

John F. Wu

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Education

Rutgers, The State University of New Jersey

Ph.D., Physics and Astronomy

Piscataway, NJ

Sept 2013–present

Carnegie Mellon University

B.Sc., Physics/Astrophysics

Pittsburgh, PA

Sept 2009–May 2013

Professional Experience

Rutgers, The State University of New Jersey

Graduate research assistant, advised by Andrew Baker

Piscataway, NJ

July 2013–present

- *Investigating star formation in galaxies in massive clusters by using multi-wavelength observations and stacking.*

Teaching assistant

Jan 2015–May 2015

- *Instructed lab sections for Physics 343: Observational radio astronomy.*
- *Graded assignments for Physics 342: Principles of astrophysics.*

McWilliams Center for Cosmology, Carnegie Mellon University

Undergraduate research assistant, advised by Rachel Mandelbaum

Pittsburgh, PA

July 2012–May 2013

- *Characterized galaxies in rich clusters by using Sloan Digital Sky Survey observations.*

Carnegie Mellon University CyLab

Research intern

Pittsburgh, PA

May 2011–Aug 2011

- *Developed and tested robust facial recognition software.*
- *Created a proof of concept image manipulation tool for artificial aging.*

Other Experience

USAID Research & Innovation Fellowship

Improving the LADUMA Pipeline Using MeerKAT Early Science Data

Cape Town, South Africa

Sept 2016–Nov 2016

- *Worked with Sarah Blyth (UCT) and Bradley Frank (UCT) to analyze simulated MeerKAT data using ARCADE (African Research Cloud).*
- *Developed a pipeline to test and benchmark source-finding software.*
- *Attended the Visualization in Astronomy and 3GC4: HI Fidelity conferences.*

Vatican Observatory Summer School

VOSS: *Galaxies, Near and Far, Young and Old*

Castel Gandolfo, Italy

June 2014

- *Completed projects with Michele Trenti (Melbourne), Jacqueline van Gorkom (Columbia), and Chris Carilli (NRAO).*

NRAO Synthesis Imaging Workshop

National Radio Astronomy Observatory 14th Synthesis Imaging Workshop

Socorro, NM

May 2014

- *Reduced ALMA data using Common Astronomy Software Applications (CASA).*

Refereed Publications

- [2] “Herschel and ALMA Observations of Massive SZE-selected Clusters,”

Wu, J. F., Aguirre, P., Baker, A. J., Devlin, M. J., Hilton, M., Hughes, J. P., Infante, L., Lindner R. R., Sifón, C., 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.**, Bradley, L. D., Schmidt, K. B., Bouwens, R. J., Calvi, V., Mason, C. A., Stiavelli, M., Treu, T., 2016, *ApJ*, 827, 76

Honors and Awards

TA/GA Professional Development Fund , <i>Rutgers</i>	<i>June 2018</i>
Robert A. Schommer Prize , <i>Rutgers</i> <i>Best astronomy paper by a graduate student</i>	<i>April 2018</i>
University and Louis Bevier Fellowship Honorable Mention , <i>Rutgers</i>	<i>April 2018</i>
TA/GA Professional Development Fund , <i>Rutgers</i>	<i>June 2017</i>
International Travel Grant , <i>American Astronomical Society</i>	<i>Mar 2017</i>
TA/GA Professional Development Fund , <i>Rutgers</i>	<i>June 2016</i>
Special Study Award , <i>Rutgers</i>	<i>Mar 2014</i>
Claud Lovelace Fellowship , <i>Rutgers</i>	<i>Sept 2013–June 2014</i>
Senior Leadership Recognition , <i>Carnegie Mellon</i>	<i>May 2013</i>
Mellon College of Science College Honors , <i>Carnegie Mellon</i>	<i>May 2013</i>

Seminars and Conference Talks/Posters

University of Cape Town (UCT) , <i>Seminar</i>	<i>Aug 2018</i>
Galaxy Evolution Across Time , <i>Contributed poster</i>	<i>June 2017</i>
Princeton-Rutgers 3rd annual extragalactic science day , <i>Contributed talk</i>	<i>May 2016</i>
American Astronomical Society (AAS) 227th meeting , <i>Contributed talk</i>	<i>Jan 2016</i>
Australian Astronomical Observatory (AAO) , <i>Seminar</i>	<i>Dec 2015</i>

Telescope Proposals and Observing

Anglo-Australian Telescope (AAT)

Col, *Redshifts in the LADUMA Field to $z \sim 0.6$ (N0331)* *2017B*

- Awarded five nights of AAT/AAOmega to continue campaign of measuring redshifts in the LADUMA field.

