Siyi Xu

Associate Astronomer (Tenured)
Gemini Observatory/NSF NOIRLab
950 North Cherry Avenue
Tucson, Arizona, 85719, USA

Office: # 64
Phone: +1 520-318-8182
Email: siyi.xu@noirlab.edu
Webpage: https://siyixu.github.io/sxu-site/

Professional Appointments

2024 – present Associate Astronomer (*Tenured*), Office of the Chief Scientist
Gemini Observatory/NSF NOIRLab, Tucson, USA
Strategic planning for Gemini and NOIRLab, develop and implement user support and communication plan

2025 – present Exoplanet Discipline Scientist
International Space Science Institute (ISSI), Bern, Switzerland
Establish new initiatives, leverage ISSI's unique resources to organize impactful workshops, forums, and meetings

2024 – present Affiliated Researcher
Steward Observatory, University of Arizona, Tucson, USA

Apr – Jul 2024 Visiting Researcher, Leverhulme Center for Life in the Universe,
University of Cambridge, UK

Sep – Dec 2023 Visiting Researcher, Kavli Institute for Astrophysics and Space Research,
Massachusetts Institute of Technology (MIT), US

2021 – 2024 Associate Astronomer, Science Operations
2017 – 2021 Assistant Astronomer, Science Operations
Gemini Observatory/NSF NOIRLab, Hilo, USA
Instrument scientist for GNIRS & MAROON-X, Nightitme Observer (>50 nights), Queue Coordinator (>200 days), Contact Scientist (>200 programs)

2014 – 2017 Postdoctoral Fellow, Directorate for science
European Southern Observatory, Garching, Germany
Independent research fellowship

Fellow Astronomer, Science Operations
Cerro Paranal Observatory/Very Large Telescope, Chile
Science operations (100 nights), quality assessment, and support of visitors

Education

2010 – 2014 **Ph.D. Astronomy**, Advisor: Michael A. Jura
University of California, Los Angeles, USA

2006 – 2010 **B.S. Astronomy**
Nanjing University, China

Observatory Service

I have contributed broadly to observatory operations and governance, taking on roles that span technical development, recruitment efforts, and long-term strategic planning.

Leadership Roles	Operations Working Group, *Chair*, 2025 *to* present Gemini Digital Governance Team, *Chair*, 2025 *to* present Users' Committee for Gemini Observatory, *Coordinator*, 2025 *to* present Users' Committee for NOIRLab, *Coordinator*, 2025 *to* present
Strategic Initiatives	Once in a Rubin Gem Director's Discretionary Initiative, 2025 *to* present Gemini Strategic Science Plan Working Group, 2024 *to* present NOIRLab/CSDC Data Strategy Team, 2022 *to* 2024 NOIRLab Strategic Vision Team, 2020
Instrumentation Projects	Gemini/GHOST System Verification, *Lead*, 2023 Gemini/IGRINS-2, *Project Scientist*, 2022 *to* 2023 Gemini/GNIRS IFU Upgrade, *Project Scientist*, 2019 *to* 2022 Gemini/GNIRS Refurbishment, *Project Scientist*, 2019 *to* 2022 Gemini Program Platform, *Inception Design Review Committee*, 2020 Gemini Program Platform, *Conceptual Design Review Committee*, 2019
Hiring Committees	Gemini Director Hiring Committee, 2024 NOIRLab Integrated Hiring Committee, 2023 NOIRLab Fellowship Selection Committee, 2023 Gemini Science Fellow Selection Committee, 2020 ESO Fellow Selection Committee, Garching, 2017

Scientific Community Service

My community service focuses on advancing scientific quality, fairness, and collaboration across the field.

Proposal Review Committee	*Gemini* DDT Proposal Committee, 2025 *NASA Keck Proposal*, Review Panel, 2026A *NOIRLab* Proposal, Galactic TAC Chair, 2025A *NASA ULTRASAT*, Review Panel, 2023 *JWST* Cycles 3 & 4, External Reviewer, 2023 *to* 2024 *JWST* Cycle 1, Review Panel, 2021 *Spitzer* DDT, Reviewer, 2019 *Hubble* Cycle 26 & 27, External Reviewer, 2018 *to* 2019 *Hubble* Cycle 25, Review Panel, 2017
Grant Review Committee	*Science and Technology Facilities Council (STFC)*, Small Award Reviewer, 2025 *Israel Science Foundation*, grant reviewer, 2021 *NASA Exoplanets Research Program*, External Review, 2016
Referee for	*AAS Journals* *Astronomy & Astrophysics* *Monthly Notices of the Royal Astronomical Society* *Nature*, *Nature Astronomy*

