Sciences, 2015-2017)
Mira Sobhy (Senior, Earth and Planetary Sciences, 2016-2017)

Graduate Students

Bryné Hadnott (1st year, Earth and Planetary Sciences, 2017-Present)
Sarah Moran (Co-advising with Darryn Waugh) (2nd year, Earth and Planetary Sciences 2016-Present)
Kristin Showalter Sotzen (2nd year, Earth and Planetary Sciences, 2016-Present)
Michael Radke (2nd year, Earth and Planetary Sciences, 2016-Present)
Joseph Serigano (3rd year, Earth and Planetary Sciences, 2015-Present)
Xinting Yu (4th year, Earth and Planetary Sciences, 2014-Present)

Postdocs and Research Scientists

Chao He (Blaustein Postdoctoral Scholar, Earth and Planetary Sciences, 2014-Present)

Grants, Fellowships, and Selected Competitive Observing Proposals

Institutional Lead (Co-I), NASA Solar System Exploration Research Virtual Institute “Project ESPRESSO: Exploration Science Pathfinder Research for Enhancing Solar System Observations” (\$766,770 to JHU, 5 yrs) (PI Alex Parker)	2017-2022
PI, NASA Astrophysics Research and Analysis Program, “Laboratory Exploration of Exoplanet Hazes in Preparation for JWST” (\$507,345, 3 yrs)	2017-2020
Co-I, NASA Cassini Data Analysis Program, “Trace organic volatiles in Titan’s lower atmosphere: Re-interpretation of Huygens/GCMS data” (3 yrs) (PI Melissa Trainer)	2017-2019
Co-I, NASA K2 Guest Observer Cycle 4, “Monitoring Solar System Ocean Worlds: Activity on Enceladus and Titan.” (PI Alex Parker)	2017-2018
Co-I, ALMA Cycle 4, “The Origin of Titan’s Oxygen.” (PI Nicholas Teanby)	2016
Co-I, SPACE@Hopkins, “Simulating Ice Regolith in the Outer Solar System” (\$24,990, 1 yr) (PI Michael Mellon)	2016
PI, NASA Exoplanet Research Program, “Exploring Cool and Hazy Exoplanets in the Laboratory” (\$149,955, 2 yrs)	2016-2017
PI, NSF Astronomy and Astrophysics Postdoctoral Fellowship, “The Molecules of Life: Incorporation of Oxygen into Planetary Atmospheric Hazes” (\$257,000, 3 yrs)	2011-2014
NASA Earth and Space Science Fellowship (\$90k)	2008-2011

Spacecraft Mission Involvement

Co-I on Oceanus mission proposed to NASA New Frontiers 4	2017-Present
Co-I on Dragonfly mission proposed to NASA New Frontiers 4	2016-Present
Co-I on Enceladus Life Finder (ELF) mission proposed to NASA New Frontiers 4	2016-Present
Academic lead for the Student Collaboration Experiment on Deep Atmosphere Investigation of Noble gases, Chemistry, and Imaging (DAVINCI) selected for Discovery 2015 Phase A	2015-2017
Co-I on Io Volcano Observer (IVO) mission proposed to NASA Discovery 2015	2015
Co-I on SPace Environment and Composition Investigation near the European Surface (SPECIES) Mass Spectrometer proposal to NASA Europa Instrument Investigation (selected for further technology development)	2014

Honors and Awards

Johns Hopkins University Catalyst Award (includes \$75k)	2017
National Academy of Sciences Kavli Fellow	2012
Named to “Highly Qualified” Group for NASA’s 2013 Astronaut Candidate Selection	2012
University of Arizona Gerard P. Kuiper Memorial Award	2011
University of Arizona Departmental Excellence in Scholarship Award	2010
Peter B. Wagner Memorial Award for Women in Atmospheric Sciences	2009
University of Arizona Departmental Outstanding Mentor/Teaching Assistant Award	2008
University of Arizona Spring PTYS Outstanding Teaching Assistant Award	2008
National Science Foundation Graduate Research Fellowship Honorable Mention	2006
University of Arizona Galileo Circle Scholarship	2006
California Institute of Technology Summer Undergraduate Research Fellowship Richter Scholar	2002

