

XIN WANG

PERSONAL INFORMATION

CURRENT STATUS: Graduate Student at University of California, Los Angeles
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EDUCATION

SEPT. 2015– PRESENT	Department of Physics and Astronomy, UCLA Towards Ph.D. in Astrophysics (Jun. 2019) Field of Interest: Spatially Resolved Spectroscopy, Chemical Evolution of Galaxies, Extragalactic Nebular Emission, Strong Gravitational Lensing. Advisors: Profs. Tucker A. Jones, Gabriel B. Brammer, Tommaso Treu, Keren Sharon
SEPT. 2013– SEPT. 2015	Physics Department, University of California, Santa Barbara M.A. in Physics (Jun. 2015) Graduate Course Cumulative GPA: 3.96
SEPT. 2010– MAY 2013	School of Astronomy and Space Sciences, Nanjing University M.Sc. in Astrophysics (Jun. 2013) Field of Interest: Precision Cosmology, Galaxy Clusters, Gamma-ray Bursts. Advisors: Profs. Yong Feng Huang, Charling Tao, Gong-Bo Zhao
SEPT. 2006– JUN. 2010	Department of Astronomy, Nanjing University B.Sc. in Astronomy (Jun. 2010) Weighted Average Score: 84.64/100 (overall), 87.68/100 (major); Ranking: 2 nd /26

RESEARCH EXPERIENCE

SEPT. 2013– PRESENT	<i>Title: The Grism Lens-Amplified Survey from Space (GLASS) program</i> GLASS is a cycle-21 HST Large Program allocated 140 orbits of Grism spectroscopy assisted with HST optical/infrared imaging. We survey the core and infall regions of 10 massive galaxy clusters, including 8 targeted by CLASH and 6 Frontier Fields. We will address three scientific questions: 1) What's the role that galaxies play in the process of reionization? 2) Why and how is galaxy evolution environmental dependent? 3) How do metals cycle in and out of galaxies and what's the interplay between cycling of metals and SF activities? Project in progress and scientific product: Wang et al. (2018) , Wang et al. (2017) , Wang et al. (2015) , Jones et al. (2015)
SEPT. 2011– JUN. 2013	<i>Title: Constraints on Cosmic Neutrinos and Dark Energy Revisited</i> Using various cosmological observations, i.e., CMB, weak lensing (WL), BAO, observational Hubble parameter data (OHD), type Ia supernovae (SNIa), we impose constraints on the sum of neutrino masses (Σm_ν), the effective number of neutrino species (N_{eff}) and dark energy equation of state (w). We find that a tight upper limit on Σm_ν can be extracted if N_{eff} and w are fixed, however it will be severely weakened if N_{eff} and w are allowed to vary. This result raises questions on the robustness of previous strict upper bounds on Σm_ν , reported in the literature. The different constraining abilities of current WL, OHD and SNIa samples are assessed and compared. Scientific Product: Wang et al. (2012) , Wang et al. (2013)
SEPT. 2008– JUN. 2010	<i>Title: Investigation on the Emission from the Receding Jet of Gamma-Ray Bursts</i> We studied the dynamical evolution of double-sided jets launched by the central engine of GRBs and calculated the afterglow emission from both jet components. For the first time, we present a detailed numerical study on the afterglow contributed from the jet component receding from the observer, with the effects of synchrotron self-absorption and equal arrival time surface taken into account. It is found that the receding jet emission is generally very weak and only manifests as a plateau in the late time radio afterglow light curves. However the emission from the receding jet can be significantly enhanced and possibly detectable, if the circum-burst medium density is high. Scientific Product: Wang et al. (2009) , Wang et al. (2010)