Meetings Organized	*Empowering Science in the Data-Rich Era of Astronomy*, Tucson, 2026 (*SOC & LOC co-chair*) *25th European White Dwarf Workshop*, Austria, 2026 (*SOC*) *The Solar System in Context*, Tucson, 2025 (*SOC*) *24th European White Dwarf Workshop*, Barcelona, Spain, 2024 (*SOC*) *Dust Devils: Debris Disks in the Sonoran Desert*, Tucson, 2024 (*SOC*) *Gemini Science Meeting*, Korea, 2022 (*SOC*) *Gemini Science Meeting*, virtual, 2021 (*SOC co-chair*) *JWST Proposal Workshop*, Hilo, 2020 (*SOC & LOC*) *IAU Symposium 357: White Dwarfs as Probes of Fundamental Physics and Tracers of Planetary, Stellar & Galactic Evolution*, Hilo, 2019 (*SOC & LOC*) *Planetary Systems Beyond The Main Sequence II*, Isreal, 2017 (*SOC*)

Awards

2026	**Berkeley Prize**, *as a member of the DESI collaboration*
2025	**AURA Team Award**, *as the project scientist for the IGRINS-2 instrument*
2020	**AURA Science Award**, *awarded annually to one individual for outstanding research and scientific leadership*
2019	**Scialog Fellow**, Research Corporation & Heising-Simons Foundation
2017	**Seal of Excellence**, Marie Sklodowska-Curie Actions
2007	**Renmin Fellowship**, Nanjing University, *for outstanding academic performance*

Grants

2024	NASA Topical Workshops, Symposiums, and Conferences (TWSC-24) in Space and Earth Sciences and Technology, 2024 (PI: N. Hinkel, $\approx$ 50,000$)
2024	AAS Dependent Care Award (500$)
2023	NASA Citizen Science Seed Funding proposal (PI: A. Meisner, $\approx$ 60,000$)
2022	Rice Family Fund Fellowship, 2022 ($2000)
2021	NASA XRP Grant, 'Characterizing Rejuvenated Exoplanetary Systems', 2021 (PI: K. Su, $\approx$ 100,000$)
2019	Scialog Research Grant, Heising-Simons Foundation ($55,000)
2012	International Astronomical Union travel grant (500$)

Telescope Time as Principal Investigator

I have a strong record of securing highly competitive observing time on both ground-based and space-based facilities.

James Webb Space Telescope	*NIRSpec* & *MIRI* (15.9 hr): DD #12507
Hubble Space Telescope	*COS* & *STIS* (67 orbits, grant $\approx$ $300,000) GO #14117, #14467, #14646, #15155, GO #15494, GO #15854, GO #16204 An additional four student-led proposals (totaling 147 orbits and $\approx$ 500,000$ in grants)

Keck Telescope	*NIRES* (3 nights, NASA grant ≈ $40,000): 2023B_N159, 2025A_N123, 2025B_N028 *HIRESb* & *HIRESr* (10 nights, NASA grant ≈ $90,000) 2019A_N049, 2019B_N072, 2020A_N018, 2020B_N124, 2021A_N056, 2021B_N075
Gemini Observatory	*GHOST* (15 hr): GS-2025B-FT-215, GS-2026A-Q-245, GS-2026A-DD-103 *GMOS* (32 hr): GN-2020B-Q-131, GN-2021B-FT-110, GS-2025A-Q-142, GN-2025A-Q-144, GS-2025B-Q-322 *GNIRS* (13 hr): GN-2019B-DD-107, GN-2021B-Q-325, GN-2023B-Q-327 *NIRI* (24 hr): GN-2017B-FT-22, GN-2018B-FT-208, GN-2019A-Q-303, GN-2019B-Q-237 *FLAMINGOS-2* (34 hr): GS-2018B-FT-204, GS-2019A-Q-301, GS-2019B-Q-237, GS-2021B-Q-244, GS-2022A-FT-205, GS-2023A-FT-210, GS-2023B-Q-231 *Zorro* (2 hr): GS-2022B-FT-107 *MAROON-X* (8.4 hr): GN-2023B-FT-107, 2024A-FT-101
Very Large Telescope	*X-SHOOTER* (91 hr, 2018-2020): 103.C-0431, 104.C-0107, 105.C-0518, 106.2130 *HAWKI* (8 hr, 2017): 099.C-0082 *SPHERE* (6 hr, 2014-2017): 60.A-9373, 099.C-0264 *FORS2* (5 hr, 2016): 296.C-0524 *UVES* (25 hr, 2015): 095.C-0439, 095.C-0564, 096.C-0132, 096.C-0135
Spitzer Space Telescope	*IRAC* (90 hr): #10175, #12128, #13065, #14220

