

Xinting Yu

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Appointments

University of California, Santa Cruz <i>51 Pegasi b Postdoctoral Fellow</i>	Santa Cruz, CA, USA 2019–present
Johns Hopkins University <i>Visiting Scientist</i>	Baltimore, MD, USA 2019–present

Education

Johns Hopkins University <i>PhD in Planetary Sciences</i>	Baltimore, MD, USA 2014–2019
University of Science and Technology of China <i>BS in Space Physics with honors</i>	Hefei, Anhui, China 2010–2014

Research Experience

University of California, Santa Cruz <i>51 Pegasi b Postdoctoral Fellow (Supervisor: Xi Zhang)</i> Laboratory production of exoplanet aerosol analogs ("tholins"), material property characterization, exoplanet microphysics modeling	Santa Cruz, CA July, 2019–present
Johns Hopkins University <i>Graduate Research Assistant (Advisor: Sarah Hörst)</i> Laboratory production of Titan aerosol analogs ("tholins"), material characterization (interparticle forces and mechanical properties), study the origin and evolution of aeolian process on Titan	Baltimore, MD 2014–2019
NASA Ames Research Center <i>Visiting Student (Collaborators: Nathan Bridges, Devon Burr, James Smith)</i> Study aeolian processes on Titan using Titan Wind Tunnel	Mountain View, CA 2015 & 2016 Summer
Key Laboratory of Solar Activity, National Astronomical Observatories <i>Undergraduate Research Assistant (Advisor: Jun Zhang)</i> Investigation of cyclones in the Sun using data from SDO/AIA and HMI	Beijing, China 2013–2014

Honors and Awards

- 51 Pegasi b Postdoctoral Fellowship, Heising-Simons Foundation, 2019–2021
- JHU EPS Journal Club Long Presentation Award (\$2,000), 2018
- 50th DPS Hartmann Travel Grant (\$500), 2018

- Stephen E. Dwornik Award at the 49th Lunar and Planetary Science Conference – Best Graduate Oral Presentation, 2018
- Johns Hopkins University 2018-19 Technology Fellowship (\$5,000)
- Johns Hopkins University 2018-19 Dean’s Teaching Fellow
- Titan Surface Meeting travel grant, 2018
- Johns Hopkins University J. Brien Key Fund (\$500), 2017
- Women in Astronomy IV travel grant, 2017
- Johns Hopkins University Shark Tank Education Innovation Competition (\$3,000), Winner, 2016
- Johns Hopkins University Owen Scholars Award (\$6,000/yr, 3yrs), 2014
- University of Science and Technology of China (USTC), Outstanding Bachelor Thesis, 2014
- USTC, Outstanding Award in Undergraduate Research Program, 2013
- USTC Outstanding Student Scholarship (Grade 1), 2013
- USTC Outstanding Student Scholarship (Grade 2), 2012
- USTC Outstanding Student Scholarship (Grade 3), 2011

Teaching and Mentoring Experience

Instructor.....

Johns Hopkins University (Dean’s Teaching Fellowship)	Baltimore, MD
<i>AS.270.328 Planetary Exploration: Techniques and Data Analysis (New Course)</i>	<i>Fall 2018</i>

Guest Lecturer.....

Johns Hopkins University	Baltimore, MD
<i>AS.270.114 Guided Tour of the Planets (2 lectures)</i>	<i>Spring 2019</i>
<i>AS.270.335 Planets, Life and the Universe (1 lecture)</i>	<i>Fall 2018</i>
<i>AS.270.114 Guided Tour of the Planets (1 lecture)</i>	<i>Spring 2018</i>
<i>AS.270.410 Planetary Surface Processes (1 lecture)</i>	<i>Fall 2017</i>
<i>AS.270.366 Spacecraft Instrumentation Project (1 lecture)</i>	<i>Spring 2017</i>
<i>AS.270.114 Guided Tour of the Planets (1 lecture)</i>	<i>Spring 2017</i>
<i>AS.270.114 Guided Tour of the Planets (1 lecture)</i>	<i>Spring 2016</i>

Teaching Assistant.....