PUBLICATIONS

1ST/2ND AUTHOR PAPERS IN REFEREED ACADEMIC JOURNALS

- 1 **Wang, X.**, Huang, Y. F., & Kong, S. W. On the Afterglow from the Receding Jet of Gamma-Ray Bursts. 2009, *Astron. Astrophys.*, 505, 1213 ([arXiv:0903.3119](#))
- 2 **Wang, X.**, Huang, Y. F., & Kong, S. W. Constraint on the Counter-jet Emission in GRB Afterglows from GRB 980703. 2010, *Sci. China-Phys. Mech. Astron.*, 53 (Suppl.1), 259
- 3 **Wang, X.**, Meng, X.-L. et al. Observational Constraints on Cosmic Neutrinos and Dark Energy Revisited. 2012, *J. Cosmol. Astropart. Phys.*, 11, 018 ([arXiv:1210.2136](#))
- 4 **Wang, X.**, Meng, X.-L., & Huang, Y. F., Testing X-ray Measurements of Galaxy Cluster Gas Mass Fraction Using the Cosmic Distance-Duality Relation and Type Ia Supernovae. 2013, *RAA*, 13, 1013 ([arXiv:1305.2077](#))
- 5 Jones, T., **Wang, X.** et al. The Grism Lens-Amplified Survey from Space (GLASS) II. Gas-Phase Metallicity and Radial Gradients in an Interacting System At $z \sim 2$. 2015, *Astron. J.*, 149, 107 ([arXiv:1410.0967](#))
- 6 **Wang, X.** et al. The Grism Lens-Amplified Survey from Space (GLASS) IV. Mass reconstruction of the lensing cluster Abell 2744 from frontier field imaging and GLASS spectroscopy. 2015, *Astrophys. J.*, 811, 29 ([arXiv:1504.02405](#))
- 7 **Wang, X.** et al. The Grism Lens-Amplified Survey from Space (GLASS) X. Sub-kiloparsec resolution gas-phase metallicity maps at cosmic noon behind the Hubble Frontier Fields cluster MACS1149.6+2223. 2017, *Astrophys. J.*, 837, 89 ([arXiv:1610.07558](#))
- 8 **Wang, X.** et al. Discovery of Strongly inverted metallicity gradients in Dwarf Galaxies at $z \sim 2$. 2018, *Astrophys. J.* submitted ([arXiv:1808.08800](#))

CONTRIBUTING AUTHOR PAPERS IN REFEREED ACADEMIC JOURNALS

- 1 Meng, X.-L., Zhang, T.-J., Zhan, H., & **Wang, X.** Morphology of Galaxy Clusters: A Cosmological Model-Independent Test of the Cosmic Distance-Duality Relation. 2012, *Astrophys. J.*, 745, 98 ([arXiv:1104.2833](#))
- 2 Schmidt, K. B., Treu, T., Brammer, G. B., Bradac, M., **Wang, X.** et al. Through the Looking GLASS: HST Spectroscopy of Faint Galaxies Lensed by the Frontier Fields Cluster MACSJ0717.5+3745. 2014, *Astrophys. J. Letters*, 782L, 36 ([arXiv:1401.0532](#))
- 3 Treu, T., Schmidt, K. B., Brammer, G. B., Vulcani, B., **Wang, X.** et al. The Grism Lens-Amplified Survey from Space (GLASS). I. Survey Overview and First Data Release, 2015, *Astrophys. J.*, 812, 114 ([arXiv:1509.00475](#))
- 4 Morishita, T., Abramson, L. E., Treu, T., Schmidt, K. B., Vulcani, B., **Wang, X.** Characterizing Intracluster Light in the Hubble Frontier Fields. 2017, *Astrophys. J.*, 846, 139 ([arXiv:1610.08503](#))
- 5 Kelly, P. L., ..., **Wang, X.** et al. An individual star at redshift 1.5 extremely magnified by a galaxy-cluster lens. 2018, *Nature Astronomy*, in press ([arXiv:1706.10279](#))
- 6 Morishita, T., Abramson, L. E., Treu, T., **Wang, X.** et al. Metal Deficiency in Two Massive Dead Galaxies at $z \sim 2$, 2018, *Astrophys. J. Letters*, 856L, 4 ([arXiv:1803.01852](#))

TALKS AND COLLOQUIA (SELECTED)

APR. 2009	Contributed talk , @ Frontiers of Space Astrophysics: Neutron Stars & Gamma Ray Bursts — Recent Developments & Future Directions , Cairo & Alexandria, Egypt
JUN. 2010	Contributed talk , @ A mini-workshop on “Gamma-ray Sky from Fermi: Neutron Stars and their Environment” , University of Hong Kong, Hong Kong
AUG. 2015	Contributed talk , @ Focus Meeting 22 at the XXIXth IAU General Assembly , Honolulu, HI
JUN. 2016	Invited talk , @ Nanjing University, Nanjing
JUN. 2016	Invited talk , @ Purple Mountain Observatory, Nanjing
JUN. 2016	Invited talk , @ National Astronomical Observatories of China, Beijing
AUG. 2016	Colloquium talk , @ Department of Astronomy, University of Michigan, Ann Arbor, MI
JAN. 2017	Colloquium talk , @ Steward Observatory, University of Arizona, Tucson, AZ
JUN. 2017	Contributed talk , @ Special Session 11 at European Week of Astronomy and Space Science , Prague, Czech Republic
AUG. 2017	Contributed talk , @ Shedding Light on the Dark Universe with Extremely Large Telescopes , Lanzhou, China
SEPT. 2017	Invited talk , @ Shanghai Jiao Tong University, Shanghai