Outreach

Lead organizer of teacher training workshops concurrent with DPS annual meetings

Title TBD, Provo, UT	October 2017
“Journey to the Outer Worlds”- 50 K-12 teachers, Pasadena, CA	October 2016
“Revising the Solar System: Exploring Worlds Formerly Known as Planets”- 16 K-12 teachers, National Harbor, MD	Nov 2015
“Small Worlds: Big Discoveries”- 15 K-12 teachers, Tucson, AZ	Nov 2014
“Weathering the changes: Mars through time”- 35 K-12 teachers, Denver, CO	October 2013
“Life on Mars?”- 10 K-12 teachers, Reno, NV	October 2012
Worked with JHU SABES Master Teachers on content for the Earth/Space Science STEM Academy	Fall 2015

Public presentations

Adler After Dark “Planetary Prom”, Adler Planetarium, Chicago, IL	May 2017
Guilford Technical Community College, Jamestown, NC (NC Science Festival)	April 2016
Northern Virginia Astronomy Club	Dec 2015
George Mason Observatory	March 2015
Northern Colorado Astronomical Society	April 2014
Planetary Society Hangout “Talking Titan with Sarah Hörst”	Dec 2012
Tucson Amateur Astronomers Association	June 2011
Virtual Seminar- University of Central Arkansas Physics Club	Nov 2013

K-12 presentations and activities

40 MS/HS students in Johns Hopkins’ Center for Talented Youth (virtual)	June 2017
30 MS/HS students in Johns Hopkins’ Center for Talented Youth	July 2015
30 8 th graders at Newtown Friends School in Middletown, PA (virtual)	May 2015
30 8 th graders at Beaumont Middle School in Fayette, KY (virtual)	April 2015
30 MS students in Johns Hopkins’ Center for Talented Youth (virtual)	July 2014
30 MS/HS students in Johns Hopkins’ Center for Talented Youth Saudi Arabia (virtual)	June 2014
30 8 th graders at Newtown Friends School in Middletown, PA (virtual)	Dec 2013
55 3 rd graders at Oakwood Elementary School in Hickory, NC (virtual)	Dec 2013
50 9-12 th grade girls “Girls Lead the Way” conference in Golden, CO	Feb 2013