Mentoring and Supervision

Since my Ph.D. at UCLA, I have supervised 18 students from ten countries.

2025–	L. Rogers	postdoc	NOIRLab, US
2025–	Z. Savery	Ph.D.	with Prof. J. Provencal, University of Delaware, US
2024 –	É. Le Bourdais	Ph.D.	with Prof. P. Dufour, University of Montreal, Canada
2022–2023	E. Del Olmo	M.S.	with Prof. M. Kissler-Patig, UCM, Spain
2021–2024	M. Badenas-Agusti	Ph.D.	with Prof. A. Vanderburg, MIT, US
2021–2022	D. Owens	Intern	Gemini Observatory, US
2021-2022	C. Madurga Favieres	M.S.	with Prof. M. Kissler-Patig, UCM, Spain
2020–2022	R. Kiman	Ph.D.	with Dr. J. Faherty, City University of New York , US
2017–2022	L. Rogers	Ph.D.	with Dr. A. Bonsor, University of Cambridge, UK
2020	S. Lai	Intern	Gemini Observatory, US
2018–2020	A. Steele	Ph.D.	with Dr. J. Debes, University of Maryland, US
2018–2019	M. Fortin-Archambault	M.S.	with Prof. P. Dufour, University of Montreal, Canada
2018–2019	A. Psaridi	M.S.	with Prof. M. Kissler-Patig, LMU, Germany
2018	P. Thao	Intern	Gemini Observatory, US
2016–2017	N. Monson	Ph.D.	with Prof. E. D. Young, UCLA, US
2015–2017	N. Hallakoun	Ph.D.	with Dr. N. Patat, ESO, Germany
2013–2014	G. Sun	B.S.	with Prof. M. Jura, UCLA, US
2013	B. Pantoja	REU	with Prof. M. Jura, UCLA, US
2012–2013	M. Nabeshima	B.S.	with Prof. M. Jura, UCLA, US

Talks & Colloquia

I have given 15 invited conference talks and 23 seminar and colloquium presentations.

Invited Conference Talks

- *International Conference on Exoplanets and Planet Formation* (EPF), Shanghai, China, 2025
- ISSI Forum: *Planetary Habitability and Origin of Life*, Beijing, China, 2025
- ISSI Workshop: *Exocomets: Bridging our Understanding of Minor Bodies in Solar and Exoplanetary Systems*, Bern, Switzerland, 2024
- Reviews in Mineralogy & Geochemistry (RiMG) Workshop: *Exoplanets: Compositions, Mineralogy, Evolution*, 2024
- Gordon Research Conference: *Origins of Solar Systems*, Boston, US, 2023
- Aspen Winter Conference: *Exoplanet Systems and Stellar Life Cycles: Late-Stage and Post-MS Systems*, Aspen, US, 2023
- KITP Conference: *White Dwarfs as Probes of the Evolution of Planets, Stars the Milky Way and the Expanding Universe*, Santa Barbara, US, 2022
- *Celebrating the Legacy of the Spitzer Space Telescope*, Caltech, US, 2020
- *Exocomets: Understanding the composition of planetary building blocks*, Lorentz center, Netherlands, 2019
- *Goldschmidt Conference*, Boston, US, 2018
- *Exoplanets Orbiting Hot Stars*, Vanderbilt University, US, 2018
- Gordon Research Conference: *Origins of Solar Systems*, Boston, US, 2017
- *From Dust to Planet*, Lyon Observatory, France, 2016
- *Michael Jura Memorial Symposium*, UCLA, US, 2016
- *American Astronomical Society Meeting #221*, Long Beach, US, 2012

