

SIYANG LI

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📍 Baltimore, Maryland, United States

EDUCATION

Johns Hopkins University

2020 - Current

Doctor of Philosophy in Astronomy

Thesis Advisor: Professor Adam G. Riess

Johns Hopkins University

2020 - 2022

Master of Arts in Astronomy

University of California, Berkeley

2016 - 2020

Bachelor of Arts, High Honors in Physics, cum laude

Thesis Advisor: Professor George F. Smoot III

FIRST AUTHOR PUBLICATIONS

Siyang Li, Stefano Casertano, Adam G. Riess., “A *Gaia* Data Release 3 View on the Tip of the Red Giant Branch Luminosity”, Submitted to *The Astrophysical Journal* (December 14, 2023).

Siyang Li, Stefano Casertano, Adam G. Riess., “A Maximum Likelihood Calibration of the Tip of the Red Giant Branch Luminosity from High Latitude Field Giants using *Gaia* Early Data Release 3 Parallaxes”, *The Astrophysical Journal*, 939 96 (November 10, 2022).

Siyang Li, Adam G. Riess, Michael P. Busch, Stefano Casertano, Lucas M. Macri, Wenlong Yuan., “A sub-2% Distance to M31 from Photometrically Homogeneous Near-Infrared Cepheid Period-Luminosity Relations Measured with the *Hubble Space Telescope*”, *The Astrophysical Journal*, 920, 84 (October 18, 2021).

Siyang Li, George F. Smoot III. “Characterization of a high efficiency silicon photomultiplier for millisecond to sub-microsecond astrophysical transient searches”, in [*SPIE Astronomical Telescopes + Instrumentation; X-Ray, Optical, and Infrared Detectors for Astronomy IX*], *Proc. SPIE 11454*, 1145422 (December 13, 2020).

Siyang Li, George F. Smoot III, Bruce Grossan, Albert Wai Kit Lau, Marzhan Bekbalanova, Mehdi Shafiee, Thorsten Stezelberger. “Program objectives and specifications for the Ultra-Fast Astronomy observatory”, in [*8th Applied Optics and Photonics China; Space Optics, Telescopes and Instrumentation*], *Proc. SPIE 11341*, 113411Y (December 18, 2019).

Siyang Li, George F. Smoot III. “Characterization of a silicon photomultiplier for the Ultra-Fast Astronomy telescope”, in [*SPIE Optics + Photonics; UV/Optical/IR Space Telescopes and Instruments: Innovative Technologies and Concepts IX*], *Proc. SPIE 11115*, 111150A (September 9, 2019).

Siyang Li, Jérôme Maire, Maren Cosens, Shelley A. Wright. “Detector characterization of a near-infrared discrete avalanche photodiode 5x5 array for astrophysical observations”, in [*SPIE Defense + Commercial Sensing; Infrared Technology and Applications XLV*], *Proc. SPIE 11002*, 110022G (May 7, 2019).

CO-AUTHOR PUBLICATIONS

Jiaxi Wu, Daniel Scolnic, Adam G. Riess, Gagandeep S. Anand, Rachael Beaton, Stefano Casertano, **Siyang Li**, “Comparative Analysis of TRGBs (CATs) from Unsupervised, Multi-Halo-Field Measurements: Contrast is Key”, Submitted to the *The Astrophysical Journal Letters*, arXiv: <https://arxiv.org/abs/2211.06354> (November 11, 2022).

Albert W. K. Lau, Mehdi Shafiee, George F. Smoot, Bruce Grossan, **Siyang Li**, Zhanat Maksut, “On-sky silicon photomultiplier detector performance measurements for millisecond to sub-microsecond optical source variability studies”, *Journal of Astronomical Telescopes, Instruments, and Systems*, 6(4), 046002 (November 27, 2020).

PRESENTATIONS

“A *Gaia* Data Release 3 View on the Tip of the Red Giant Branch Luminosity”, *AAS 241 Cosmology II*, Seattle, Washington, United States. Oral presentation (January 11, 2023).

“A Maximum Likelihood Calibration of the Tip of the Red Giant Branch Luminosity using Milky Way Field Giants”, *iid2022 Workshop: Statistical Methods for Event Data*, Guntersville, Alabama, United States. Oral presentation (November 15, 2022), <https://sites.google.com/uah.edu/iid2022/home>.

“Calibrating the Tip of the Red Giant Branch in the Era of the *James Webb Space Telescope*”, *Johns Hopkins Physics and Astronomy Grad Wine & Cheese Talks*, Johns Hopkins University. Oral presentation (November 4, 2022).

“A Maximum Likelihood Calibration of the TRGB from Field Stars using *Gaia* Early Data Release 3 Parallaxes”, *AAS 240 Cosmology III*, Pasadena, California, United States. Oral presentation (June 16, 2022).