Cub scout den in Vinton, IA (virtual)	January 2013
20 7 th /8 th graders at Flagstaff Academy in Longmont, CO	October 2011
25 7 th graders at The Pilgrim School in Los Angeles, CA	October 2010
Recorded “Jobs in Space” video distributed to ~300 museums and planetariums	June 2016
Selected Press Interviews	
Baltimore Sun (Print/Web)	May 2017
Nature, EOS, The Atlantic (Web)	April 2017
Now.Space (web, http://now.space/posts/interview-with-sarah-horst-planet-doctor-and-titan-evangelist)	Oct 2016
BBC The Sky at Night “Pluto Revealed” (TV)	July 2015
Smithsonian.com, Washington Post, io9 (Print/Web)	July 2015
610 KONA Tri Cities, WA (Radio)	July 2015
Spacegeeks Podcast	June 2015
BBC Science in Action (Radio)	June 2014
BBC World Have Your Say (TV)	Dec 2013
BBC World Have Your Say (Radio)	Dec 2013
610 KONA Tri Cities, WA (Radio)	October 2013
Cosmic Front special on Titan (NHK-TV Japan’s public broadcasting network) (TV)	October 2012
Sky and Telescope, Discover Magazine, Arizona Daily Star, Science@NASA, The Christian Science Monitor, Nature, NPR, National Geographic, Science News (Print/Web)	Fall 2010
Social Media	
Tweeting planetary science and life of a scientist at @PlanetDr (~29,000 followers June 2017)	
Curated @astrotweeps rotating Twitter account (https://storify.com/astrotweeps/feb-17-23-2014-sarah-horst-s-week-on-astrotweeps)	Feb 2014
Social media manager (Twitter and Facebook) for DPS Professional Development Committee (@DPSdevelopment)	2010-2015
Leadership and Service	
National/International	
National Academy of Sciences Space Studies Board Committee on Astrobiology and Planetary Science (CAPS)	2016-Present
Division for Planetary Sciences Professional Culture and Climate Subcommittee	2016-Present
Division for Planetary Sciences Education and Public Outreach Subcommittee	2015-Present
International Outer Planets Watch Committee	2015-Present
“Comparative Climatology of Terrestrial Planets 3” Science Organizing Committee	2016-2018
“BDEXOCON 2017” Science Organizing Committee	2017
NASA Europa Lander Science Definition Team	2016-2017
“Titan Through Time 4” Science Organizing Committee	2016-2017
“Ocean Worlds 2” Science Organizing Committee	2016
“Linking Exoplanet and Disk Compositions” Science Organizing Committee	2016
Science Advisory Group for 2016 NASA Europa Lander Study	2015-2016
Organizing Committee 17 th Kavli Frontiers in Science Chinese-American Symposium	2015-2016
Division for Planetary Sciences 2015 Meeting Science Organizing Committee	2015
Division for Planetary Sciences Professional Development Subcommittee	2010-2015
Organizing Committee 16 th Kavli Frontiers in Science Chinese-American Symposium	2013-2014
Convener “Titan’s Enigmatic Atmosphere and Ionosphere” Fall AGU	2014
AGU Outstanding Student Paper Award Judge	2011-2014
Keck Institute for Space Studies “Future Missions to Titan: Science and Engineering Challenges” Study Participant	2010
Review Panel Member for NASA Outer Planets Research Program (2), NASA Planetary Atmospheres Program, NASA Earth and Space Sciences Fellowship (NESSF) Program (Chair), NSF Astronomy and Astrophysics Grant Program	
External Grant Reviewer (Multiple years for almost all programs) for NASA Outer Planets	

