

John F. Wu

Space Telescope Science Institute
3700 San Martin Drive
Baltimore, MD 21218

Email: jowu@stsci.edu
Website: [jwuphysics.github.io](https://github.com/jwuphysics)
ORCID: [0000-0002-5077-881X](https://orcid.org/0000-0002-5077-881X)

EDUCATION

Ph.D. in Physics and Astronomy <i>Rutgers, The State University of New Jersey</i>	Piscataway, NJ 2013 – 2019
---	-------------------------------

B.Sc. in Physics/Astrophysics, with MCS Honors <i>Carnegie Mellon University</i>	Pittsburgh, PA 2009 – 2013
--	-------------------------------

APPOINTMENTS

Assistant Astronomer <i>Space Telescope Science Institute</i>	Baltimore, MD 2022 – Present
---	---------------------------------

Associate Research Scientist <i>Center for Astrophysical Sciences, Johns Hopkins University</i>	Baltimore, MD 2022 – Present
---	---------------------------------

Postdoctoral Researcher <i>Space Telescope Science Institute</i>	Baltimore, MD 2020 – 2021
<i>Johns Hopkins University</i>	2019 – 2020

Graduate Research Assistant <i>Rutgers, The State University of New Jersey</i>	Piscataway, NJ 2013 – 2019
--	-------------------------------

Undergraduate Research Assistant <i>McWilliams Center for Cosmology, Carnegie Mellon University</i>	Pittsburgh, PA 2012 – 2013
---	-------------------------------

Research Intern <i>Carnegie Mellon University CyLab</i>	Pittsburgh, PA 2011
---	------------------------

WORKSHOPS AND OTHER EXPERIENCE

Kavli Institute of Theoretical Physics <i>Building a Physical Understanding of Galaxy Evolution with Data-driven Astronomy</i>	Santa Barbara, CA (scheduled) 2023
--	---------------------------------------

Pascal Institute <i>The Self-Organized Star Formation Process</i>	Paris, France Sept 2019
---	----------------------------

MIAPP Topical Workshop <i>Nine Billion Years of Gas Evolution</i>	Munich, Germany July 2019
---	------------------------------

USAID Research & Innovation Fellow <i>Improving the LADUMA Pipeline Using MeerKAT Early Science Data</i>	Cape Town, South Africa Sept – Nov 2016
--	--

SKA Pathfinders HI Science Coordination Committee <i>2015 PHISCC Workshop: HI Surveys Get Real</i>	Piscataway, NJ Mar 2015
--	----------------------------

Vatican Observatory Summer School <i>Galaxies, Near and Far, Young and Old</i>	Castel Gandolfo, Italy June 2014
--	-------------------------------------

NRAO Synthesis Imaging Workshop <i>14th Synthesis Imaging Workshop</i>	Socorro, NM May 2014
--	-------------------------

PROFESSIONAL MEMBERSHIPS

American Astronomical Society	2015 – Present
International Astronomical Union	2021 – Present

GRANTS AND AWARDS

Google, <i>GCP Research Credits Program</i> , \$5,000	2019
Rutgers, <i>Robert A. Schommer Prize</i> , \$500	2018
USAID, <i>Research and Innovation Fellowship</i> , \$11,636	2016
Rutgers, <i>Special Study Award</i> , \$1,350	2014
Rutgers, <i>Claud Lovelace Graduate Fellowship & Excellence Fellowship Supplement</i> , \$1,000	2013
CMU, <i>MCS College Honors & Senior Leadership Recognition</i>	2013

ADVISING AND MENTORSHIP

SASP Mentor, <i>Phani Velicheti (Arizona/Space Astronomy Summer Program)</i>	2022 – Present
Primary co-advisor, <i>Ziting Guo, (Yale-NUS/Undergraduate capstone project)</i>	2021 – 2022
Mentor, <i>Kamonte Johnson (Frostburg State University/CollegeBound Foundation)</i>	2020 – 2022
Co-advisor, <i>Antoine Washington (Rutgers University/Undergraduate senior thesis)</i>	2017 – 2020
Near peer mentor, <i>Marcell Howard (Case Western Reserve University/REU)</i>	2018
Near peer mentor, <i>Manuel Perez III (University of Redlands/REU)</i>	2017

