Anowar J. Shajib

CONTACT INFORMATION

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RESEARCH INTERESTS

Gravitational Lensing, Observational Cosmology

EDUCATION

University of California, Los Angeles, USA

Ph.D. Candidate, Astronomy, March 2017 (expected graduation date: June 2020)

- Dissertation Topic: "Shining light on the dark energy with time-delay cosmography"
- Advisor: Prof. Tommaso Treu

M.S., Astronomy, June 2016

- Advisor: Prof. Edward L. Wright

The University of Tokyo, Japan

B.S., Physics, March 2014

HONORS AND AWARDS

Dissertation Year Fellowship, UCLA, 2019-2020, $20,000

Graduate Student Travel Stipend, MIAPP, 2018, €500

Graduate Student Travel Grant, UCLA, 2017, $2000

Graduate Division Fellowship, UCLA, 2014-2015, $18,000

MEXT[1] **Scholarship**, 2009-2014 (equivalent to $92,000)

PUBLICATIONS

First Author Publications

3. Shajib, A. J., et al. Is every strong lens model unhappy in its own way? Uniform modelling of a sample of 13 quadruply+ imaged quasars. MNRAS, 483, 5649-5671, 2019.
2. Shajib, A. J., Treu, T., and Agnello, A. Improving time-delay cosmography with spatially resolved kinematics. MNRAS, 473, 210-226, 2018.
1. Shajib, A. J. and Wright, E. L. Measurement of the integrated Sachs-Wolfe effect using the AllWISE data release. ApJ, 827:116 (9pp), 2016.

Contributing Author Publications

8. Taubenberger, S., et al. The Hubble Constant determined through an inverse distance ladder including quasar time delays and Type Ia supernovae. arXiv:1905.12496, 2019.
7. Rusu, C. E., et al. H0LiCOW XII. Lens mass model of WFI2033-4723 and blind measurement of its time-delay distance and H_0. arXiv:1905.09338, 2019.
6. Sluse, D., et al. H0LiCOW XI: Spectroscopic/imaging survey and galaxy-group identification around the strong gravitational lens system WFI2033-4723. arXiv:1905.08800, 2019.
5. Beaton, R. L., et al. Measuring the Hubble Constant Near and Far in the Era of ELT's. arXiv:1903.05035, 2019.

[1] Ministry of Education, Culture, Sports, Science and Technology, Government of Japan

4. Birrer, S., et al. H0LiCOW - IX. Cosmographic analysis of the doubly imaged quasar SDSS 1206+4332 and a new measurement of the Hubble constant. MNRAS, 484, 4726-4753, 2019.
3. Chen, G. C.-F., et al. Constraining the microlensing effect on time delays with new time-delay prediction model in H_0 measurements. MNRAS, 481, 1115-1125, 2018.
2. Ding, X., Treu, T., **Shajib, A. J.**, et al. Time Delay Lens Modeling Challenge: I. Experimental Design. arXiv:1801.01506, 2018.
1. Williams, P. R., et al. Discovery of three strongly lensed quasars in the Sloan Digital Sky Survey. MNRAS: Letters, 477, L70-L74, 2018.

Invited Talks

1. MPA Lensing Group Seminar, Munich, Germany, June 2018.

Contributed Talks

5. Astronomy seminar, University of California, Riverside, May 2019.
4. Keck Science Meeting, Caltech, USA, September 2018.
3. Extragalactic distance scale in the *GAIA* era, MIAPP workshop, Munich, Germany, June 2018.
2. Shedding Light on the Dark Universe with Extremely Large Telescopes, UCLA, USA, April 2018.
1. Strong Lensing by Galaxies and Clusters, Aosta, Italy, June 2017.

Professional Service

- Journal referee for Monthly Notices of the Royal Astronomical Society and American Astronomical Society
- Proposal reviewer for *Hubble Space Telescope*
- Graduate admission committee member (2019), Division of Astronomy, UCLA

Academic Experience

University of California, Los Angeles, USA

Graduate Student **October 2014 - present**

Includes current Ph.D. research, Ph.D. and Masters level coursework and research.

Guest Lecturer

- Physics 127 - General Relativity (Spring 2015)
- Astro 81 - Astronomy I: Stars and Nebulae (Winter 2016)

Teaching Assistant

- Astronomy 3 - Nature of Universe (Fall 2014)
- Physics 1C - Electrodynamics, Optics and Special Relativity (Winter 2015)
- Physics 127 - General Relativity (Spring 2015)
- Physics 6C - Physics for Life Sciences Majors: Light, Fluids, Thermodynamics, Modern Physics (Fall 2015)
- Astronomy 81 - Astrophysics I: Stars and Nebulae (Winter 2016)
- Astronomy 140 - Stellar Systems and Cosmology (Spring 2016)
- Physics 12 - Physics of Sustainable Energy (Winter 2017)

European Southern Observatory, Munich, Germany

Visiting Graduate Student **July 2018**

Collaborative research with Dr. Adriano Agnello.

Workshops

3. TMT Early Career Initiative Workshop, Los Angeles, December 2018.
2. Extragalactic distance scale in the *GAIA* era, MIAPP, Germany, June-July 2018.
1. Mary Lea & C. Donald Shane Observational Astronomy Workshop, UCO/Lick Observatory, October 2014.

Mentoring

- **Eden Molina:** UCLA undergraduate, completing a project to model doubly-imaged lensed quasars from NIRC2 imaging data. Mentored since Fall 2018.

Outreach

Cal-Bridge program, hosted a workshop at UCLA for California State University undergraduates on Graduate admission preparation, March, 2019.
Lecturer at Astronomy Live! summer workshop for high school students, 2018.
Astronomy Live!, visited K-12 schools to perform various demos as part of the UCLA Astronomy outreach program.
Exploring Your Universe, performed various demos in UCLA's annual science festival, 2014-17.
Star show, UCLA Planetarium, 2014-2016.
Public talk, UCLA Planetarium, 2014.

Approved Observing Proposals (CoI)

4. *Hubble Space Telescope* GO-15652 (2018). PI: Treu. H_0, the stellar initial mass function, and other dark matters from a large sample of quadruply imaged quasars (2018).
3. 2-m Himalayan Chandra Telescope (2018). PI: Courbin. Photometric monitoring of the quadruply lensed quasar PSOJ0147+4630.
2. MUSE NFM Science Verification (2018). PI: Zanella. From cosmology to star-forming regions: two compelling cases for MUSE NFM.
1. Keck U053(2017A), U032(2017B), U011(2018A), U011(2018B), U029(2019A). PI: Treu. Dark energy with gravitational time-delay: OSIRIS spectroscopy of lensing galaxies.

Observing Experience

OSIRIS, Keck I, 11.5 nights,
NIRC2, Keck II, 3 nights.

Data Analysis Experience

Hubble Space Telescope (WFC3), W. M. Keck Observatory (OSIRIS, NIRC2), Very Large Telescope (MUSE), *Wide-field Infrared Survey Explorer*, *Wilkinson Microwave Anisotropy Probe*, *Planck*, Sloan Digital Sky Survey.

Computer Skills

Programming Languages: Python, C, C++, PHP, SQL, JavaScript
Astronomy software: IRAF, PyRAF, SExtractor, DS9, Lenstronomy
Software/Framework: TensorFlow, Flask