Research Program (OPR), NASA Exoplanets Research Program (XRP), NASA Solar System Workings Program (SSW), NASA Cassini Data Analysis Program (CDAPS), NASA Postdoctoral Program (NPP), NASA Emerging Worlds (EW) Program, NASA Earth and Space Sciences Fellowship (NESSF) Program, Graduate Women in Science (GWIS) Fellowship Program, NSF Astronomy and Astrophysics Grant Program	
Reviewer for Astrobiology (3), Icarus (12), Planetary and Space Science (6), Astronomy and Astrophysics (1), Earth and Planetary Science Letters (3), JGR- Space Physics (1), Nature Communications (1), Astrophysical Journal (1)	
Reviewer for Comparative Climatology of Terrestrial Planets book chapter	2013
Reviewer for National Academy of Sciences Report	2017
Johns Hopkins University	
Planets, Life, and the Universe Lecture Series Organizing Committee	2015-Present
Department of Earth and Planetary Sciences Curriculum Committee	2014-Present
Zelicof Dinner with Undergraduates	May 2017
Bloomberg Distinguished Professor of Exoplanets Search Committee	2014-2016
Graduate Board Oral Examination (GBO) external member	
Bin Ren, Physics and Astronomy, Spring 2017	
Schuyler Wolff, Physics and Astronomy, Fall 2014	
Department Qualifying Exam member	
Chi Yan (Spring 2017), Joseph Serigano (Spring 2017), Mariah Baker (Spring 2017), Jamie Miller (Spring 2016), Xinting Yu (Spring 2016), Xiaokang Wu (Spring 2015)	
Guest lectures	
Intersession French Course 2015 (Instructor Kristin Cook-Gailloud), Spring 2015 Chem 030.371: "Chemistry for Connoisseurs" (Instructor JD Tovar), Planets, Life and the Universe Fall 2015, Planets Life and the Universe Fall 2016	
<u>Invited Seminars and Colloquia</u>	
Adler Planetarium, Chicago, IL	May 2017
University of California Santa Cruz, Astronomy Colloquium, Santa Cruz, CA	May 2017
University of Colorado, Astrophysical and Planetary Sciences, Boulder, CO	February 2017
Penn State, Center for Exoplanets and Habitable Worlds, State College, PA	January 2017
University of Maryland, Department of Geology, College Park, MD	November 2016
Johns Hopkins University, Department of Environmental Health and Engineering	October 2016
Arizona State University, SESE, Tempe, AZ	April 2016
University of Virginia/NRAO, Charlottesville, VA	April 2016
University of Maryland, Department of Astronomy, College Park, MD	March 2016
Carnegie Department of Terrestrial Magnetism, Washington, DC	December 2015
University of Toledo, Physics and Astronomy, Toledo, OH	October 2015
McGill University, McGill Space Institute, Montreal, Canada	September 2015
NASA Goddard Space Flight Center, Solar System Exploration, Greenbelt, MD	June 2015
Applied Physics Laboratory, SRE, Laurel, MD	April 2015
Cornell University, Department of Astronomy, Ithaca, NY	April 2015
Harvard University, Center for Astrophysics Colloquium, Boston, MA	April 2015
Johns Hopkins University, Physics and Astronomy, Baltimore, MD	October 2014
Southwest Research Institute, Boulder, CO	April 2014
University of Denver, Physics and Astronomy, Denver, CO	March 2014
University of California Santa Cruz, CODEP, Santa Cruz, CA	March 2014
University of Colorado, LASP, Boulder, CO	December 2013
Texas A&M University, Atmospheric Sciences, College Station, TX	November 2013
Purdue University, Earth, Atmospheric, and Planetary Sciences, West Lafayette, IN	October 2013
Johns Hopkins University, Bromery Lecture, Earth and Planetary Sciences, Baltimore, MD	April 2013
Georgia Institute of Technology, Earth and Atmospheric Sciences, Atlanta, GA	February 2013
California Institute of Technology, Kliegel Lectures in Planetary Science, Pasadena, CA	January 2013

NASA Goddard Space Flight Center, Goddard Scientific Colloquium, Greenbelt, MD	November 2011
Institut de Planétologie et d'Astrophysique de Grenoble, Grenoble, France	June 2011
Planetary Science Institute, Tucson, AZ	March 2011
Southwest Research Institute, Boulder, CO	March 2011
NASA Astrobiology Institute Icy Satellites Environments Focus Group, Virtual Seminar	December 2010
Desert Research Institute, Reno, NV	August 2009

Invited Panel Participant

Career Panel, AbGradCon	June 2017
“What does the Future of Space Research Look Like?”, Space@Hopkins Symposium	Nov 2016
“Planets in Perspective: Where’s the Energy”, Astrobiology Science Conference	June 2015
“Social Media Forum”, Fall Meeting of the American Geophysical Union	December 2014

Skills

Language	English (native), French (proficient)
Computer	IDL, FORTRAN 90/95, Python, IGOR
Laboratory	HR-ToF-AMS, QAMS, SMPS, ESI/LDI-FTICR, ESI-Orbitrap, PIT-MS, QMS

Professional Affiliations

Division for Planetary Sciences of the American Astronomical Society
 American Geophysical Union

Popular Science Writing

Clouds and haze and dust, oh my!, The Planetary Society, 24 March 2016.
 What in the world(s) are tholins?, The Planetary Society, 23 July 2015 (and March 2016 Planetary Report).
 Probing Titan’s Atmosphere, The Planetary Society, 26 August 2013.
 Doing a science on Titan, The Planetary Society, 15 May 2013.

