Bingjie Wang

Postdoc, Astronomy & Astrophysics
The Pennsylvania State University
520 Davey Laboratory, University Park, PA 16802, USA

bwang@psu.edu
https://wangbingjie.github.io

Education

Johns Hopkins University — Baltimore, MD
Ph.D. in Astronomy & Astrophysics — 2016–2021

- Thesis: "Implications for the Epoch of Reionization in the Local Universe"
- Advisor: Prof. Timothy Heckman

University of Pittsburgh — Pittsburgh, PA
B.A. in Philosophy, B.Phil. in Physics with honors, *Magna Cum Laude* — 2012–2016

- Thesis: "Evaluating the Standard Model of Cosmology in Light of Large-scale Anomalies in the Cosmic Microwave Background"
- Advisor: Prof. Arthur Kosowsky

Professional Position

The Pennsylvania State University — University Park, PA
Postdoctoral Scholar — 2022–present

- Mentor: Prof. Joel Leja

Honors and Awards

Rodger Doxsey Travel Prize, American Astronomical Society	2020
First-prize poster, First Light at University of São Paulo	2019
ΣΠΣ physics honors society initiate	2016
Thompson award for excellence in scientific writing, Physics & Astronomy, UPitt	2016
Halliday award for excellence in undergraduate research, Physics & Astronomy, UPitt	2015
Thomas-Lain fund scholarship, Physics & Astronomy, UPitt	2015
Research Internship in Science & Engineering, Deutschen Akademischen Austauschdienstes	2014
Sanielevici undergraduate research scholarship, Physics & Astronomy, UPitt	2014

Press

NASA/PSU press release, "NASA's James Webb Telescope uncovers new details in Pandora's Cluster"	2023
AAS journal author series, "[S II] deficiency and the leakage of ionizing radiation"	2021
AAS NOVA research highlights, "Tracing gas flows out of star-forming galaxies"	2020

Professional Experience

NASA proposal review: panelist 2023

Reviewer for *The Astrophysical Journal*, *The Astrophysical Journal Letters* 2021–

Publications

31 in total, 6 as first author, h-index: 14, citations: > 500 (as of 06/2023)

Links to: ADS, Google Scholar

First Author

[1]**B. Wang**, J. Leja, V. A. Villar, and J. S. Speagle, "SBI++: Flexible, Ultra-fast Likelihood-free Inference Customized for Astronomical Applications", arXiv e-prints, arXiv:2304.05281 (2023).

[2]**B. Wang**, J. Leja, et al., "Inferring More from Less: Prospector as a Photometric Redshift Engine in the Era of JWST", ApJL **944**, L58 (2023).

[3]**B. Wang**, J. Leja, A. Villar, and J. S. Speagle, "Monte Carlo Techniques for Addressing Large Errors and Missing Data in Simulation-based Inference", ML4PS NeurIPS, arXiv:2211.03747 (2022).

[4]**B. Wang**, T. M. Heckman, et al., "The Low-redshift Lyman-continuum Survey: [S II] Deficiency and the Leakage of Ionizing Radiation", ApJ **916**, 3 (2021).

[5]**B. Wang**, T. M. Heckman, G. Zhu, and C. A. Norman, "A Systematic Study of Galactic Outflows via Fluorescence Emission: Implications for Their Size and Structure", ApJ **894**, 149 (2020).

[6]**B. Wang**, T. M. Heckman, C. Leitherer, et al., "A New Technique for Finding Galaxies Leaking Lyman-continuum Radiation: [S II] Deficiency", ApJ **885**, 57 (2019).

Second Author

[7]D. J. Watts, **B. Wang**, et al., "A Projected Estimate of the Reionization Optical Depth Using the CLASS Experiment's Sample Variance Limited E-mode Measurement", ApJ **863**, 121 (2018).

[8]S. Aiola, **B. Wang**, A. Kosowsky, et al., "Microwave Background Correlations from Dipole Anisotropy Modulation", PRD **92**, 063008 (2015).

Co-author (Selected)

[9]H. Atek, I. Chemerynska, **B. Wang**, et al., "JWST UNCOVER: Discovery of $z > 9$ Galaxy Candidates Behind the Lensing Cluster Abell 2744", arXiv e-prints, arXiv:2305.01793 (2023).