Colloquia & Seminar

- *Colloquium Talk*, University of Oklahoma, Oklahoma City, US, 2024
- *Colloquium Talk*, Boston University, Boston, US, 2023
- *Rocky Worlds Discussion*, 2023 *(virtual)*
- *Colloquium Talk*, University of Montreal, Canada, 2023
- *Colloquium Talk*, Nanjing University, China, 2022 *(virtual)*
- *Seminar Talk*, Carnegie Institution for Science, Washington D. C., US, 2022 *(virtual)*
- *Colloquium Talk*, University of North Carolina, Chapel Hill, US, 2021 *(virtual)*
- *Colloquium Talk*, University of Warwick, UK, 2021 *(virtual)*
- *Exoplanet seminar*, Chinese Academy of Sciences South America Center for Astronomy (CASSACA), Santiago, Chile, 2020 *(virtual)*
- *Colloquium talk*, Earth, Planetary, and Space Science (EPSS), UCLA, US, 2020
- *Colloquium talk*, Keck Observatory, Waimea, US, 2019
- *Colloquium talk*, NOAO, Tucson, US, 2019
- *Colloquium talk*, California State University, Fresno, US, 2019
- *Colloquium talk*, Nanjing University, China, 2018
- *Colloquium talk*, Institute for Astronomy, Hawaii, US, 2017
- *Colloquium talk*, ASIAA, Taiwan, 2016
- *Seminar*, Pontificia Universidad Catolica de Chile (PUC), Chile, 2016
- *Star and Planet Formation Seminar*, STScI, Baltimore, US, 2016
- *Exoplanet Seminar Talk*, University of Cambridge, UK, 2016
- *Colloquium talk*, University of Tuebingen, Germany, 2016
- *Colloquium Talk*, University of Warwick, UK, 2015
- *Colloquium Talk*, ETH, Zurich, Switzerland, 2015
- *CRAL seminar*, Centre de Recherche Astrophysique de Lyon, France, 2015

Public Outreach & Press

My outreach work centers on making our research accessible to the public through talks, community programs, and press releases highlighting major results.

Outreach Activities	featured in *NOIRLab Staff Campaign* video, 2025
	Astronomy Educator, *Journey Through the Universe*, Hilo, US, 2019 *to* 2023
	Astronomy on Tap: *Where are we in five billion years?* (Chinese), 2022
	Speaker at *NOIRLab Live*, 2020
	Career Panel, *Kea'au Middle School*, Hilo, US, 2018
	Public Talk, Astronomy for non-Astronomers, *ESO*, Germany, 2017
	Messenger article, *Fellows at ESO*, 166, 68, 2016
	featured in *Hubble Podcast #95*, 2016
	Public Talk, *Kunshan Middle School*, China, 2015
	Vice President of Astronomy Club, *Nanjing University*, China, 2008 *to* 2009
Selected Press Releases	STScI: *Aging White Dwarf Still Consuming Its Planetary Systems*, 2025
	NASA/NOIRLab: *Find Exoasteroids and Peek into the Future*, 2024
	NOIRLab Stories: *A glimpse into the Solar System's future*, 2021
	Nature/NOIRLab: *Rocky Exoplanets Are Even Stranger Than We Thought*, 2021
	NASA/NOIRLab: *NASA Missions Spy First Possible 'Survivor' Planet Hugging White Dwarf Star*, 2020
	Astronomy Magazine: *White Dwarfs and Water*, 2018
	EurekAlert: *Study of material surrounding distant stars shows Earth's ingredients 'pretty normal'*, 2018
	STScI/NASA/ESA: *Hubble finds big brother of Halley's Comet ripped apart by white dwarf*, 2017
	NASA/JPL: *Can Planets be Rejuvenated around Dead Stars?* 2015
	Kunshan Daily: *The Quest for the Brightest Star*, 2015
	Physics World: *Cold Hydrogen Molecules Found on Hot Stars*, 2013

Selected Refereed Publications

I have led or substantially contributed to 45 publications. My full publication list is available via ORCID 0000-0002-8808-4282.