Invited Conference Presentations

Hörst, S.M. “Solar System and Laboratory Studies of Haze.” Opportunity M, 2016.
Hörst, S.M. “Hazes: Models vs. Reality.” Exoclines, 2016. (Invited Review)
Hörst, S.M. “The Effect of Carbon Monoxide on Planetary Haze Formation.” The Brown Dwarf to Exoplanet Connection Conference, 2014.
Hörst, S.M. “Haze Formation in Planetary Atmospheres: Lessons from the Lab.” AAS Laboratory Astrophysics Division, 2014. (Invited Review)
Hörst, S.M. “Titan Photochemistry and Aerosols.” Titan Through Time 3, 2014. (Invited Review)
Hörst, S.M., Yelle, R.V., Buch, A., Carrasco, N., Cernogora, G., Dutuit, O., Quirico, E., Sciamma-O’Brien, E., Smith, M.A., Somogyi, A., Szopa, C., Thissen, R., and V. Vuitton. “Formation of Prebiotic Molecules in a Titan Atmosphere Simulation Experiment.” EOS Trans. AGU, 91(26), Meet. Am. Suppl., Abstract P34A-01, 2010.

Technical Non-Refereed Publications

[1] Hand, K.P., Murray, A.E., Garvin, J.B., Brinckerhoff, W.B., Christner, B.C., Edgett, K.S., Ehlmann, B.L., German, C.R., Hayes, A.G., Hoehler, T.M., **Horst, S.M.**, Lunine, J.I., Nealson, K.H., Paranicas, C., Schmidt, B.E., Smith, D.E., Rhoden, A.R., Russell, M.J., Templeton, A.S., Willis, P.A., Yingst, R.A., Phillips, C.B., Cable, M.L., Craft, K.L., Hofmann, A.E., Nordheim, T.A., Pappalardo, R.P., and the Project Engineering Team. “Report of the Europa Lander Science Definition Team.” 2017.

Refereed Publications

Citations from researcherid.com ID A-9906-2010, accessed 6/28/2017
 Total Publications: 21 (7 First Author), H-index: 9, Total Citations: 363
 (Google Scholar H-index: 11, i10-index: 11, Total Citations: 524)

‡Hörst group undergraduate student *Hörst group graduate student †Hörst group Postdoc