[10]I. Labbé, P. van Dokkum, ..., and **B. Wang**, "A Population of Red Candidate Massive Galaxies $\sim$600 Myr After the Big Bang", Nature **616**, 266–269 (2023).

[11]E. J. Nelson, K. A. Suess, ..., **B. Wang**, et al., "JWST Reveals a Population of Ultrared, Flattened Galaxies at $2 \lesssim z \lesssim 6$ Previously Missed by HST", ApJL **948**, L18 (2023).

[12]R. Bezanson, I. Labbe, ..., **B. Wang**, et al., "The JWST UNCOVER Treasury survey: Ultradeep NIRSpec and NIRCam ObserVations before the Epoch of Reionization", arXiv e-prints, arXiv:2212.04026 (2022).

[13]S. R. Flury, A. E. Jaskot, ..., **B. Wang**, et al., "The Low-redshift Lyman Continuum Survey. I. New, Diverse Local Lyman Continuum Emitters", ApJS **260**, 1 (2022).

[14]F. Krauß, K. Deoskar, ..., **B. Wang**, et al., "Fermi/LAT counterparts of IceCube neutrinos above 100 TeV", A&A **620**, A174 (2018).

[15]S. Aiola, A. Kosowsky, and **B. Wang**, "Gaussian Approximation of Peak Values in the Integrated Sachs-Wolfe Effect", PRD **91**, 043510 (2015).

Science Talks (Selected)

Statistical challenges in modern astronomy VIII, Pennsylvania State University 06/23
"SBI++: flexible, ultra-fast likelihood-free inference customized for astronomical application"

Modern statistics of galaxies (**invited**), Ludwig-Maximilians-Universität, Germany 06/23
"Toward a coherent narrative of galaxy evolution in the era of JWST & LSST"

Cosmic Connections: A ML × Astrophysics Symposium, Simons Foundation 05/23
"SBI++: flexible, ultra-fast likelihood-free inference customized for astronomical application"

Astronomy seminar (**invited**), University of Pittsburgh 03/23
"Toward a new census of the $0 < z < 20$ universe"

Astrostatistics seminar (**invited**), University of Toronto, Canada 03/23
"Toward a new census of the $0 < z < 20$ universe"

Astronomy seminar (**invited**), University of Connecticut 03/22
"Implications for the epoch of reionization in the local universe"

Dissertation talk, 237th Meeting of the American Astronomical Society 01/21
"Implications for the epoch of reionization in the local universe"

Lunch talk, University of California at Berkeley 10/20
"Implications for the epoch of reionization in the local universe"

First Light, University of São Paulo, Brazil 08/19
"A new technique for finding galaxies leaking Lyman-continuum radiation: [S II] deficiency"

Annual Sanielevici lecture, University of Pittsburgh 02/15
"Re-examining dark energy through large-scale structures of the universe"

Workshop on large-scale anomalies, Case Western Reserve University 09/14
"Gaussian approximation of peak values in the integrated Sachs-Wolfe effect."

DAAD RISE scholarship holder meeting, Heidelberg, Germany 07/14
"Black holes as possible sources of high-energy neutrinos"

Neighborhood workshop, Pennsylvania State University 04/14
"ΛCDM estimates on the stacked late-ISW signal"

Teaching Experience

Guest Lecturer, Penn State University 2023
Graduate level: extragalactic astronomy

Graduate Teaching Assistant, Johns Hopkins University 2016–2018
Graduate level: astrophysical dynamics, radiative astrophysics
Undergraduate level: cosmology, general physics for biological science majors II, general physics for physical science majors II, general physics labs I & II

Technical Skills

Analysis

Bayesian statistics, HST UV spectroscopic & imaging analyses, MCMC/nested sampling, SED fitting, simulation-based inference

Programming Languages

Proficient: Python, C, Git, LaTeX

Working knowledge: Java, SQL, Fortran90, Bash/shell, Mathematica, HTML

Selected Software

Prospector, Cosmic Linear Anisotropy Solving System (CLASS), HEALPix, PolSpice, 21cmFAST, Radiation Scattering in Astrophysical Simulations (RASCAS)

High Performance Computing

The Roar supercomputer (PSU); the Blue Crab cluster (MARCC), the Tiger cluster (Princeton)