“A Maximum Likelihood Determination of the Tip of the Red Giant Branch Zero-point using *Gaia* Early Data Release 3 Parallaxes”, *Johns Hopkins Physics and Astronomy Grad Wine & Cheese Talks*, Online due to COVID-19 pandemic. Oral presentation (September 15, 2021).

“Characterization of a high efficiency silicon photomultiplier for millisecond to sub-microsecond astrophysical transient searches”, *SPIE Astronomical Telescopes + Instrumentation; X-Ray, Optical, and Infrared Detectors for Astronomy IX (Conference 11454)*, Online due to COVID-19 pandemic. Poster and oral presentations (December 14-18, 2020).

“Characterization of silicon photomultipliers for astrophysical observations”, *Summer Undergraduate Research Fellowship Conference*, Berkeley, California, United States. Oral presentation (August 22, 2019).

“Characterization of a silicon photomultiplier for the Ultra-Fast Astronomy telescope”, *SPIE Optics + Photonics; UV/Optical/IR Space Telescopes and Instruments: Innovative Technologies and Concepts IX (Conference 11115)*, San Diego, California, United States. Oral presentation (August 11, 2019).

“Program Objectives and Specifications for the Ultra-Fast Astrophysics Observatory”, *8th Applied Optics and Photonics China; Space Optics, Telescopes and Instrumentation (Conference 10)*, Beijing, China. Poster presentation (July 8-9, 2019).

“Development of a Single Photon Counting Detector Calibration Facility for the Ultra Fast Astronomy Project”, *Exploring the Energetic Universe*, Nur-Sultan, Kazakhstan. Oral presentation (June 20, 2019).

“Detector characterization of a near-infrared discrete avalanche photodiode 5x5 array for astrophysical observations”, *SPIE Defense + Commercial Sensing; Infrared Technology and Applications XLV (Conference 11002)*, Baltimore, Maryland, United States. Poster presentation (April 16, 2019).

“Characterization of a Silicon Photomultiplier for the Ultra Fast Astronomy Telescope”, *Berkeley Physics Department Poster Session*, Berkeley, California, United States. Poster presentation (April 5, 2019).

“Probing Cosmic Dawn: A Search for Nanosecond Optical Counterparts to Fast Radio Bursts”, *Berkeley Physics Department Poster Session*, Berkeley, California, United States. Poster presentation (April 6, 2018).

PROVISIONAL PATENT

Siyang Li, George F. Smoot III, Thorsten Stezelberger. “Silicon Photomultiplier Telescope Camera,” U.S. Provisional Patent Ser. No. 62/940,250, filed November 26, 2019.

AWARDS AND FELLOWSHIPS

National Science Foundation Graduate Research Fellowship 2022 -
5 year fellowship providing \$34,000 per year in funding for three years.

Regents’ and Chancellor’s Scholarship 2016 - 2020
Awarded to the highest ranked (1.6%) undergraduates at the University of California, Berkeley.

**Society of Photo-Optical Instrumentation Engineers (SPIE)
Optics and Photonics Education Scholarship** 2019
Awarded “to outstanding individuals for their potential long-range contribution to optics, photonics, or other related fields” from around the world.

8th Applied Optics and Photonics China Best Poster Award

2019

Awarded for the best poster at the 8th Applied Optics and Photonics China conference. Evaluated among posters written by master's students, Ph.D. students, and postdocs from around the world.

Measurement Science Conference Scholarship

2019

National scholarship awarded to individuals who demonstrate potential and achievements related to measurement science. Recipients also receive full admission to the Measurement Science Conference in Anaheim, California from April 16-19, 2019 (attended).

Summer Undergraduate Research Fellowship

2019

Awarded to fund student initiated research leading to a senior thesis and/or publication.

Berkeley Academic Opportunity Fund Grant

2019

Awarded to fund "opportunities for individuals and student groups to represent and further the University of California, Berkeley's academic prestige and dedication to education".

Regents' and Chancellor's Research Fellowship

2017, 2018

Awarded to fund student initiated research.

Hong Kong University of Science and Technology

June 2017, Dec. 2017,

International Research Fellowship

Dec. 2018, July 2019

Fellowship fully covering airfare, ground transportation, housing, and meals.

Berkeley Physics Undergraduate Research Scholarship

2017 - 2020

Awarded to fund student research in the physics department.

TEACHING ASSISTANTSHIPS

Johns Hopkins AS.171.118 Stars and the Universe: Cosmic Evolution

Spring 2021, 2022

Johns Hopkins AS.171.102 General Physics: Physical Science Majors II

Fall 2020

Johns Hopkins AS.173.111 General Physics Laboratory I

Fall 2020

OUTREACH

Program for Advancing the Health Sciences Mentor

2021-2022

Study habits workshop mentor and one-on-one mentor for a high school student aspiring to pursue a health career.

College Resources for College and Higher-Education Mentor and Panelist

2021

Scholarship and essay writing panelist and one-on-one mentor for an underprivileged high school student applying to college.