

Sarah M. Hörst

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Hopkins Extreme Materials Institute (HEMI)	sarah.horst@jhu.edu
Johns Hopkins University	www.sarahhorst.com
Adjunct Astronomer, Space Telescope Science Institute	she/her/hers

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	
ADVANCEGeo Train the Trainer Workshop	2020
Best Practices in University Teaching	2018
Step UP! Bystander Intervention Facilitator Training	2017
Johns Hopkins University SafeZone Training	2016
University of Hawai'i Astrobiology NASA-Nordic Winter School	2014
Center for Astronomy Education Legacy Teaching Excellence Workshop Participant	2011
NASA JPL Planetary Science Summer School- Project Manager for Trojan and Centaur reconnaissance mission concept	2009

Positions Held

Associate Professor, Johns Hopkins University	2021-Present
Department of Earth and Planetary Sciences	
Hopkins Extreme Materials Institute Fellow	
Adjunct Astronomer, Space Telescope Science Institute	2018-Present
Assistant Professor, Johns Hopkins University	2014-2020
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 was team taught)	
AS.270.396 Special Topics in Planetary Exploration “Geology in the Outer Solar System”* (Undergraduate, new course)	S20
AS.270.675 Communication for Scientists (Graduate, new course)	S19, S22
AS.270.114 Guided Tour of the Planets* (Undergraduate)	S17
AS.270.366 Spacecraft Instrumentation Project* (Undergraduate, new course)	S17
AS.270.423 Planetary Atmospheres (Undergraduate/Graduate, new course)	S16, 18, 20 F21
AS.270.662 Seminar in Planetary Science (Undergraduate/Graduate, new course)	F15, 17, 19-22 S16-22
AS.270.316 Planets (Undergraduate, new course)	F15
AS.270.630 Physics and Chemistry of Aerosols (Graduate, new course)	S15, F17, S21
Independent studies/research (Mira Sobhy (Fall 2017, Spring 2018), Taiki Asunuma (Spring 2018), Lindsey Wisner (Fall 2018))	
Senior Thesis (Eric Chan Fall 2017-Spring 2018)	
European Research Course on Atmospheres (Winter School)	Spring 2014
Instructor (2 lectures)	
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 Instructor (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

Current Hörst Group Members

Undergraduate Students

Stella Hong
Sarp Kayabas

Graduate Students

Cara Pesciotta (1st year, Earth and Planetary Sciences, 2022-Present)
Victoria Da Poian (2nd year, Earth and Planetary Sciences, 2022-Present)
Kristin Showalter Sotzen (7th year, Earth and Planetary Sciences, 2016-Present)
Michael Radke (7th year, Earth and Planetary Sciences, 2016-Present)

Postdocs and Research Scientists

Dr. Ben K.D. Pearce (Earth and Planetary Sciences, Banting Postdoctoral Fellow, 2021-Present)
Dr. Chao He (何超) (Earth and Planetary Sciences, Blaustein Postdoctoral Scholar (2014-2017), Assistant Research Scientist (2017-2020), Associate Research Scientist (2020-Present))

Former Hörst Group Members

Undergraduate Students

Ashley Walker (Chemistry, Chicago State University, 2018-2019)
Eric Chan (BA Earth and Planetary Sciences, BS Chemistry 2018, Senior Thesis 2017-2018)
Mira Sobhy (BA Earth and Planetary Sciences 2018, 2016-2017)
Sydney Riemer (BA Earth and Planetary Sciences 2018, 2015-2017)

Graduate Students

Dr. Joseph Serigano (PhD Earth and Planetary Sciences 2021, 2015-2021, Postdoctoral Scholar 2021-2022)

Now a Climate Financial Data Analyst at MSCI Inc.

Dr. Sarah Moran (PhD Earth and Planetary Sciences 2021, 2016-2021)

Now the Director's Postdoctoral Fellow at the University of Arizona Lunar and Planetary Laboratory

Dr. Xinting Yu (余馨婷) (PhD Earth and Planetary Sciences 2019, 2014-2019)

Now an Assistant Professor at University of Texas San Antonio

Bryné Hadnott (MA Earth and Planetary Sciences 2019, 2017-2019)

Chelsea Conrad (Hopkins Extreme Materials Intern, Maryland Institute College of Art (MICA), 2020)

Amy Wetsch (Hopkins Extreme Materials Intern, Maryland Institute College of Art (MICA), 2018-2019)

Postdocs and Research Scientists

Dr. Marcella Yant (Roth) (Earth and Planetary Sciences, Postdoctoral Fellow 2018-2020)