SERVICE

Journal Reviewer for <i>PNAS</i> (2021–), <i>ApJ</i> (2020–), <i>AJ</i> (2021–), <i>MNRAS</i> (2020–), and <i>A&A</i> (2019–)	
Program Coordinator/Diversity Lead, <i>KITP Program - GalEvo23</i>	(scheduled) 2023
Coordinator, <i>STScI Science Staff Retreat</i>	(scheduled) 2022
Founder/Organizer, <i>STScI Machine Learning Reading Group (MLRG)</i>	2022 – Present
Member, <i>NRAO Science Review Panel (SRP)</i>	2022 – Present
Member, <i>NOIRLab Data Science Advisory Group (DSAG)</i>	2022 – Present
Reviewer, <i>NeurIPS 35: ML4PS workshop</i>	2021
Leveler, <i>JWST Cycle 1 Panel</i>	2021
Co-organizer, <i>Low Density Universe (LDU) Meetings</i>	2020 – 2021
STScI Liason, <i>JHU Physics and Astronomy Postdocs + Research Scientists</i>	2020
Session Chair, <i>ISM-BIG meeting-in-meeting at AAS 236</i>	2020
Co-organizer, <i>JHU CAS Astro Coffee</i>	2020
Co-organizer, <i>Rutgers Gaia DR2 Hackathon</i>	2018
Co-organizer, <i>Rutgers SPS/RAS Astro Hack Sessions</i>	2018
Webmaster, <i>Rutgers Physics GSO and SSPAR</i>	2014 – 2017
Time Allocation Committee, <i>SALT 2015-2 Rutgers TAC</i>	2015
Local Organizing Committee, <i>2015 PHISCC Workshop</i>	2015
Organizer, <i>Student Seminars in Physics and Astronomy at Rutgers (SSPAR)</i>	2014 – 2015
Vice President, <i>Rutgers Physics Graduate Student Organization (GSO)</i>	2014 – 2015

TEACHING AND OUTREACH

Guest Speaker, <i>STScI SASP + INS Interns</i>	2021
Guest Speaker, <i>Marymount School of New York, Independent Science Research</i>	2021
Teaching Assistant, <i>STScI ML Office Hours</i>	2021
Guest Lecturer, <i>Rutgers Byrne Seminar: The Poetry of Astronomy</i>	2016, 2019
Certificate, <i>Seminar In Graduate Mentoring in Astronomy and Physics (SIGMA-P)</i>	2018
Plenary Talk, <i>Friends of Rutgers Astronomy</i>	2017
Leadership Team, <i>Parsons Community Outreach</i>	2015 – 2016
Volunteer, <i>Parsons Community Outreach</i>	2013 – 2016
Teaching Assistant, <i>Rutgers 343: Observational Radio Astronomy</i>	2015
Public Talk, <i>Rutgers Astronomical Society</i>	2014
Certificate, <i>Developing Educational Leaders among TAs in Physics (DELTA-P)</i>	2013

SEMINARS AND TALKS (†INVITED)