- [21] **Hörst, S.M.**, Yoon, Y.H., Parker, A.H., Li, R., de Gouw, J., and M.A. Tolbert. “Laboratory Investigations of Titan Haze Formation: In Situ Measurement of Gas and Particle Composition.” *Submitted to Icarus*.
- [20] *Yu, X., **Hörst, S.M.**, [†]He, C., Bridges, N.T., Burr, D.M., Sebree, J.A., and Smith, J.K. “The Effect of Adsorbed Liquid and Material Density on Saltation Threshold: Insight from Laboratory and Wind Tunnel Experiments.” *Icarus*, 297, 97-109, doi:10.1016/j.icarus.2017.06.034, 2017.
- [19] [†]He, C., **Hörst, S.M.**, [‡]Riemer, S., Sebree, J.A., Pauley, N., and V. Vuitton. “Carbon Monoxide Affecting Planetary Atmospheric Chemistry.” *Astrophysical Journal Letters*, 841: L31, doi:10.3847/2041-8213/aa74cc, 2017.
- [18] **Hörst, S.M.** “Titan’s atmosphere and climate.” *JGR Planets*, 122, 3, 432-482, doi:10.1002/2016JE005240, 2017. (**Invited review for the 25th anniversary issue of JGR Planets**)
- [17] Trammell, H.J., Li, L., Jiang, X., Pan, Y., Smith, M.A., Bering, E.A., **Hörst, S.M.**, A.R. Vasavada. Ingersoll, A.P., Janssen, M.A., West, R.A., Porco, C.C., Cheng, L., Simon, A.A., and K.H. Baines. “Vortices in Saturn’s Northern Hemisphere (2008-2015) Observed by Cassini ISS.” *JGR Planets*, 121(9), 1814-1826, doi:10.1002/2016JE005122, 2016.
- [16] **Hörst, S.M.** and M.A. Tolbert. “The Effect of Carbon Monoxide on Planetary Haze Formation.” *Astrophysical Journal*, 781, 53, doi:10.1088/0004-637X/781/1/53, 2014. (6 citations)
- [15] Trammell, H.J., Li, L., Jiang, X., Smith, M.A., **Hörst, S.M.**, Vasavada, A.R. “The Global Vortex Analysis of Saturn Based on Cassini Imaging Science Subsystem.” *Icarus*, 242, 122-126, doi:10.1016/j.icarus.2014.07.019, 2014. (3 citations)
- [14] Cable, M.L., **Hörst, S.M.**, He, C., Stockton, A.M., Mora, M.F., Tolbert, M.A., Smith, M.A., and P.A., Willis. “Identification of Primary Amines in Titan Tholins using Nonaqueous Microchip Capillary Electrophoresis.” *Earth and Planetary Science Letters*, 403, 99-107, doi:10.1016/j.epsl.2014.06.028, 2014. (10 citations)
- [13] Yelle, R.V., Mathieux, A., Morrison, S., Vuitton, V. and **Hörst, S.M.** “Perturbation of the Mars Atmosphere by the Near-Collision with Comet C/2013 A1 (Siding Spring).” *Icarus*, 237, 202-210, doi: 10.1016/j.icarus.2014.03.030, 2014. (15 citations)
- [12] Yoon, Y.H., **Hörst, S.M.**, Hicks, R.K., Li, R., deGouw, J.A., and M.A. Tolbert. “The Role of Benzene Photolysis in Titan Haze Formation.” *Icarus*, 233, 233-241, doi:10.1016/j.icarus.2014.02.006, 2014. (9 citations)
- [11] **Hörst, S.M.** and M.A. Tolbert. “In Situ Measurements of Size and Density of Titan Aerosol Analogs.” *Astrophysical Journal Letters*, 770, L10, doi:10.1088/2041-8205/770/1/L10, 2013. (7 citations)
- [10] Bonnet, J.-Y., Thissen, R., Frisari, M., Vuitton, V., Quirico, E., Orthous-Daunay, F.-R., Dutuit, O., Le Roy, L., Fray, N., Cottin, H., **Hörst, S.M.**, and R.V. Yelle. “Structure and composition of HCN polymer through high resolution mass spectrometry.” *International Journal of Mass Spectrometry*, 345-355, 193-203, doi: 10.1016/j.ijms.2013.06.015, 2013. (9 citations)
- [9] Nixon, C.A., Teanby, N.A., Irwin, P.G.J., and **S.M. Hörst**. “Upper limits for PH₃ and H₂S in Titan’s atmosphere.” *Icarus*, 224 (1), 253-256, doi:10.1016/j.icarus.2013.02.024, 2013. (5 citations)
- [8] **Hörst, S.M.** and M.E. Brown. “A Search for Magnesium in Europa's Atmosphere.” *Astrophysical*

Journal Letters, 764, L28, doi:10.1088/2041-8205/764/2/L28, 2013. (2 citations)