Now a research scientist at Lockheed Martin

Grants, Fellowships, and Selected Competitive Observing Proposals

Co-I, NSF Astronomy and Astrophysics Grant, "Graphite Haze Formation in sub-Neptune Atmospheres within the Graphite-stability Regime." (\$528,717, 3 years) (PI Chao He, JHU)	2022-2025
PI, Scialog, "Enceladus Plume Chemistry: From Lab to Telescope." (\$50,000, 2 years)	2022-2024
Co-I, HEMI Seed Grant "Spectral signature of prebiotic molecules in Titan's surface materials." (\$25,000, 1 year) (PI Chao He, JHU)	2022-2023
Co-I, Space@Hopkins "Electrification of Titan Sand Materials" (\$24,900, 1 year) (PI Chao He, JHU)	2022-2023
Co-I, NASA Cassini Data Analysis Program "Comparing the material properties of Titan aerosols and laboratory-made aerosol analogs." (\$212,911 to JHU, 3 years) (PI Xinting Yu, UCSC)	2022-2025
PI (as advisor), NASA Future Investigators in NASA Earth and Space Science and Technology Program "Laboratory Investigations of Venus Aerosol Analogs" (\$90,000, 2 yrs) (Student: Michael Radke)	2021-2023
Collaborator, NASA Cassini Data Analysis Program "Understanding surface material on Titan." (\$48,117 to JHU, \$11,137 to the Hörst Group, 3 yrs) (PI Julie Brisset, University of Central Florida)	2021-2024
Co-I, NASA Exobiology Research Program "Do sulfur isotope signatures in sedimentary pyrite record a major transition in Earth's geochemical cycles associated with the rise of eukaryotic algae." (\$463,518 to JHU, \$8129 for Co-I Hörst, 3 yrs) (PI Maya Gomes, JHU)	2021-2023
Co-I, NASA Exoplanet Research Program "Laboratory Exploration of Hazes in the Atmospheres of the Rocky Planets around M-dwarfs." (\$367,964 to JHU, 3 yrs) (PI Chao He, JHU)	2020-2022
PI, NASA Cassini Data Analysis Program "Investigating the Composition of Saturn's Upper Atmosphere and Rings from Cassini INMS measurements." (\$305,251, 3 yrs)	2019-2022
PI (as advisor), NASA Earth and Space Science Fellowship Program "Determining the Role of Hazes in the Atmospheres of Temperate Planets in M-Dwarf Systems" (\$135,000, 3 yrs) (Student: Sarah Moran)	2018-2021
PI (as advisor), NASA Earth and Space Science Fellowship Program "Characterization of tholins in aqueous media: implications for detecting prebiotic molecules on Titan's surface" (\$45,000, 1 yr) (Student: Bryné Hadnott)	2018-2020
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, SwRI)	2017-2023
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	2017-2019

atmosphere: Re-interpretation of Huygens/GCMS data” (\$131,021 to JHU, 3 yrs) (PI Melissa Trainer, NASA GSFC)	
Co-I, NASA K2 Guest Observer Cycle 4, “Monitoring Solar System Ocean Worlds: Activity on Enceladus and Titan.” (\$16,614 to JHU, PI Alex Parker, SwRI)	2017-2018
PI, Johns Hopkins University Catalyst Award “Planets in a Bottle: Exploring Planetary Atmospheres in the Lab” (\$75,000, 1 yr)	2017
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, 3 yrs)	2016-2018
PhD advisor of partially funded graduate student (Joseph Serigano), NASA Outer Planets Research Program, “Titan Photochemical Model-data Ion Density Discrepancies- What’s Missing?” (\$66,727 to JHU, 2 yrs) (PI Kathy Mandt, APL)	2016-2017
PhD advisor of partially funded graduate student (Xinting Yu), NASA Outer Planets Research Program, “Aeolian Sediment Transport and Landscape Modification on Titan) (\$58,130 to JHU, 4 yrs) (PI Nathan Bridges, then Olivier Barnouin, APL)	2015-2019
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 “Post-Cassini Investigations of Titan Atmospheric Chemistry.” (\$90k)	2008-2011

Spacecraft Mission Involvement

Academic lead for the Student Collaboration Experiment on NASA Discovery mission Deep Atmosphere Investigation of Noble gases, Chemistry, and Imaging (DAVINCI)	2020-Present
Co-I on NASA New Frontiers 4 mission Dragonfly	2016-Present
Co-I on Io Volcano Observer (IVO) mission selected for Discovery 2019 Phase A	2018-2021
Co-I on Oceanus mission proposed to NASA New Frontiers 4	2017
Co-I on Enceladus Life Finder (ELF) mission proposed to NASA New Frontiers 4	2016-2017
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

Scialog Fellow – Search for Life in the Universe	2022
Johns Hopkins University President’s Frontier Award (includes 250k)	2022
American Geophysical Union Fellow	2020
James B. Macelwane Medal from the American Geophysical Union	2020
Laboratory Astrophysics Division of the American Astronomical Society Early Career Award	2020
Johns Hopkins University Catalyst Award (includes \$75k)	2017
National Academy of Sciences Kavli Fellow	2012, 2014, 2016, 2019
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	2002

Scholar

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

American Astronomical Society
Laboratory Astrophysics Division of the American Astronomical Society
Division for Planetary Sciences of the American Astronomical Society
American Geophysical Union
American Chemical Society

Outreach

The Choice Program at UMBC Career Fair (virtual) 2020
Collaborated on an art show “Lateral Distance” with Amy Wetsch 2018
Coordinated summer work opportunities for 5 Baltimore City THREAD students 2018

Lead organizer of teacher training workshops concurrent with DPS annual meetings

“Journey to the Outer Worlds”- 17 K-12 teachers, 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

Discover lecture, University of Nevada Reno, Reno, NV Dec 2022
Cambridge Astronomical Association, Virtual June 2022
American Museum of Natural History Frontiers Lecture, Virtual Jan 2021
George Mason Observatory, Virtual Dec 2020
McGill Space Institute “Climate and Habitability of Terrestrial Planets”, Virtual Oct 2020
Skype a Scientist Families Edition, Virtual April 2020
Astronomy on Tap on the Couch, Virtual April 2020
Institut de recherche sur les exoplanètes Grande Conférence, Montreal, Canada October 2019
McMaster University, Hamilton, Ontario, Canada June 2019
Adler After Dark “Planetary Prom”, Adler Planetarium, Chicago, IL May 2019
Skype a Scientist Live, live streaming on YouTube March 2019
SXSW “From Dust to Dinos...and Back Again!”, Austin, TX March 2019
SXSW “All These Worlds are Yours”, Austin, TX March 2018
Adler After Dark “Saturn Saloon”, Adler Planetarium, Chicago, IL Sept 2017
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 interview with Denison University Geology of the Solar System Class April 2018
Virtual Seminar- University of Central Arkansas Physics Club Nov 2013
“Scientist” participant in The Planetary Society reception at the Library of Congress “After Oct 2017

Cassini: What's Next for the Outer Planets?"