SEPT. 2017 | **Invited talk**, @ Nanjing University, Nanjing
 SEPT. 2017 | **Invited talk**, @ Tsinghua University, Beijing
 JAN. 2018 | **Colloquium talk**, @ Carnegie Observatories, Pasadena, CA
 FEB. 2018 | **Colloquium talk**, @ IPAC, Caltech, Pasadena, CA
 MAY 2018 | **Invited talk**, @ 2018 Nanjing University Youth Forum, Nanjing, China
 JUN. 2018 | **Contributed talk with conference fellowship**, @ [KIAA Forum on Gas in Galaxies](#), Beijing, China
 JUL. 2018 | **Invited talk**, @ University of Science and Technology of China, Hefei
 AUG. 2018 | **Contributed talk**, @ [Focus Meeting 7 at the XXXth IAU General Assembly](#), Vienna, Austria

AWARDS AND HONORS (SELECTED)

JUN. 2018 | UCLA Dissertation Year Fellowship (\$37k: stipend+tuition)
 MAY 2018 | Rudnick-Abelmann Fellowship, UCLA (\$2k)
 APR. 2018 | IAU grant for participating the XXXth General Assembly (€0.75k)
 APR. 2018 | AAS International Travel Grant (\$2k)
 APR. 2015 | AAS International Travel Grant (\$1k)
 JUN. 2014 | 1st Prize for Excellent M.Sc. Thesis amongst all Universities and Colleges in Jiangsu Province
 SEPT. 2013 | Broida Fellowship, UCSB (\$3k)
 DEC. 2012 | National Scholarship for Graduates (~\$4k)
This is the highest honorific scholarship in China conferred annually on excellent graduate students.
 AUG. 2010 | 1st Prize for Excellent B.Sc. Thesis amongst all Universities and Colleges in Jiangsu Province
 OCT. 2009 | Scholarship of National Astronomical Observatories, Chinese Academy of Sciences

COMPUTER SKILLS

Python, MATLAB, FORTRAN, C, \LaTeX , vim, Github, Mathematica

PROFESSIONAL SERVICE

- Referee for *Astrophysical Journal*, *Astrophysical Journal Supplement Series*
- 2014–2015 | Organizer of Treu Group Meetings, UCSB & UCLA
- DEC. 2010– | Organizer of Graduate Journal Club in School of Astronomy and Space Sciences, NJU
- DEC. 2011 | In total, I arranged 17 meetings, and invited 34 speakers. The topics are related to the major field of interest of the speakers, who will also share with participants some academic experience in doing scientific research. This activity is financially supported by our school.

OBSERVING EXPERIENCE

A LOT

APPROVED PROPOSALS (CoI)

- 1 JWST-ERS-1324, PI Treu: Through the Looking GLASS: A JWST Exploration of Galaxy Formation and Evolution from Cosmic Dawn to Present Day
 - 2 HST-14922, PI Kelly: Probing the Nature of Dark Matter with Individual Stars Highly Magnified by a Galaxy Cluster
 - 3 HST-14280, PI Bradac: Breaking Cosmic Dawn: Observing the $z > 7$ Universe Through Cosmic Telescopes
 - 4 VLT-0101.B-0418(A), PI Sanchez-Janssen: Chemodynamics of lensed dwarf galaxies at $1 \lesssim z \lesssim 2$
- n Keck OSIRIS proposals spanning several seasons

TEACHING EXPERIENCE

SEPT.–DEC. 2010 Teaching assistant of *Theoretical Astrophysics* (upper division undergraduate course), NJU
SEPT.–DEC. 2013 Teaching assistant of *Physics 6 Lab*, UCSB
MAR.–JUN. 2014 Teaching assistant of *Physics 3: Basic Physics*, UCSB

WORKING EXPERIENCE AND OUTREACH ACTIVITIES

2010–2012 President of Graduate Student Union in School of Astronomy and Space Sciences, NJU
2015–2017 Volunteer in the annual EXPLORING YOUR UNIVERSE! events, UCLA
2015–2017 Demonstrator of Astronomy experiments to local K12 schools in Los Angeles