† *Students/postdocs supervised by S.X.*

First Author:

19. *White dwarfs as probes of extrasolar planet compositions and fundamental astrophysics*
Xu, S., Barstow M., Buchan A., et al., HWO Conference Proceedings, in press

18. *Modeling Circumstellar Gas Emission around a White Dwarf using Cloudy*
Xu, S., Yeh, S., Rogers, L. K.†, et al., 2024, AJ, 167, 248

17. *The chemistry of extra-solar materials from white dwarf planetary systems*
Xu, S., Rogers, L. K.†, & Blouin, S., Reviews in Mineralogy & Geochemistry (RiMG), 90, 171

16. *Gemini/GMOS Transmission Spectroscopy of the Grazing Planet Candidate WD 1856 b*
Xu, S., Diamond-Lowe, H., & MacDonald J. R.,et al. 2021, AJ, 162, 292

15. *Exo-Geology: Insights from Dead Stars*
Xu, S., & Bonsor, A., Elements, 2021, v17n4

14. *Infrared Excesses around Bright White Dwarfs from Gaia and unWISE I*
Xu, S., Lai, S.†, & Dennihy, E.† 2020, ApJ, 902, 127

13. *Compositions of Planetary Debris around Dusty White Dwarfs*
Xu, S., Dufour, P., Klein, B., et al. 2019, AJ, 158, 242

12. *Shallow Ultraviolet Transits of WD 1145+017*
Xu, S., Hallakoun, N.†, Gary, B., et al. 2019, AJ, 157, 255

11. *Infrared Variability of Two Dusty White Dwarfs*
Xu, S., Su, K. Y. L., Rogers, L. K.†, et al. 2018, ApJ, 866, 108

10. *A dearth of small particles in the transiting material around the white dwarf WD 1145+017*
Xu, S., Rappaport, S., van Lieshout, R., et al. 2018, MNRAS, 474, 4795

9. *The Chemical Composition of an Extrasolar Kuiper-Belt-Object*
Xu, S., Zuckerman, B., Dufour, P., et al. 2017, ApJL, 836, L7

8. *Evidence for Gas from a Disintegrating Extrasolar Asteroid*
Xu, S., Jura, M., Dufour, P., et al. 2016, ApJL, 816, L22

7. *An Extreme-AO Search for Giant Planets around a White Dwarf: VLT/SPHERE performance on a faint target GD 50*
Xu, S., Ertel, S., Wahhaj, Z., et al. 2015, A&A, 579, L8

6. *A Young White Dwarf with an Infrared Excess*
Xu, S., Jura, M., Pantoja, B.†, et al. 2015, ApJL, 806, L5

5. *The Drop during Less than 300 Days of A Dusty White Dwarf's Infrared Luminosity*
Xu, S., & Jura, M. 2014, ApJL, 792, L39

4. *Elemental Compositions of Two Extrasolar Rocky Planetesimals*
Xu, S., Jura, M., Koester, D., et al. 2014, ApJ, 783, 79

3. *Two Beyond-Primitive Extrasolar Planetesimals*
Xu, S., Jura, M., Klein, B., et al. 2013, ApJ, 766, 132

2. *Discovery of Molecular Hydrogen in White Dwarf Atmospheres*
Xu, S., Jura, M., Koester, D., et al. 2013, ApJL, 766, L18

1. *Spitzer Observations of White Dwarfs: the Missing Planetary Debris Around DZ Stars*
Xu, S., & Jura, M. 2012, ApJ, 745, 88

Co-Author with Significant Contribution:

26. *A machine-learning compositional study of exoplanetary material accreted onto five helium-atmosphere white dwarfs with cecilia*
Badenas-Agusti†, M., **Xu, S.**, Vanderburg, A., et al. 2025, MNRAS, 540, 1, 746

25. *Revisiting the Chemical Composition of WD 1145+017: Impact of Circumstellar Disk Contamination on Photospheric Abundances*
Le Bourdais, É.†, Dufour, P., & **Xu, S.** 2024, ApJ, 977, 1, 93

24. *A Sample of 554 White Dwarfs Showing Infrared Excess from Gaia EDR3 and CatWISE Catalogs*
Favieres, C. M.†, Kissler-Patig M., **Xu, S.**, Bonsor, A., 2024, A&A, 688, A168

23. *Seven white dwarfs with circumstellar gas discs II: tracing the composition of exoplanetary building blocks*
Rogers, L. K.†, Bonsor, A., **Xu, S.**, et al. MNRAS, 2024, 532, 3866