Johns Hopkins University	Baltimore, MD
<i>AS.270.114 Guided Tour of the Planets</i>	<i>Spring 2019</i>
<i>AS.270.114 Guided Tour of the Planets</i>	<i>Spring 2018</i>
<i>AS.270.335 Planets, Life and the Universe</i>	<i>Fall 2017</i>
<i>AS.270.114 Guided Tour of the Planets</i>	<i>Spring 2017</i>
<i>AS.270.103 Introduction to Global Environmental Change</i>	<i>Fall 2016</i>
<i>AS.270.114 Guided Tour of the Planets</i>	<i>Spring 2016</i>

Teaching Grants.....

Johns Hopkins University	Baltimore, MD
<i>Make pre-lecture videos for AS.270.114 Guided Tour, Technology Fellowship</i>	<i>Spring 2019</i>
<i>Restructure AS.270.114 Guided Tour, Shark Tank Education Innovation Competition</i>	<i>Winter 2017</i>

Mentored Students.....

University of California Santa Cruz	Santa Cruz, CA
<i>Senior undergraduate student Julia Garver, Jialin Li, Taylor Duncan</i>	<i>Spring 2020</i>
<i>Sophomore undergraduate student Austin Dymont</i>	<i>Spring 2020</i>
<i>Senior undergraduate student Yue Yu</i>	<i>Fall 2019</i>

Additional Training

o EON-ELSI Winter School in Earth–Life Science	<i>Winter 2018</i>
o JHU Teaching Academy–Teaching Institute Certificate Program	<i>Summer 2016</i>

Referred Publications

[10]: **Xinting Yu**, Sarah M. Hörst, Chao He, Patricia McGuiggan, and Xi Zhang, "Surface Energy of the Titan Aerosol Analog "Tholin", *under review*.

[9]: **Xinting Yu**, Sarah M. Hörst, Chao He, and Patricia McGuiggan, "Single Particle Triboelectrification of Titan Sand Analogs", *Earth and Planetary Science Letters*, 530, 115996, <https://doi.org/10.1016/j.epsl.2019.115996>, 2020.

[8]: Chao He, Sarah M. Hörst, Nikole K. Lewis, **Xinting Yu**, Julianne I. Moses, Patricia McGuiggan, Mark S. Marley, Eliza M.-R. Kempton, Sarah E. Moran, Caroline V. Morley, and Véronique Vuitton, "Sulfur Promotes Haze Formation in Warm Exoplanet Atmospheres", *accepted*.

[7]: **Xinting Yu**, Sarah M. Hörst, Chao He, Bryan Crawford, and Patricia McGuiggan, "Where does Titan Sand Come From: Insight from Mechanical Properties of Titan Organic Analogs", *Journal of Geophysical Research - Planets*, 123, 2310-2321, <https://doi.org/10.1029/2018JE005651>, 2018. (**Featured article in *JGR-planets* and article on *Universe Today***).

[6]: Chao He, Sarah M. Hörst, Nikole K. Lewis, **Xinting Yu**, Julianne I. Moses, Eliza M.-R. Kempton, Mark S. Marley, Patricia McGuiggan, Caroline V. Morley, Jeff A. Valenti, and Véronique Vuitton, "Photochemical Haze Formation in the Atmospheres of Super-Earths and Mini-Neptunes", *The Astronomical Journal*, 156, 1, <https://doi.org/10.3847/1538-3881/aac883>, 2018.

[5]: Chao He, Sarah M. Hörst, Nikole K. Lewis, **Xinting Yu**, Julianne I. Moses, Eliza M.-R. Kempton, Patricia McGuiggan, Caroline V. Morley, Jeff A. Valenti, and Véronique Vuitton, "Laboratory Simulations on Haze Formation in Cool Exoplanet Atmospheres: Particle Color and Size Distribution", *Astrophysical Journal Letters*, 865(1), L3, <https://doi.org/10.3847/2041-8213/aab42b>, 2018.

[4]: **Xinting Yu**, Sarah M. Hörst, Chao He, Patricia McGuiggan, and Nathan T. Bridges, "Direct Measurement of Interparticle Forces of Titan Aerosol Analogs ("Tholin") Using Atomic Force Microscopy", *Journal of Geophysical Research - Planets*, 122(12), 2610-2622, doi:10.1002/2017JE005437, 2017.