Col, *Redshifts in the LADUMA Field to $z \sim 0.6$ (N0334)* *2015B*

- Awarded four nights of AAT/AAOmega time to measure galaxy redshifts in preparation for studying neutral hydrogen with the LADUMA survey.
- Observed at the AAT and detected ~ 1600 galaxy redshifts.

Atacama Large Millimeter/submillimeter Array (ALMA)

Col, *Galaxies in (and behind) two massive high-redshift clusters (2013.1.01358.S)* *Cycle 2*

- Obtained Band 6 (230 GHz) mosaic observations to study atomic carbon and molecular CO emission of cluster galaxies, and also to study the dust continuum emission of cluster and background galaxies.
- Reduced data by using the NAASC computing facilities at NRAO in Charlottesville.

Southern African Large Telescope (SALT)

Col, *Preparing for LADUMA: SALT Redshift Measurements (2017-1-MLT-014)* *2017-1*

- Awarded 40770 seconds of P1 (high priority) time to continue measuring redshifts in LADUMA field.
- Continuation of 2016-2-SCI-051.

Col, *Preparing for LADUMA: SALT Redshift Measurements (2016-2-SCI-051)* *2016-2*

- Awarded 73616 seconds of observing time for pilot project to measure galaxy redshifts at $0.6 < z < 1.1$.

PI, *Fabry-Pérot imaging of two massive galaxy clusters (2016-1-SCI-040)* *2016-1*

- Continuation of 2015-2-SCI-052 (awarded an additional 14000 seconds of P1 time).

- PI, *Fabry-Pérot imaging of two massive galaxy clusters* (2015-2-SCI-052) 2015-2
- Continuation of the 2015-1 DDT proposal (awarded 14000 seconds of P1 time).
- PI, *SALT Fabry-Pérot imaging of two massive galaxy clusters* (DDT) 2015-1
- Awarded 5600 seconds of P2 (medium priority) Rutgers discretionary time to pilot a blind Fabry-Pérot search for [OII] emitting galaxies in two massive, $z \sim 1$ clusters.

Leadership, Service, and Outreach

- Co-leader**, *Rutgers Gaia Data Release 2 Hackathon* May 2018
- Co-leader**, *SPS/RAS Astro Hack Sessions* March–April 2018
- Invited Public Talk**, *Rutgers Friends of Astronomy* Sept 2017
- Studying Galaxy Clusters with Herschel, ALMA, and SALT*
- Guest Lecturer**, *Physics 343: Observational radio astronomy* Mar 2017
- Guest Lecturer**, *Byrne Seminar: The Poetry of Astronomy* Feb 2016
- TAC member**, *SALT 2015-2 Rutgers Time Allocation Committee* Sept 2015
- LOC member**, *SKA Pathfinders HI Science Coordination Committee (PHISCC)* Mar 2015
- Organizer**, *Student Seminars in Physics and Astronomy at Rutgers (SSPAR)* Oct 2014–May 2015
- Vice President**, *Rutgers Physics Graduate Student Organization* Sept 2014–May 2015
- Public Talk**, *Rutgers Astronomical Society* Mar 2014
- Anisotropies in the Cosmic Microwave Background: B-modes and Inflation*

Skills

Programming: Python, MATLAB/Octave, IDL, SQL, Java, C++, HTML5/CSS, bash, L^AT_EX

Software: SciPy/matplotlib/pandas/seaborn, AstroPy, scikit-learn, fastai/Pytorch, Source Extractor, Miriad, CASA/MPICASA, Slurm, Docker, Singularity

Data reduction: ALMA, MeerKAT, SALT Fabry-Pérot