K-12 presentations and activities

Young Stars Program, Virtual to Australia and New Zealand	Nov 2020
Helped Brownie Troop with Space Science Adventurer Badge, Catonsville, MD	Nov 2019
100 K12 students from Alberta, Ontario, CA, and MI Exploring by the Seat of Your Pants (virtual)	Oct 2019
20 MS students at University of Virginia's "Girls Exploring the Universe" Summer Camp (virtual)	July 2019
35 MS/HS students in Johns Hopkins Center for Talented Youth	June 2019
100 HS students Mount Saint Joseph High School, Baltimore, MD	April 2018
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/Coverage

Scientific American (Print/web)	April 2022
New York Times (Print/web)	Dec 2021
The Atlantic (web)	June 2021
Space Curious (podcast)	Dec 2020
Scholastic News	Nov 2020
BBC The Sky at Night (TV)	Oct 2020
Smart Athlete Podcast	Dec 2019
ASK magazine	Nov 2019
Scientific American (web)	July 2019
BBC Science Focus (Print/web)	July 2019
Voice of America (web)	June 2019
KOMO News Seattle, WA (Radio)	June 2019
Profile in Quanta Magazine "The scientist who cooks up the skies of faraway worlds"	April 2019
Planetary Radio (podcast)	March 2019
Nature (web)	Jan 2019
Forbes (web)	Dec 2018
How on Earth Radio	Dec 2018
KOMO News Seattle, WA (Radio)	Nov 2018
Exocast Episode 29b (Podcast)	October 2018
Two episodes (Saturn, Pluto) of "Space's Deepest Secrets" (TV)	April 2018
Space.com, Syfy Wire (web)	April 2018
The Nib "Are we alone in the universe?" comic	April 2018
SciShow Space (https://www.youtube.com/watch?v=AYhHAFUmLew)	March 2018
BBC, Smithsonian, Seeker (web)	March 2018
New Scientist	Feb 2018
Chemistry World (UK Royal Society of Chemistry) (web)	Jan 2018
Nature (web)	Nov 2017
Discover Magazine (Print)	Nov 2017
Syfy (Web)	Sept 2017

KOMO News Seattle, WA (Radio) Sept 2017
EOS, Wendel, J. “The weird, wonderful science behind Titan’s atmosphere”, *Eos*, 100, Sept 2017
<https://doi.org/10.1029/2017EO082037>. (Print/Web)
Popular Science, Mashable, National Geographic (Web) Sept 2017
NPR “1A” (Radio/Podcast) Sept 2017
“The Living Universe” documentary and feature length film Sept 2017
National Geographic, The Atlantic, Popular Mechanics, EOS, Washington Post (web) July 2017
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

Ask a NASA Scientist “are there rivers and lakes on other worlds?” Nov 2022
Tweeting planetary science and life of a scientist at @PlanetDr (~65,000 followers Nov 2021)
Reddit Science AMA (Ask Me Anything), archived at doi:10.15200/winn.150607.77505 Sept 2017
Curated/hosted “Saturn week” @realscientists rotating Twitter account (56k followers) Sept 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

Popular Science Writing

“Alien ‘Earth’ Nextdoor.” Sky and Telescope, February, 2019.
“Dear Huygens.” National Geographic, Jan. 14, 2019.
“Titan’s Atmosphere: Identifying the chemical precursors for life.” The Planetary Society, September 2017 Planetary Report.
“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.

Leadership and Service

National/International

Bystander Intervention Training Workshops Facilitator
2022 Dragonfly Team, 2022 Johns Hopkins University Earth and Planetary Sciences, 2020 Carnegie Observatories, 2019 UT Austin Jackson School of Geosciences, 2018 Southwest Research Institute (SwRI) Boulder, 2018 Division for Planetary Sciences Meeting (x2), 2018 Johns Hopkins Applied Physics Laboratory (x2), 2018 Lunar and Planetary Science Conference (LPSC), 2017 Meeting of the American Geophysical Union (AGU)
AGU Planetary Sciences Section Secretary 2023-Present
Astronomy and Astrophysics Advisory Committee (AAAC) 2022-Present
AGU College of Fellows Mentoring Committee 2021-Present

Created and maintain database of open graduate student positions in planetary science	2018-Present
Eos Earth and Space Science News Editorial Advisory Board	2017-2022
National Academy of Sciences Space Studies Board Committee on Astrobiology and Planetary Science (CAPS)	2016-2022
AAS Laboratory Astrophysics Division Prize Committee	2020
PhD Jury for Jan Vantant D'Ollone of Sorbonne University	Spring 2020
AAS-AGU steering committee on Promoting Interdisciplinary Research on Exoplanets (PIREX)	2018-2019
Division for Planetary Sciences Professional Culture and Climate Subcommittee	2016-2020
International Outer Planets Watch Committee	2015-2019
Division for Planetary Sciences 2018 Meeting Local Organizing Committee	2018
“Comparative Climatology of Terrestrial Planets 3” Science Organizing Committee	2016-2018
Division for Planetary Sciences Education and Public Outreach Subcommittee	2015-2017
American Geophysical Union Outstanding Student Paper Award Judge	2017
“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
American Geophysical Union 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), NASA Astrobiology Institute, NSF Astronomy and Astrophysics Grant Program, NSF CAREER Program, NASA Cassini Data Analysis 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, NSF CAREER Program	
Reviewer for Astrobiology, Icarus, Planetary and Space Science, Astronomy and Astrophysics, Earth and Planetary Science Letters, JGR- Space Physics, Nature Communications, Astrophysical Journal, Nature Astronomy, Astrophysical Journal Letters, Planetary Science Journal, PNAS, Geophysical Research Letters	
Reviewer for Comparative Climatology of Terrestrial Planets book chapter	2013
Reviewer for National Academy of Sciences Report	2017
Johns Hopkins University	
Department of Earth and Planetary Sciences Admissions Committee	2021-2022
Director of the HEMI/MICA Extreme Arts Program	2021-Present
Department of Earth and Planetary Sciences COVID Reopening Coordinator	2020-2021
Department of Earth and Planetary Sciences Director of Graduate Studies	2019-Present
Muller Access Committee	2017
Planets, Life, and the Universe Lecture Series Organizing Committee	2015-Present
Department of Earth and Planetary Sciences Curriculum Committee	2014-2022
Zelicof Dinner with Undergraduates	May 2017
Bloomberg Distinguished Professor of Exoplanets Search Committee	2014-2016
Graduate Board Oral Examination (GBO) external member	
Erwin Tanin (Physics and Astronomy, Fall 2022), John Piorowski (Physics and Astronomy, Spring 2022),	