[3]: **Xinting Yu**, Sarah M. Hörst, Chao He, Nathan T. Bridges, Devon M. Burr, Joshua A. Sebree, and James K. Smith, "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.

[2]: **Xin-Ting Yu**, Jun Zhang, Ting Li, and Shu-Hong Yang, "Case Studies of EUV Cyclones and Their Associated Magnetic Fields", *Res. Astron. and Astrophys.*, 15, 1525, doi.org/10.1088/1674-4527/15/9/009, 2015.

[1]: **Xinting Yu**, Jun Zhang, Ting Li, Yuzong Zhang, and Shuhong Yang, "Homologous Cyclones in the Quiet Sun", *Astrophysical Journal Letters*, 782(2), L15, doi.org/10.1088/2041-8205/782/2/L15, 2014.

Selected Conference Proceedings

[19]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Zhang X., Integrating Materials Science Techniques into the Study of Planetary Hazes, *AGU Falling Meeting*, 2019, **Invited**.

[18]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Zhang X., The Surface Energy of "Tholin" and its Implication on Haze-Liquids Interactions on Titan, *AGU Falling Meeting*, 2019.

[17]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Zhang X., Characterization of Cloud-Haze Interactions in Cool Exoplanets Atmospheres, *Bay Area Exoplanet Meeting*, 2019.

[16]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Zhang X., Integrating Materials Science Techniques into the Study of Planetary Hazes, *Bay Area Planetary Science Meeting*, 2019.

[15]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Zhang X., Material properties of Titan Aerosol Analogs "Tholin", *EPSC-DPS*, 398-2, 2019.

[14]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Zhang X., Characterization of Cloud-Haze Interactions in Cool Exoplanets Atmospheres, *EPSC-DPS*, 775-1, 2019.

[13]: **Yu X.**, Hörst S.M., He C., and McGuiggan P., Direct Measurement of Single Particle Electrostatic Forces Between Titan Sand Analogs Using Atomic Force Microscopy, *LPSC*, 2042, 2019.

[12]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Crawford B., Interpreting Sand Formation on Titan: Insight from Interparticle Forces and Mechanical Properties of Titan Organic Analogs, *DPS*, 203.07D, 2018.

[11]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Crawford B., Where Does Titan Sand Come From: Insight from Interparticle Forces and Mechanical Properties of Titan Organic Analogs, *Titan Surface Meeting*, 2018.

[10]: **Yu X.**, Hörst S.M., He C., Crawford B., and McGuiggan P., Where Does Titan Sand Come From: Insight from Mechanical Properties of Titan Organic Analogs, *LPSC*, 1786, 2018, **Stephen E. Dwornik Award–Best Graduate Oral Presentation**.

[9]: Radebaugh, J., Barnes, J. W., Mackenzie S., Hörst S. M., **Yu X.**, Lorenz, R. D., ... Bishop, B., The importance of Sand for Understanding Dune Processes and Surface Conditions of Titan, *LPSC*, 2083, 2018.

[8]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Bridges N.T., Direct Measurements of Surface Energy, Elastic Modulus and Interparticle Forces of Titan Aerosol Analog ("Tholin") Using Atomic Force Microscopy, *AGU fall meeting*, 221907, 2017.

[7]: He C., Hörst S.M., Lewis, N., **Yu X.**, McGuiggan P., and Moses J.I., Laboratory Simulations on Haze Formation in Cool Exoplanet Atmospheres, *DPS*, 300.01, 2017.

[6]: **Yu X.**, Hörst S.M., He C., McGuiggan P., and Bridges N.T., Direct Measurement of Interparticle Adhesion of Titan Aerosol Analogs ("Tholin") Using Atomic Force Microscopy, *5th International Dune Workshop*, 3048, 2017.

[5]: Stephen L.F. Sutton, Devon M. Burr, Nathan T. Bridges, James K. Smith, Sarah M. Hörst, **Xinting Yu**, Jasper F. Kok, Francis A. Turney, J.R. Marshall, and D.A. Williams, The Titan Wind Tunnel in the NASA Planetary Aeolian Laboratory: Facility Improvements, *LPSC*, 1964, 2017.

