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)

Publication statistics

10 refereed papers (including 3 as first-author, and one as single author), 2 papers under review.

Invited Talks

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

Contributed Talks

8. Lunch talk, Carnegie Observatories, California, USA, September 2019.
7. Non-Standard Cosmology Probes, Aspen Center of Physics, Colorado, USA, August 2019.
6. Tensions between the Early and the Late Universe. Kavli Institute for Theoretical Physics, UCSB, USA, July 2019.
5. Astronomy seminar. University of California, Riverside, USA, 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.

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

Collaboration membership

- STRong-lensing Insights into Dark Energy Survey (STRIDES, co-PI), an external collaboration of the Dark Energy Survery (DES)
- H_0 Lenses in COSMOGRAIL's Wellspring (H0LiCOW)

Professional Service

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

Mentoring

- **Eden Molina:** UCLA undergraduate, completing a project to model doubly-imaged lensed quasars from NIRC2 imaging data. Mentored since Fall 2018.
- **Vedant Sahu:** UCLA undergraduate, working on a project to apply machine learning in modelling quadruply-lensed quasars. Mentored since Summer 2019.

Teaching

University of California, Los Angeles, USA

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)

Workshops

4. Non-Standard Cosmology Probes, Aspen Center of Physics, Colorado, USA, August–September 2019.
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.

Poster presentation

1. Tensions between the Early and the Late Universe. Kavli Institute for Theoretical Physics, UCSB, USA, August 2019.

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.
3. 2-m Himalayan Chandra Telescope (2018). PI: Courbin. Photometric monitoring of the quadruply lensed quasar PSOJ0147+4630.
2. Very Large Telescope, MUSE NFM Science Verification (2018, 103A). 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), U065(2019B). PI: Treu. Dark energy with gravitational time-delay: OSIRIS spectroscopy of lensing galaxies.

Approved Computing Proposals

1. XSEDE Startup Allocation, 200,000 CPU hours (TG-AST190038, 2019). PI: Treu, co-PI: Shajib. Highly-detailed strong-gravitational lens modeling to measure the Hubble constant.

Observing Experience

OSIRIS, Keck I, 11.5 nights,
NIRC2, Keck II, 3 nights,
MOSFIRE, Keck I, 3 nights,
Shane telescope PFcam, Lick Observatory, 0.5 nights,
Nickel telescope imager, Lick Observatory, 0.5 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: Lenstronomy, IRAF, PyRAF, SExtractor, DS9
Software/Framework: TensorFlow, Flask

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.