Yuanze Luo (Physics and Astronomy, Fall 2021), Carrie Fillion (Physics and Astronomy, Fall 2020), Brian Welch (Physics and Astronomy, Fall 2019), Qifeng Jiang (Chemistry, Summer 2019), Erini Lambrides (Physics and Astronomy, Spring 2018), Bin Ren (Physics and Astronomy, Spring 2017), Schuyler Wolff (Physics and Astronomy, Fall 2014)

Graduate Board Oral Examination (GBO) Internal Member

Michael Radke (Spring 2022), Sarah Moran (Spring 2020), Kristin Showalter Sotzen (Spring 2020), Joseph Serigano (Fall 2018), Mariah Baker (Spring 2018), Xinting Yu (Fall 2017)

Department Qualifying Exam Member

Junellie Gonzalez Quiles (Fall 2022), Leafia Sheraden Cox (Fall 2022), Elle Hanson (Spring 2022), Jacob Shultis (Spring 2022), Mayuri Sadhasivan (Spring 2020), Rui Jin (Spring 2020), Bryné Hadnott (Spring 2019), Jeremy Sotzen (Spring 2018), Kristin Showalter Sotzen (Spring 2018), Michael Radke (Spring 2018), Sarah Moran (Spring 2018), Chi Yan (Spring 2017), Joseph Serigano (Spring 2017), Mariah Baker (Spring 2017), Jamie Miller (Spring 2016), Xinting Yu (Spring 2016), Xiaokang Wu (Spring 2015)

Graduate Student Committees

Junellie Gonzalez Quiles (2020-Present), Kabir Mohammed (2020-Present), Leafia Sheraden Cox (2020-Present), Elle Hanson (2020-Present), Mayuri Sadhasivan (2020-Present), Zafar Rustamkulov (2019-Present), Jacob Shultis (2019-Present), Bryné Hadnott (2017-2019), Sarah Moran (2016-2021), Chi Yan (2016-2021), Andrew Annex (2016-2022), Jeremy Sotzen (2016-2019), Kristin Showalter Sotzen (2016-Present), Michael Radke (2016-Present), Joseph Serigano (2015-2021), Mariah Baker (2015-2019), Xiaokang Wu (2014-2016), Jamie Miller (2014-Present), Haunting Hu (2014), Xinting Yu (2014-2019).

PhD Thesis Reader

Joseph Serigano (Summer 2021), Sarah Moran (Summer 2021), Xinting Yu (Spring 2019)

PhD Committee Member

Brian Welch (Spring 2022, JHU Physics and Astronomy), Kirsten Hall (Spring 2020, JHU Physics and Astronomy), Jonathan Aguilar (Fall 2019, JHU Physics and Astronomy)

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, 2016, 2017, 2020)

Invited Seminars and Colloquia

University of Wisconsin, Madison	Feb 2022
Brown University, Department of Earth, Environmental, and Planetary Sciences	Jan 2022
University of New Mexico, Earth and Planetary Sciences, Albuquerque, NM	Dec 2021
Lunar and Planetary Institute Seminar, Virtual	Oct 2020
MIT, Astrophysics Colloquium, Virtual	Sept 2020
Rice University, Earth, Environmental and Planetary Sciences, Houston, TX	Feb 2020
University of California, Irvine, Depts of Physics and Astronomy/Chemistry	Feb 2020
Carnegie Observatories, Pasadena, CA	Jan 2020
Michigan Tech University, Earth, Planetary and Space Science Seminar	Dec 2019
Ohio State University, Department of Astronomy Colloquium, Columbus, OH	Nov 2019
Harvard University, Center for Astrophysics Colloquium, Boston, MA	Nov 2019
University of Maryland Baltimore County, Dept. of Physics, Baltimore, MD	Oct 2019
Carnegie Department of Terrestrial Magnetism, Washington, DC	Oct 2019
Université de Montréal, Department of Astronomy, Montreal, Canada	Oct 2019
McMaster University, Origins Institute, Dept. of Physics and Astronomy, ON, Canada	June 2019
University of Wisconsin, Madison, Origins of Life, Artificial Life, and Astrobiology	May 2019
University of Wisconsin, Madison, Department of Astronomy Colloquium, Madison, WI	May 2019
University of California, Los Angeles, Earth, Planetary and Space Sciences Colloquium	April 2019
California Institute of Technology, Geological and Planetary Sciences Division Seminar	April 2019
Stony Brook University, Department of Geosciences, Stony Brook, NY	April 2019
Space Telescope Science Institute, Baltimore, MD	March 2019
University of Texas at Austin, Institute for Geophysics, Austin, TX	March 2019

Columbia University, Astronomy Colloquium, New York, NY	February 2019
Brown University, Department of Earth, Environmental, and Planetary Sciences	November 2018
Rutgers University, Department of Earth and Planetary Sciences, New Jersey	October 2018
Königstuhl Colloquium Signature Speaker, Max Planck Institute of Astronomy, Germany	October 2018
Johns Hopkins University, Planets, Life, and the Universe Lecture Series, Baltimore, MD	May 2018
Texas Christian University, School of Geology, Energy, and the Environment	April 2018
Boston University, Astrophysics Colloquium, Boston, MA	February 2018
University of Illinois at Chicago, Earth and Environmental Sciences, Chicago, IL	November 2017
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