†Seminar, <i>Carnegie Observatories Lunch Talks</i>	2022
†Seminar, <i>UMBC Astrophysics Seminar</i>	2022
†Special Talk, <i>STScI</i>	2021
Special Talk, <i>JHU/STScI HotSci Series</i>	2021
†Seminar, <i>Université de Montréal, Astrophysics Seminar</i>	2021
†Seminar, <i>University of Toronto, Statistics and Machine Learning Journal Club</i>	2021
†Seminar, <i>Western Sydney University, Machine Learning in Astronomy</i>	2021
Seminar, <i>Space Telescope Science Institute, Galaxies Journal Club</i>	2021
†Seminar, <i>Fermilab, Cosmic Physics Center Seminar</i>	2021
†Talk, <i>NCSA – Accelerated Artificial Intelligence for Big-Data Experiments</i>	2020
Seminar, <i>NOIRLab, Flash Seminar</i>	2020
†Seminar, <i>Wayne State University, Particle/Astro/Nuclear Physics Seminar</i>	2020
†Talk, <i>The ISM in the Era of Big Data (AAS 236)</i>	2020
Talk, <i>JHU Astro Coffee</i>	2020
†Talk, <i>Astronomers Turned Data Scientists Meeting (AAS 235)</i>	2020
Poster, <i>AAS 235th Meeting</i>	2020
Seminar, <i>STScI, Science Coffee Seminar</i>	2019
Seminar, <i>JHU, CAS Wine & Cheese Seminar</i>	2019
†Deep learning workshop, <i>MIAPP – Galaxy Evolution in a New Era of HI Surveys</i>	2019
Talk, <i>ESO — Nine Billion Years of Gas Evolution</i>	2019
†Seminar, <i>Rutgers Statistics, Foundations of Probability Seminar</i>	2019
Dissertation talk, <i>AAS 233rd Meeting</i>	2019
Seminar, <i>Princeton, Galread Seminar</i>	2018
Seminar, <i>Princeton, Data Science/COMPASS Seminar</i>	2018
Seminar, <i>University of Cape Town, Lunch Seminar</i>	2018
Poster, <i>École Normale Supérieure – Galaxy Evolution Across Time</i>	2017
Talk, <i>Princeton-Rutgers Extragalactic Science Day</i>	2016
Talk, <i>AAS 227th Meeting</i>	2016
Seminar, <i>Australian Astronomical Observatory, Colloquium</i>	2015

PROFESSIONAL COLLABORATIONS

ALMA Lensing Cluster Survey (ALCS): *Member*

Dark Energy Spectroscopic Instrument (DESI): *External Collaborator (LOWZ Program)*

DECam Local Volume Exploration (DELVE): *WIDE Survey WG Member*

Deep Skies Lab: *Contributor*

LADUMA: *Pipeline & Calibration WG, Source-finding WG, and Ancillary Data WG Member*

LSST Galaxies Science Collaboration: *Member*

TELESCOPE OBSERVING PROPOSALS

Atacama Large Millimeter/submillimeter Array (ALMA)

PI, *one proposal (9.4 hrs – partially observed in Cycle 7)* *Cycles 7, 8*

CoI, *four proposals (120.9 hrs)* *Cycles 2, 6, 7, 8*

Gemini South/Flamingo2

CoI, *Fast Turnaround (5.8 hrs)* *2021B*

Very Large Array (VLA)

CoI, *19A-433 (10 hrs)* *2019A*

Anglo-Australian Telescope (AAT)

CoI, *N0331 (5 nights), N0334 (4 nights)* *2015, 2017*

Southern African Large Telescope (SALT)

PI, *2016-1-SCI-040 (3.9 hrs), 2015-2-SCI-052 (3.9 hrs), DDT (1.6 hrs)* *2015-1 — 2016-1*

CoI, *2017-1-MLT-014 (11.3 hrs), 2016-2-SCI-051 (20.4 hrs),* *2016-2 — 2017-1*

John F. Wu — Publication List

For an up-to-date list of my publications, please see [my ADS Library](#) or [my ORCID](#).

