

Wenlong Yuan

Department of Physics & Astronomy
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EDUCATION & POSITIONS

Postdoc Fellow

2017 – present

Department of Physics and Astronomy, Johns Hopkins University
 Supervisor: Adam Riess

Ph.D., Physics

2012 – 2017

Department of Physics and Astronomy, Texas A&M University
 Advisor: Lucas Macri

B.S., Physics

2008 – 2012

School of Physics, Shandong University

RESEARCH INTERESTS KEYWORDS

Observational Cosmology: Hubble Constant, Extragalactic Distance Scale

Variable Stars: Time-series Surveys, Classical Cepheids, Long-period Variables

Distance Calibration: Period–Luminosity Relations, Parallax, Tip of the Red Giant Branch

SCIENTIFIC AND TECHNICAL SKILLS

Photometry: Multi-year experience in *HST* image reduction, PSF photometry & calibration

Methods: Skilled in linear algebra & machine learning algorithm for astronomical dataset

Programming: Proficient in Python and R;

Developed SH0ES reduction & photometry pipeline

Computing: Capable of handling large scale computation with SLURM-based supercomputer

SERVICES AND PUBLIC OUTREACH

Johns Hopkins University Astrocoffee journal club organizer

2017 – 2019

Guest speaker (Skype) to astronomy class at Dartmouth College

October, 2018

Texas A&M Public Star Parties

Spring 2013, 2016

Texas A&M Physics and Astronomy Festival

April 2013 – 2016

RESEARCH PROJECTS AS INVESTIGATOR

1. PI: Refining the Mira Distance Scale and Hubble Constant for the Era of JWST and WFIRST (HST-GO-16250)
2. Co-I: A Mira Distance to M101: Towards a Sub-3% Measurement of the Hubble Constant with Miras (HST-AR-16132)
3. Co-I: From Masers to Coma, A Single Step Measurement of the Hubble Constant and a Reservoir of New SNe Ia (HST-GO-16198)
4. Co-I: Tension at the Breaking Point: Uncovering New Physics Through a Two-Rung Distance Ladder Measurement of the Hubble Constant (HST-GO-16269)
5. Co-I: The Hubble Constant to 1%: Physics beyond Λ CDM (HST-GO-15145)
6. Co-I: A New Threshold of Precision, 30 μ as Parallaxes and Beyond (HST-GO-15146)
7. Co-I: The Search for New Physics Amid the Hubble Constant Tension (HST-GO-15640)
8. Co-I: A Measurement of the Gaia Offset to Build a Superior Distance Ladder and Resolve the Origin of the Hubble Tension (HST-SNAP-15879)
9. Co-I: Towards a 2% Measurement of H_0 : Near-infrared Light Curves of Galactic Cepheids (NOAO 2014A-0410, 2015A-0150)

TALKS AND POSTERS

1. **Poster**@ UCSB KITP: Tensions Between the Early and the Late Universe, 07/2019
The Calibration of the Tip of the Red Giant Branch in the Large Magellanic Cloud on the Hubble Space Telescope Photometric System
2. **Talk**@ Johns Hopkins University Wine and Cheese Seminar, 04/2018
Period-Luminosity Relations of Mira Variables and Their Application to the Extragalactic Distance Scale
3. **Dissertation Talk**@ AAS Meeting #229, 01/2017
A Search for Miras in M33 Using Sparsely-Sampled Time Series Photometry
4. **Poster**@ AAS Meeting #229, 01/2017
Mira Period-Luminosity Relations at Near-Infrared
5. **Poster**@ SAMSI ASTRO Workshop, 08/2016
Mira Identification in M33 with Sparse Time Series

6. **Talk@** Indo-US Variable Star Workshop, 06/2015
A Search for Miras in M33
7. **Poster@** Joint Meeting of the Texas Section of the APS, 10/2014
Mega-SH0ES: Near Infrared Cepheid P-L Relation from Milky Way to M101
8. **Talk@** MIAPP Extragalactic Distance Scale Workshop, 06/2014
The Cepheid P-L Relation at Near-Infrared Wavelengths: M101 and the Milky Way
9. **Poster@** AAS Meeting #223, 01/2014
Mega-SH0ES: A Cepheid Distance to M101 Based on WFC3 H-band Photometry

Published Journal Articles

ADS link: https://ui.adsabs.harvard.edu/public-libraries/QBFJLG0pS_qQcUjTkrx14w

FIRST-AUTHOR PAPERS (CITED: 100+)