22. *Seven white dwarfs with circumstellar gas discs I: White dwarf parameters and pollutant abundances*
Rogers, L. K.†, Bonsor, A., **Xu, S.**, et al. MNRAS, 2024, 527, 6038

21. *Disk or Companion: Characterizing Excess Infrared Flux in Seven White Dwarf Systems with Near-infrared Spectroscopy*
Owens, D.†, **Xu, S.**, Manjavacas, E., et al. 2023, AJ, 166, 5

20. *wdwarfdate: A Python Package to Derive Bayesian Ages of White Dwarfs*
Kiman, R.†, **Xu, S.**, Faherty, J. K., et al. 2022, AJ, 164, 62

19. *Gaia 0007-1605: an old triple system with an inner brown dwarf-white dwarf binary and an outer white dwarf companion*
Rebassa-Mansergas, A., **Xu, S.**, Raddi, R., et al. 2022, ApJL, 927, L31

18. *No evidence for a strong decrease of planetesimal accretion in old white dwarfs*
Blouin, S., & **Xu, S.**, 2022, MNRAS, 510, 1059

17. *Polluted White Dwarfs Reveal Exotic Mantle Rock Types on Exoplanets in our Solar Neighborhood*
Putirka, K., & **Xu, S.**, 2021, Nature Communications,12, 6168

16. *Infrared Excesses around Bright White Dwarfs from Gaia and unWISE II*
Lai, S.†, Dennihy, E.†, **Xu, S.**, et al., 2021, ApJ, 920, 156L

15. *A Characterization of the Circumstellar Gas around WD 1124-293 Using Cloudy*
Steele, A.†, Debes, J., **Xu, S.**, et al. 2021, ApJ, 911, 25

14. *Five New Post-Main-Sequence Debris Disks with Gaseous Emission*
Dennihy, E.†, **Xu, S.**, Lai, S.†, et al. 2020, ApJ, 905, 5

13. *A Giant Planet Candidate Transiting a White Dwarf*
Vanderbrug, A., Rappaport, S., **Xu, S.**, et al. 2020, Nature, 585, 363

12. *Spitzer's debris disk legacy from main-sequence stars to white dwarfs*
Chen, C. H., Su, K. Y. L., & **Xu, S.** 2020, Nature Astronomy, 4, 328

11. *Near-infrared variability in dusty white dwarfs: tracing the accretion of planetary material*
Rogers, L. K.†, **Xu, S.**, Bonsor, A., et al. 2020, MNRAS, 494, 2861

10. *Modeling of the Variable Circumstellar Absorption Features of WD 1145+017*
Fortin-Archambault, M.†, Dufour, P., & **Xu, S.** 2020, ApJ, 888, 47

9. *The critical binary star separation for a planetary system origin of white dwarf pollution*
Veras, D., **Xu, S**., & Rebassa-Mansergas, A. 2018, MNRAS, 473, 2871

8. *Planetary Systems around White Dwarfs*
Bonsor, A., & **Xu, S.** 2017, Astrophysics and Space Science Library, 445, 229

7. *Once in a blue moon: detection of 'bluing' during debris transits in the white dwarf WD 1145+017*
Hallakoun, N.†, **Xu, S.**, Maoz, D., et al. 2017, MNRAS, 469, 3213

6. *^{26}Al in the Early Solar System: Not so Unusual After All*
Jura, M., **Xu, S.**, & Young, E. D. 2013, ApJL, 775, L41

5. *The Hyades Cluster: Identification of a Planetary System and Escaping White Dwarfs*
Zuckerman, B., **Xu, S.**, Klein, B., et al. 2013, ApJ, 770, 140

4. *Extrasolar Refractory-Dominated Planetesimals: an Assessment*
Jura, M., & **Xu, S.** 2013, AJ, 145, 30

3. *Two Extrasolar Asteroids with Low Volatile-Element Mass Fractions*
Jura, M., **Xu, S.**, Klein, B., et al. 2012, ApJ, 750, 69

2. *Water Fractions in Extrasolar Planetesimals*
Jura, M., & **Xu, S.** 2012, AJ, 143, 6

1. *The Survival of Water within Extrasolar Minor Planets*
Jura, M., & **Xu, S.** 2010, AJ, 140, 1129