PEER REVIEWED PAPERS

13. *A Machine Learning Approach to Enhancing eROSITA Observations*
Soltis, J., Ntampaka, M., **Wu, J.**, et al., *ApJ*, submitted, arXiv:2207.14324.
12. *The DECam Local Volume Exploration Survey Data Release 2*
Drlica-Wagner, A., Ferguson, P. S., Adamów, M., *ApJS*, 261, 38.
11. *LADUMA: The First Untargeted Detection of an OH Megamaser at $z > 0.5$*
Glowacki, M., Collier, J. D., Kazemi-Moridani, A., et al., 2022, *ApJL*, 931, 7.
10. *Extending the SAGA Survey (xSAGA). I. Satellite Radial Profiles as a Function of Host-galaxy Properties*
Wu, J. F., Peek, J. E. G., Tollerud, E. J., et al, 2021, *ApJ*, arXiv:2112.01542
9. *Predicting the Spectrum of UGC 2885, Rubin’s Galaxy with Machine Learning*
Holwerda, B. W., **Wu, J. F.**, Keel, W. C., Young, J., et al., 2021, *ApJ*, 914, 142.
8. *The DECam Local Volume Exploration Survey: Overview and First Data Release*
Drlica-Wagner, A., Carlin, J. L., Nidever, D. L., et al., 2021, *ApJS*, 256, 2.
7. *ALMA Lensing Cluster Survey: an ALMA galaxy signposting a MUSE galaxy group at $z=4.3$ behind “El Gordo”*
Caputi, K. I., Caminha, G. B., Fujimoto, S., et al., 2021, *ApJ*, 908, 146.
6. *Predicting galaxy spectra from images with hybrid convolutional neural networks*
Wu, J. F., Peek, J. E. G., 2020, *NeurIPS: ML4PS workshop*, 3, arXiv:2009.12318.
(NOTE: MACHINE LEARNING CONFERENCE PAPERS ARE PEER REVIEWED)
5. *Connecting Optical Morphology, Environment, and HI Mass Fraction for Low-Redshift Galaxies Using Deep Learning*
Wu, J. F., 2020, *ApJ*, 900, 148.
4. *The Star-Forming Interstellar Medium of Lyman Break Galaxy Analogs*
Wu, J. F., Baker, A. J., Heckman, T. M., et al., 2019, *ApJ*, 887, 251.
3. *Using convolutional neural networks to predict galaxy metallicity from three-colour images*
Wu, J. F., Boada, S., 2019, *MNRAS*, 484, 4683.
2. *Herschel and ALMA Observations of Massive SZE-selected Clusters*
Wu, J. F., Aguirre, P., Baker, A. J., et al., 2018, *ApJ*, 853, 195.
1. *Galaxy Candidates at $z \sim 10$ in Archival Data from the Brightest of Reionizing Galaxies (BORG[z8]) Survey*
Bernard, S. R., Carrasco, D., Trenti, M., Oesch, P. A., **Wu, J. F.**, et al., 2016, *ApJ*, 827, 76.

PAPERS IN PREPARATION

1. *Target Selection and Sample Characterization for the DESI LOW-Z Secondary Target Program*
Darragh-Ford, E., **Wu, J. F.**, Mao, Y.-Y., et al., 2022, *ApJ*, in prep.

10. *Roman Ultra Deep Field*
Koekemoer, A. M. et al. 2021, *Roman Early-Definition Astrophysics Survey Opportunity*.
9. *The morphological indicators of gas mass fraction for low-redshift galaxies*
Wu, J. F., Peek, J., *AAS Meeting 235*, 2020, 208.14.
8. *Galaxy Groups at Low and High Redshift with RESOLVE and LADUMA*
Hutchens, Z. et al., 2020, *AAS Meeting 235*, 207.40.
7. *Gas and galaxy evolution in extreme $z \sim 1$ clusters and extreme $z \sim 0.2$ starbursts*
Wu, J. F. 2019, *AAS Meeting 233*, 230.03D.
6. *Probing the Evolution of Galaxies by Stacking Stellar Mass Selected Samples*
Howard, M., Baker, A. J., **Wu, J. F.**, 2019, *AAS Meeting 233*, *AAS Meeting 233*, 145.08.
5. *Using Convolutional Neural Networks to predict Galaxy Metallicity from Three-Color Images*
Boada, S. & **Wu, J. F.**, 2019, *AAS Meeting 233*, 144.30.
4. *Herschel And ALMA Observations Of The ISM In Massive High-Redshift Galaxy Clusters*
Wu, J. F. et al. 2017, *Galaxy Evolution Across Time*, 51.
3. *Characterizing and Cataloguing Star-Forming Galaxies in Preparation for the LADUMA Survey*
Perez, M. J., Baker, A. J., **Wu, J. F.** 2017. *AAS Meeting 229*, 347.30.
2. *LADUMA: Looking at the Distant Universe with the MeerKAT Array*
Blyth, S. et al. 2016, *Proceedings of MeerKAT Science: On the Pathway to the SKA*, 4.
1. *Investigating star formation properties of galaxies in massive clusters with Herschel and ALMA*
Wu, J. F. et al. 2016, *AAS Meeting 227*, 202.02.