“Community Outreach and Inclusion” National Academy of Sciences Committee on Astrobiology and Planetary Sciences	Sept 2019
“Planets Themselves” Kavli Foundation Future Exoplanet Research Symposium at the TESS Science Conference I	August 2019
“Using Social Media to Share your Science”, Lunar and Planetary Science Conference Career Panel, AbGradCon	March 2019 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

Invited Conference Presentations

- Hörst, S.M.** “Titan is Awesome.” Physics Congress, 2022.
- Hörst, S.M.** “Planets in a Bottle: Exploring Planetary Atmospheres in the Lab.” American Association of Physics Teachers, 2022.
- Hörst, S.M.** “Understanding Planetary Hazes Using Laboratory Experiments and Photochemical Models.” American Geophysical Union, 2021.
- Hörst, S.M.** “Planets in a Bottle: Exploring Planetary Atmospheres in the Lab.” AAS 236, 318.01, 2020. (Laboratory Astrophysics Early Career Prize Talk)
- Hörst, S.M.** “Exoplanet Atmospheres in a Bottle: Lessons from the Lab” Origins of Life Gordon Research Conference, 2020.
- Hörst, S.M.** “Exoplanet atmospheric modeling and experiments in the era of JWST”, American Geophysical Union, 2019.
- Hörst, S.M.,** He, C., Lewis, N., Moses, J., Kempton, E., McGuiggan, P., Marley, M., Morley, C., Valenti, J., Vuitton, V., and Yu, X. “Haze formation in the atmospheres of super-Earths and mini-Neptunes.” EPSC-DPS, 1095, 2019.
- Hörst, S.M.** “Photochemical Hazes.” Exoclines, 2019. (Invited review)
- Hörst, S.M.** “Planetary Atmospheres are Awesome.” National Academy of Sciences Kavli Frontiers in Science Symposium, 2019.
- Hörst, S.M.** “Laboratory astrophysics investigations supporting exoplanet exploration.” Laboratory Astrophysics Workshop at the meeting for the Division of Planetary Sciences, 2018.
- Hörst, S.M.** “Chemistry of Planetary Atmospheres.” ASTROCHEMISTRY: Discoveries to Inform the Chemical Sciences and Engineering Communities, National Academy of Sciences Chemistry Roundtable, Washington, DC, 2018.
- Hörst, S.M.** “The role of laboratory work in space science.” Astronomy X, Baltimore, MD, 2018.
- Hörst, S.M.** “Aromatic, Aliphatic, Enigmatic: The Chemistry of Titan.” Atom Probe Tomography and Microscopy Meeting, Banquet Speaker, 2018.
- Hörst, S.M.** “Titan’s Complex Chemistry: Insights from the Lab.” AAS Laboratory Astrophysics Division, AAS 232, 313.01, 2018. (Invited Review)
- Hörst, S.M.** “Modeling exoplanet atmospheric chemistry in the era of the James Webb Space Telescope.” Paper ID: 2856320, Division for Physical Chemistry, 255th National Meeting of the American Chemical Society, 2018.
- Cable, M.L. and **S.M. Hörst** (invited equally) “Titan and Pluto Tholins: Aerosols formed in the laboratory, benefits and pitfalls.” New Horizons Science Team Meeting/Workshop, 2018.
- Hörst, S.M.** “Organics and Ocean Worlds.” Abstract P44A-08, American Geophysical Union, 2017.
- Hörst, S.M.** “Aromatic, Aliphatic, Enigmatic: The Chemistry of Titan.” Division for Planetary Sciences Meeting, **Plenary Presentation**, 2017.
- 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.

Reports and Technical Non-Refereed Publications

- [7] National Academy of Sciences Committee on Astrobiology and Planetary Science (includes **Hörst, S.M.**) Consensus Study Report “Independent Review of the Community Report from the Biosignature Standards of Evidence Workshop” doi: 10.17226/26621, 2022.
- [6] National Academy of Sciences Committee on Astrobiology and Planetary Science (includes **Hörst, S.M.**) Consensus Study Report “Options for the Fifth New Frontiers Announcement of Opportunity.” doi:

10.17226/25868, 2020.

- [5] National Academy of Sciences Committee on Astrobiology and Planetary Science (includes **Hörst, S.M.**) Consensus Study Report “Review of the Commercial Aspects of NASA SMD’s Lunar Science and Exploration Initiative.” doi:10.17226/25374, 2019.
- [4] National Academy of Sciences Committee on Astrobiology and Planetary Science (includes **Hörst, S.M.**) Consensus Study Report “Review of the Planetary Science Aspects of NASA SMD’s Lunar Science and Exploration Initiative.” doi:10.17226/25373, 2019.
- [3] **Hörst, S.M.** “Titan’s Methane Lakes.” News and Views, *Nature Astronomy*, doi:10.1038/s41550-017-0244-8, 2017. (1 citation)
- [2] National Academy of Sciences Committee on Astrobiology and Planetary Science (includes **Hörst, S.M.**) Consensus Study Report “Getting Ready for the Next Planetary Science Decadal Survey.” doi:10.17226/24843, 2017.
- [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., **Hörst, S.M.**, Lunine, J.I., Nealon, 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. (80 citations)

Refereed Publications

ORCID 0000-0003-4596-0702

Citations from Google Scholar (accessed 1/2022)

Total Publications: 68 (9 First Author, 22 Second Author), H-index: 24, i10-index: 45, Total Citations: 2245

‡Hörst Group Undergraduate Student *Hörst Group Graduate Student †Hörst Group Postdoc/Research Scientist