1. The Cepheid Distance to the Seyfert 1 Galaxy NGC 4151
W. Yuan, M. Fausnaugh, S. Hoffmann, L. Macri, B. Peterson, A. Riess *and 5 more*
eprint arXiv:2007.07888 (2020); Submitted
2. Consistent Calibration of the Tip of the Red Giant Branch in the Large Magellanic Cloud on the Hubble Space Telescope Photometric System and a Re-determination of the Hubble Constant
W. Yuan, A. Riess, L. Macri, S. Casertano & D. Scolnic
The Astrophysical Journal (2019)
3. Near-infrared Mira Period–Luminosity Relations in M33
W. Yuan, L. Macri, A. Javadi, Z. Lin, J. Huang
The Astronomical Journal (2018)
4. Large Magellanic Cloud Near-infrared Synoptic Survey. V. Period–Luminosity Relations of Miras
W. Yuan, L. Macri, S. He, J. Huang, S. Kanbur & C. Ngeow
The Astronomical Journal (2017)
5. The M33 Synoptic Stellar Survey. II. Mira Variables
W. Yuan, S. He, L. Macri, J. Long & J. Huang
The Astronomical Journal (2017)

CONTRIBUTED PAPERS (CITED: 2000+)

1. The Accuracy of the Hubble Constant Measurement Verified through Cepheid Amplitudes
A. Riess, **W. Yuan**, S. Casertano, L. Macri & D. Scolnic
The Astrophysical Journal Letters (2020)
2. Hubble Space Telescope Observations of Mira Variables in the Type Ia Supernova Host NGC 1559: An Alternative Candle to Measure the Hubble Constant
C. Huang, A. Riess, **W. Yuan**, L. Macri, N. Zakamska, S. Casertano *and 4 more*
The Astrophysical Journal (2020)
3. Large Magellanic Cloud Cepheid Standards Provide a 1% Foundation for the Determination of the Hubble Constant and Stronger Evidence for Physics beyond Λ CDM
A. Riess, S. Casertano, **W. Yuan**, L. Macri, D. Scolnic
The Astrophysical Journal (2019)
4. Milky Way Cepheid Standards for Measuring Cosmic Distances and Application to Gaia DR2: Implications for the Hubble Constant
A. Riess, S. Casertano, **W. Yuan**, L. Macri, B. Bucciarelli, M. Lattanzi *and 6 more*
The Astrophysical Journal (2018)
5. New Parallaxes of Galactic Cepheids from Spatially Scanning the Hubble Space Telescope: Implications for the Hubble Constant
A. Riess, S. Casertano, **W. Yuan**, L. Macri, J. Anderson, J. MacKenty *and 5 more*
The Astrophysical Journal (2018)
6. A Near-infrared Period–Luminosity Relation for Miras in NGC 4258, an Anchor for a New Distance Ladder
C. Huang, A. Riess, S. Hoffmann, C. Klein, J. Bloom, **W. Yuan**, L. Macri *and 4 more*
The Astrophysical Journal (2018)
7. Monitoring Luminous Yellow Massive Stars in M33: New Yellow Hypergiant Candidates
M. Kouniotis, A. Bonanos, **W. Yuan**, L. Macri, D. Garcia-Alvarez & C. Lee
Astronomy & Astrophysics (2017)
8. Period Estimation for Sparsely-sampled Quasi-periodic Light Curves Applied to Miras
S. He, **W. Yuan**, J. Huang, J. Long & L. Macri
The Astronomical Journal (2016)
9. Optical Identification of Cepheids in 19 Host Galaxies of Type Ia Supernovae and NGC 4258 with the Hubble Space Telescope
S. Hoffmann, L. Macri, A. Riess, **W. Yuan**, S. Casertano, R. Foley *and 7 more*
The Astrophysical Journal (2016)

10. A 2.4% Determination of the Local Value of the Hubble Constant
A. Riess, L. Macri, S. Hoffmann, D. Scolnic, S. Casertano *and 10 more including* **W. Yuan**
The Astrophysical Journal (2016)
11. GW150914: First Search for the Electromagnetic Counterpart of a Gravitational-wave Event by the TOROS Collaboration
M. Diaz, M. Beroiz, T. Penuela, L. Macri, R. Oelkers, **W. Yuan**, L. Garcia *and 27 more*
The Astrophysical Journal Letters (2016)
12. Photometry of Variable Stars from the THU-NAOC Transient Survey. I. The First Two Years
X. Yao, L. Wang, X. Wang, T. Zhang, J. Chen, **W. Yuan**, J. Mon *and 5 more*
The Astronomical Journal (2015)