[4]: **Xinting Yu**, Sarah M. Hörst, Chao He, Nathan T. Bridges, Devon M. Burr, and Joshua A. Sebree, Quantifying Water Content and Equilibration Properties of Wind Tunnel Materials, *DPS-EPSC*, 425.03, 2016.

[3]: Devon M. Burr, Emily Nield, Joshua Emery, Nathan T. Bridges, James K. Smith, John Marshall, Jasper Kok, **Xinting Yu**, and Sarah M. Hörst, Experimental (wind tunnel) investigations into aeolian entrainment: application to extraterrestrial environments, *32nd IAS International Meeting of Sedimentology*, 2016.

[2]: **Xinting Yu**, Sarah M. Hörst, Chao He, Nathan T. Bridges, and Devon M. Burr, Quantifying Density, Water Adsorption and Equilibration Timescale of Wind Tunnel Materials, *LPSC*, 2683, 2016.

[1]: NT Bridges, DM Burr, J Marshall, JK Smith, SM Hörst, E Nield, and **X Yu**, New Titan Saltation Threshold Experiments: Investigating Current and Past Climates, *AGU*, P12B-05, 2015.

Skills

Language: Chinese (native), English (fluent), Japanese and Spanish (conversational)

Programming: Matlab, IDL, C++, Fortran, Python, Mathematica

Computer: Windows, Linux, Mac OS, MS Office, LaTeX

Laboratory Instruments: RGA-MS, SEM, EDS, AFM, Nanoindenter, Pycnometer, TGA/DSC

Laboratory Skills: Vacuum Techniques, Photochemistry Synthesis, Low/High Temperature and Low-Pressure Gas Reactions

Invited Seminars and Colloquia

- o NASA Ames Research Center, Astrophysics Branch *March 2020*
- o University of California, Berkeley, Astronomy, CIPS seminar *Feb 2020*
- o University of California, Santa Cruz, Earth and Planetary Sciences, WES seminar *Feb 2020*
- o University of Central Florida, Florida Space Institute *Feb 2020*
- o University of California, Santa Cruz, Physics, Condensed Matter seminar *Jan 2020*
- o University of California, Santa Cruz, Earth and Planetary Sciences, IGPP seminar *Feb 2019*

Outreach

- o UCSC 2nd Annual Undergrad-Grad STEM Mixer *Jan 2020*

- 50th LPSC microblogger *Spring 2019*
- 49th LPSC microblogger *Spring 2018*
- 15th Annual Physics Fair organizer, Johns Hopkins University *Spring 2018*

Professional Affiliations

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

Professional Activities

- External grant review for NASA Solar System Workings program
- Review panel member for NASA Solar System Workings program, NSF Astronomy & Astrophysics program
- Reviewer for ApJ (1), Energies (2), Minerals (1), Advances in Space Research (1)
- LPSC Dwornik best student presentation award judge

Other Experiences

- ACE certified personal trainer, 2019–present
- Active Animal Interpretation Volunteer in the Maryland Zoo in Baltimore, 2017–2019
- Active Animal Handling Volunteer in the Maryland Zoo in Baltimore, 2017–2019
- Yelp Elite Member, 2017–present
- Active Education Volunteer in the Maryland Zoo in Baltimore, 2016–2019
- Volunteer Translator (adding English subtitles and translate English to Chinese) for Educational Videos, Youzimu Subtitle Team, 2016–2017
- Completed my 9th Full Marathon in 2016 Chicago
- Completed Full Marathon in 2015 Honolulu, 2015 Philadelphia, 2015 Marine Corps
- Women's 3rd place, IFC Anhui Stair Climb Competition, 2014 Hefei
- Completed Full Marathon 2014 Baltimore, 2014 Honolulu
- Completed Full Marathon in 2013 Beijing, 2013 Shanghai, 2014 Xiamen
- Completing Half Marathon in 2015 Xiamen, 2014 Kangbao, 2013 Yangzhou, 2012 Yangzhou, 2012 Beijing