Submitted

- [70] †Pearce, B.K.D., **Hörst, S.M.**, Sebree, J.A., and †C., He. “Organic hazes as a source of life’s building blocks to warm little ponds on the Hadean Earth.” *Submitted*, 2023.
- [69] †He, C., *Radke, M., Moran, S.E., **Hörst, S.M.**, Lewis, N.K., Moses, J.I., Marley, M.S., Kempton, E.M.-R., Morley, C.V., Valenti, J.A., and V. Vuitton. “Optical Properties of Organic Hazes in Water-rich Exoplanet Atmospheres: Implications for Observations with JWST.” *Submitted*, 2023.
- [68] *Da Poian, V., Theiling, B., Clough, L., McKinney, B., Major, J., Chen, J., and **S.M. Hörst**. “A Machine Learning Approach for Ocean Worlds Analog Mass Spectrometry: Exploratory Data Analysis (EDA)” *Submitted*, 2023
- [67] Gautier, T., †Serigano, J., Das, K., Coutelier, M., **Hörst, S.M.**, Szopa, C., Vinatier, S., and M. G. Trainer. “Reevaluation of methane mixing ratio in Titan’s lower atmosphere from Huygens/GCMS data.” *Submitted*, 2022.
- [66] Young, E.F., Barry, M.A., Buie, M.W., Carriazo, C., Caspi, A., Cole, A.A., Deforest, C.E., Drummond, J., French, R.G., Gault, R., Giles, A.B., Giles, D., Hartig, K., Hill, K.M, **Hörst, S.M.**, Howell, R.R., Hudson, G., Klein, V., Lavvas, P., Loader, B., Mackie, J.A., Nelson, M.J., Olkin, C.S., Register, J., Resnick, A.C., Rodgers, T., Sicardy, B., Skrutskie, M.F., Verbiscer, A., Wasserman, L.H., Watson, C.R., and L.A. Young. “Pluto’s evolving haze opacity from 2002-2015: correlation to solar activity.” *Resubmitted to Icarus*, 2021.

In press

- [65] Lunine, J.I., Tobie, G., **Hörst, S.M.**, and K. Mandt “The Origin and Evolution of Titan” in *Titan After*

Published

- [64] Moses, J.I., Brown, Z.L., Koskinen, T.T., Fletcher, L.N., †Serigano, J., Guerlet, S., Moore, L., Waite, J.H., Ben-Jaffel, L., Galand, M., Chadney, J.M., **Hörst, S.M.**, Sinclair, J.A., Vuitton, V., and I. Müller-Wodarg. “Saturn’s atmospheric response to the large influx of ring material inferred from Cassini INMS measurements.” *Icarus*, 391, 115328, doi:10.1016/j.icarus.2022.115328, 2023.
- [63] †He, C., †Serigano, J., **Hörst, S.M.**, *M. Radke, and J.A. Sebree. “Titan Atmospheric Chemistry Revealed by N₂-CH₄ Plasma Discharge Experiments.” *ACS Earth and Space Chemistry*, 6, 2295-2304, doi:10.1021/acsearthspacechem.2c00164, 2022.
- [62] †Pearce, B. K. D., †He, C., and **S.M. Hörst**. “An experimental and theoretical investigation of HCN production in the Hadean Earth atmosphere.” *ACS Earth and Space Chemistry*, 6, 2385-2399, doi:10.1021/acsearthspacechem.2c00138, 2022.
- [61] *Serigano, J., **Hörst, S.M.**, †He, C., Gautier, T., Yelle, R.V., Koskinen, T.T., and M.G. Trainer. “Compositional Measurements of Saturn’s Upper Atmosphere and Rings from Cassini INMS: An extended Analysis of Measurements from Cassini’s Grand Finale Orbits.” *JGR Planets*, 127, e2022JE007238, doi:10.1029/2022JE007238, 2022.
- [60] Comola, F., Kok, J.F., Lora, J.M., Cohan, K., Yu, X., †He, C., McGuiggan, P., **Hörst, S.M.**, and F. Turney. “Titan’s Prevailing Circulation Might Drive Highly Intermittent, Yet Significant Sediment Transport.” *Geophysical Research Letters*, 49, e2022GL097913. doi:10.1029/2022GL097913, 2022.
- [59] †He, C., **Hörst, S.M.**, *Radke, M., and M. Yant. “Optical Constants of Titan Haze Analogue from 0.4 to 3.5 μm: Determined Using Vacuum Spectroscopy.” *Planetary Science Journal*, 3:25, doi:10.3847/PSJ/ac4793, 2022. (2 citations)
- [58] Hand, K.P. and 288 co-authors including **Hörst, S.M.** “Science Goals and Mission Architecture of the Europa Lander Mission Concept.” *Planetary Science Journal*, 3:22, doi:10.3847/PSJ/ac4493, 2022.
- [57] Chadney, J.M., Koskinen, T.T., Galand, M., Lavvas, P., Unruh, Y.C., *Serigano, J., **Hörst, S.M.**, Yelle, R.V., and W. Curdt. “Energy deposition in Saturn’s equatorial upper atmosphere.” *Icarus*, 372, 114724, doi:10.1016/j.icarus.2021.114724, 2022.
- [56] *Moran, S.E., **Hörst, S.M.**, †He, C., *Radke, M.J., Sebree, J.A., Izenberg, N.R., Vuitton, V., Flandinet, L., Orthous-Daunay, F-R, and C. Wolters. “Triton Haze Analogues: The Role of Carbon Monoxide in Haze Formation.” *Journal of Geophysical Research Planets*, 127, 1, doi:10.1029/2021JE006984, 2022.
- [55] Li, J., Yu, X., Sciamma-O’Brien, E., †He, C., Sebree, J.A., Salama, F., **Hörst, S.M.**, and X. Zhang. “A Cross-Laboratory Comparison Study of Titan Haze Analogs: Surface Energy.” *Planetary Science Journal*, 3:2, doi: 10.3847/PSJ/ac3d27, 2022. (1 citation)
- [54] *Sotzen, K., Stevenson, K., May, E., Batalha, N., Izenberg, N., **Hörst, S.M.**, Tinsman, C., Lisse, C., Lewis, N.K., Goyal, J., Linden, J., and K. Mandt. “On the Utility of Transmission Color Analysis I: Differentiating Super-Earths and Sub-Neptunes” *Astronomical Journal*, 162, 168, doi:10.3847/1538-3881/ac0e2c, 2021.
- [53] Barnes, J.W., Turtle, E.P., Trainer, M.G., Lorenz, R.D., MacKenzie, S.M., Brinckerhoff, W.B., Cable, M.L., Ernst, C.M., Freissinet, C., Hand, K.P., Hayes, A.G., **Hörst, S.M.**, Johnson, J.R., Karkoschka, E., Lawrence, D.J., Le Gall, A., Lora, J.M., McKay, C.P., Miller, R., Murchie, S.L., Neish, C.D., Newman,