- [7] Cable, M.L., **Hörst, S.M.**, Hodyss, R.P., Beauchamp, P.M., Smith, M.A., and P.A. Willis. “Titan Tholins: Simulating Titan Organic Chemistry in the Post Cassini-Huygens Era.” 112, (3), 1882-1909, *Chemical Reviews*, 2012. (71 citations)
- [6] **Hörst, S.M.**, Yelle, R.V., Buch, A., Carrasco, N., Cernogora, G., Quirico, E., Sciamma-O’Brien, E., Smith, M.A., Somogyi, A., Szopa, C., Thissen, R., and V. Vuitton. “Formation of Amino Acids and Nucleotide Bases in a Titan Atmosphere Simulation Experiment.” *Astrobiology*, 12, 9, doi:10.1089/ast.2011.0623, 2012. **(Featured on cover)** (37 citations)
- [5] Lunine, J.I. and **S.M. Hörst**. “Organic chemistry on the surface of Titan” *Rend. Fis. Acc. Lincei*, 22:183–189, doi:10.1007/s12210-011-0130-8, 2011. (5 citations)
- [4] Yelle, R.V., Vuitton, V., Lavvas, P., Klippenstein, S.J., Smith, M.A., **Hörst, S.M.**, and J. Cui. “Formation of NH₃ and CH₂NH in Titan’s upper atmosphere.” *Faraday Discussion*, 147, doi:10.1039/C004787M, 2010. (34 citations)
- [3] Wall, S.D., Lopes, R.M., Stofan, E.R., Wood, C.A., Radebaugh, J.L., **Hörst, S.M.**, Stiles, B.W., Nelson, R.M., Kamp, L.W., Janssen, M.A., Lorenz, R.D., Lunine, J.I., Farr, T.G., Mitri, G., Paillou, P., Paganelli, F. and K.L. Mitchell. “Cassini RADAR images at Hotei Arcus and western Xanadu, Titan: Evidence for geologically recent cryovolcanic activity.” *Geophys. Res. Lett.*, 36, L04203, doi:10.1029/2008GL036415, 2009. (41 citations)
- [2] **Hörst, S. M.**, Vuitton, V., and R.V. Yelle. “Origin of oxygen species in Titan’s atmosphere.” *J. Geophys. Res.* 113, E10, E10006, doi:10.1029/2008JE003135, 2008. **(Research highlight in Nature Geoscience)** (60 citations)
- [1] Vasavada, A.R., **Hörst, S.M.**, Kennedy, M.R., Ingersoll, A.P., Porco, C.C., Del Genio, A.D., and R.A. West. “Cassini Imaging of Saturn: Southern Hemisphere Winds and Vortices.” *J. Geophys. Res.* 111 E5, E05004, doi:10.1029/2005JE002563, 2006. (49 citations)

Selected Conference Proceedings

(~ 70 total, a complete list can be found at www.sarahhorst.com)

*indicates Hörst Group Member

Vuitton, V., Carrasco, N., Fladinet, L., **Hörst, S.**, Klippenstein, S., Lavvas, P., Orthous-Daunay, F.-R., Quirico, E., Thissen, R., and R.V. Yelle. “Titan’s Oxygen Chemistry and its Impact on Haze Formation.” DPS-EPSC, 515.09, 2016.

*Yu, X., **Hörst, S.M.**, He, C., Bridges, N., Burr, D., and J. Sebree. “Quantifying Density, Water Adsorption, and Equilibration Properties of Wind Tunnel Materials.” DPS-EPSC, 425.03, 2016.

†He, C. and **S.M. Hörst**. “Carbon Monoxide Affecting Planetary Atmospheric Chemistry.” DPS-EPSC, 424.06, 2016.

Meinke, B.K., Jackson, B., Buxner, S., Hörst, S., Brain, D., and N.M. Schneider. “DPS Discovery Slide Sets for the Introductory Astronomy Instructor.” DPS-EPSC, 419.01, 2016.

Yelle, R., Vuitton, V., Lavvas, P., Klippenstein, S., and **S. Hörst**. “Coupled Nitrogen, Oxygen, Carbon, and Ion Chemistry on Titan.” Titan Aeronomy and Climate Workshop, 2016.

Vuitton, V., Carrasco, N., Fladinet, L., **Hörst, S.M.**, Klippenstein, S., Lavvas, P., Orthous-Dunay,

- F.-R., Thissen, R., and Yelle, R. "Titan's Oxygen Chemistry and its Impact on Haze Formation." Titan Aeronomy and Climate Workshop, 2016.
- Burr, D.M., Nield, E., Emery, J.P., Bridges, N.T., Marshall, J., Smith, J., Kok, J., *Yu, X., and **Hörst, S.M.** "Experimental (wind tunnel) investigations into aeolian entrainment: application to extraterrestrial environments." 32nd International Meeting of Sedimentology, 2016.
- *Yu, X., **Hörst, S.M.**, †He, C., Bridges, N.T., and D.M. Burr. "Quantifying water content and equilibration timescale of wind tunnel materials." LPSC, 2016.
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