C.E., Nuñez, J., Panning, M.P., Parsons, A.M., Peplowski, P.N., Quick, L.C., Radebaugh, J., Rafkin, Scot C.R., Ravine, M.A., Shiraishi, H., Soderblom, J.M., Sotzen, K., Stickle, A.M., Stofan, E.R., Szopa, C., Tokano, T., Wagner, T., Wilson, C., Yingst, R.A., Zacny, K., and S.C. Stähler. “Science Goals and Objectives for the *Dragonfly* Titan Rotocraft Relocatable Lander.” *Planetary Science Journal*, 2:4, doi:10.3847/PSJ/abfdcf, 2021. (7 citations)

- [52] *Yu, X., Zhang, Z., **Hörst, S.M.**, [†]He, C., Dymont, A.H., McGuiggan, P., Lewis, N.K., Moses, J.I., Fortney, J.J., Gao, P., Kempton, E. M.-R., *Moran, S.E., Morley, C.V., Powell, D., Valenti, J.A., and V. Vuitton. “Haze Evolution in Temperate Exoplanet Atmospheres through Surface Energy Measurements” *Nature Astronomy*, doi:10.1038/s41550-021-01375-3, 2021. (4 citations)
- [51] MacKenzie, S.M., Birch, S.P.D., **Hörst, S.M.**, Sotin, C., Barth, E., Lora, J.M., Trainer, M.G., Corlies, P., Malaska, M.J., Sciamma-O’Brien, E., Thelen, A.E., Turtle, E., Radebaugh, J., Hanley, J., Solomonidou, A., Newman, C., Regoli, L., Rodriguez, S., Signovert, B., Hayes, A.G., Journaux, B., Steckloff, J., Nnamvondon, D., Cornet, T., Palmer, M., Lopes, R.M.C., Vinatier, S., Lorenz, R., Nixon, C., Czaplinski, E., Barnes, J.W., Sittler, E., and A. Coates. “Titan: Earth-like on the Outside, Ocean World on the Inside.” *Planetary Science Journal*, 2:3, doi:10.3847/PSJ/abf7c9, 2021. (7 citations)
- [50] Vuitton, V., *Moran, S.E., [†]He, C., Wolters, C., Flandinet, L., Orthous-Daunay, F.-R., Moses, J.I., Valenti, J.A., Lewis, N.K., and **Hörst, S.M.** “H₂SO₄ and organosulfur compounds in laboratory analogue aerosols of warm exoplanet atmospheres with high metallicity.” *Planetary Science Journal*, 2, 2, doi:10.3847/PSJ/abc558, 2021. (7 citations)
- [49] *Yu, X., **Hörst, S.M.**, [†]He, C., McGuiggan, P., Kristiansen, K., and X. Zhang. “Surface Energy of the Titan Aerosol Analog “Tholin”. *Astrophysical Journal*, 905, 88, doi:10.3847/1538-4357/abc55d, 2020. (9 citations)
- [48] Corlies, P.M., McDonald, G.D., Hayes, A.G., Wray, J.J., Ádámkóvics, M., Malaska, M.J., Cable, M.L., Hofgartner, J.D., **Hörst, S.M.**, Liuzzo, L.R., Buffo, J.J., Lorenz, R.D., and E. Turtle. “Modeling transmission windows in Titan’s lower troposphere: Implications for infrared spectrometers aboard future aerial and surface missions.” *Icarus*, 357, 114228, doi:10.1016/j.icarus.2020.114228, 2021. (1 citation)
- [47] *Serigano, J., **Hörst, S.M.**, [†]He, C., Gautier, T., Koskinen, T.T., and R.V. Yelle. “Compositional Measurements of Saturn’s Upper Atmosphere and Rings from Cassini INMS Observations.” *Journal of Geophysical Research Planets*, 125, 8, doi:10.1029/2020JE006427, 2020.
- [46] [†]He, C., **Hörst, S.M.**, Lewis, N.K., *Yu, X., Moses, J.I., McGuiggan, P., Marley, M.S., Kempton, E. M.-R., Morley, C.V., Valenti, J.A., and V. Vuitton. “Haze Formation in Warm H₂-rich Exoplanet Atmospheres.” *Planetary Science Journal*, 1, 51, doi:10.3847/PSJ/ab1a4, 2020. (14 citations)
- [45] *Moran, S.E., **Hörst, S.M.**, Vuitton, V., [†]He, C., Lewis, N.K., Bishop, N., Flandinet, L., Moses, J.I., Orthous-Daunay, F.-R., Sebree, J., Wolters, C., Kempton, E. M.-R., Marley, M.S., Morley, C., and J.A., Valenti. “Chemistry of temperate exoplanet atmospheric hazes from laboratory experiments.” *Planetary Science Journal*, 1, 17, doi:10.3847/PSJ/ab8eae, 2020. (22 citations)
- [44] Wolters, C., Flandinet, L., [†]He, C., Isa, J., Orthous-Daunay, F.-R., Thissen, R., **Hörst, S.M.**, and V. Vuitton. “Enhancing data-acquisition for the analysis of complex organic matter in direct infusion Orbitrap mass spectrometry by using microscans.” *Rapid Communications in Mass Spectrometry*, 34, e8818, doi: 10.1002/rcm.8818, 2020. (5 citations)
- [43] Lunine J. I., Cable M. L., Hörst S. M., and Rahm M. “The astrobiology of Titan.” In *Planetary Astrobiology* (V. Meadows et al., eds.), pp. 247–266. Univ. of Arizona, Tucson, doi: 10.2458/azu_uapress_9780816540068-ch010, 2020. (2 citations)

- [42] †He, C., **Hörst, S.M.**, Lewis, N.K., *Yu, X., Moses, J.I., McGuiggan, P., Marley, M.S., Kempton, E. M-R., *Moran, S.E., Morley, C.V., Valenti, J.A., and V. Vuitton. “Sulfur-driven haze formation in warm CO₂-rich exoplanet atmospheres.” *Nature Astronomy*, doi:10.1038/s41550-020-1072-9, 2020 (13 citations).
- [41] Gautier, T., *Serigano, J., Bourgalais, J., **Hörst, S.M.**, and M.G. Trainer. “Lifting degeneracy in Electron Ionization Mass Spectra Decomposition for Space application using a Monte-Carlo approach.” *Rapid Communications in Mass Spectrometry*, 34, e8684, doi: 10.1002/rcm.8684, 2020. (6 citations)
- [40] *Sotzen, K.S., Stevenson, K.B., Sing, D.K., Kilpatrick, B.M., Wakeford, H.R., Filippazzo, J.C., Lewis, N.K., **Hörst, S.M.**, Lopez-Morales, M., Henry, G.W., Buchhave, L.A., Ehrenreich, D., Fraine, J.D., García Muñoz, A., Jayaraman, R., Lavvas, P., Lecavelier des Etangs, A., Marley, M.S., Nikolov, N., Rathcke, A.D., Sanz-Forcada, J. “Transmission Spectroscopy of WASP-79b from 0.6 to 5 μm.” *Astronomical Journal*, 195:5. doi:10.3847/1538-3881/ab5442, 2020 (20 citations).
- [39] *Yu, X., **Hörst, S.M.**, †He, C., and P. McGuiggan. “Single Particle Triboelectrification of Titan Sand Analogs.” *Earth and Planetary Science Letters*, 530, 115996, doi:10.1016/j.epsl.2019.1159967, 2020. (5 citations)
- [38] Benkoski, J.J., Luedeman, W.L., Teehan, J.O., **Hörst, S.M.**, †He, C., and R.D. Lorenz. “Dust-Repellant Coatings for Optics under Simulated Titan Conditions.” *Planetary and Space Science*, 179, 104721, doi:10.1016/j.pss.2019.104721, 2019 (2 citations).
- [37] Parker, A.H., **Hörst, S.M.**, Ryan, E.L, and C.J.A. Howett. “k-Means Aperture Optimization Applied to Kepler K2 Time Series Photometry of Titan.” *Publications of the Astronomical Society of the Pacific*, 131:084505, doi:10.1088/1538-3873/ab28ad, 2019. (2 citations).
- [36] Müller-Wodarg, I.C.F., Koskinen, T.T., Moore, L., *Serigano, J., Yelle, R.V., **Hörst, S.M.**, Waite, J.H., and M. Mendillo. “Atmospheric waves and their possible effect on the thermal structure of Saturn’s thermosphere.” *Geophysical Research Letters*, 46, 2372-2380, doi: 10.1029/2018GL081124, 2019. (24 citations).
- [35] Vuitton, V., Yelle, R.V., Klippenstein, S.J., **Hörst, S.M.**, and P. Lavvas. “Simulating the density of organic species in the atmosphere of Titan with a coupled ion-neutral photochemical model.” *Icarus*, 324, 120-197, doi: 10.1016/j.icarus.2018.06.013, 2019. (104 citations).
- [34] Wakeford, H.R., Lewis, N.K., Fowler, J., Bruno, G., Wilson, T.J., *Moran, S.E., Valenti, J., Batalha, N.E., Filippazzo, J., Bourrier, V., **Hörst, S.M.**, Lederer, S.M., and J. De Wit. “Disentangling the planet from the star in late type M dwarfs: A case study of TRAPPIST-1g.” *Astronomical Journal*, 157:11, doi:10.3847/1538-3881/aaf04d, 2019. (49 citations).
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- [32] *Moran, S.E., **Hörst, S.M.**, Batalha, N.E., Lewis, N.K., and H.R. Wakeford. “Limits on Clouds and Hazes on the TRAPPIST-1 Planets.” *Astronomical Journal*, 156, 6, 252, doi:10.3847/1538-3881/aae83a, 2018. (42 citations) (**Research highlight in Nature Astronomy**)
- [31] Yelle, R.V., *Serigano, J., Koskinen, T.T., **Hörst, S.M.**, Perry, M.E., Perryman, R.S., and J.H. Waite. “Thermal Structure and Composition of Saturn’s Upper Atmosphere from Cassini/INMS Measurements.”

Geophysical Research Letters, 45, 10951-10958, doi:10.1029/2018GL078454, 2018. (19 citations).

- [30] Sebree, J.A., Roach, M., Shipley, E., †He, C., and **S.M. Hörst**. “Detection of prebiotic molecules in aerosol analogs using GC/MS/MS techniques.” *Astrophysical Journal*, 865, 133, doi: 10.3847/1538-4357/aadba1, 2018. (16 citations)
- [29] *Yu, X., **Hörst, S.M.**, †He, C., Crawford, B., and P. McGuiggan. “Where does Titan sand come from: Insights from mechanical properties of Titan sand candidates.” *JGR Planets*, 123, 2130-2321, doi:10.1029/2018JE005651, 2018. (11 citations).
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