

Abhimat Krishna Gautam

abhimat@astro.ucla.edu | 412-951-4923 | <https://abhimat.net> | Kn 3-145V, UCLA Physics & Astronomy
Citizenship: United States

RESEARCH INTERESTS

Star Clusters, Star Formation, Dynamics, Stellar Binaries, Milky Way Galactic center

Large surveys, Time-Domain Astronomy, Computational Astronomy, Machine Learning

EDUCATION

2014 – 2020: University of California, Los Angeles

Graduate | M.S.: June 2016, Ph.D. (expected): August 2020

Ph.D. Thesis: **Examining the stellar population and dynamical environment of the Milky Way Galactic center with near-infrared adaptive optics photometry**

2010 – 2014: University of California, Berkeley

Undergraduate | B.A.: May 2014

Majors: Astrophysics (with Honors), Physics

PUBLICATIONS

First Author

- **A. K. Gautam**, T. Do, A. M. Ghez, M. R. Morris, G. D. Martinez, M. W. Hosek, Jr., J. R. Lu, S. Sakai, G. Witzel, S. Jia, E. E. Becklin, K. Matthews, **An Adaptive Optics Survey of Stellar Variability at the Galactic Center**, ApJ, 871:103, 2019

Contributing

- A. Hees, T. Do, B. M. Roberts, A. M. Ghez, S. Nishiyama, R. O. Bentley, **A. K. Gautam**, S. Jia, T. Kara, J. R. Lu, H. Saida, S. Sakai, M. Takahashi, Y. Takamori, **Search for a Variation of the Fine Structure around the Supermassive Black Hole in Our Galactic Center**, PRL, 124, 081101, 2020
- Z. Chen, E. Gallego-Cano, T. Do, G. Witzel, A. M. Ghez, R. Schödel, B. N. Sitarski, E. E. Becklin, J. R. Lu, M. R. Morris, A. Dehghanfar, **A. K. Gautam**, A. Hees, M. W. Hosek, Jr., S. Jia, A. C. Mangian, K. Matthews, **Consistency of the Infrared Variability of Sgr A* over 22 years**, ApJL, 882:L28, 2019
- T. Do, G. Witzel, **A. K. Gautam**, Z. Chen, A. M. Ghez, M. R. Morris, E. E. Becklin, A. Ciurlo, M. W. Hosek, Jr., G. D. Martinez, K. Matthews, S. Sakai, R. Schödel, **Unprecedented variability of Sgr A* in NIR**, ApJ, 882:L27, 2019
- T. Do, A. Hees, A. M. Ghez, G. D. Martinez, D. S. Chu, S. Jia, S. Sakai, J. R. Lu, **A. K. Gautam**, K. K. O'Neil, E. E. Becklin, M. R. Morris, K. Matthews, S. Nishiyama, R. Campbell, S. Chappell, Z. Chen, A. Ciurlo, A. Dehghanfar, E. Gallego-Cano, W. E. Kerzendorf, J. E. Lyke, S. Naoz, H. Saida, R.

Schödel, M. Takahashi, Y. Takamori, G. Witzel, P. Wizinowich, **Relativistic redshift of the star S0-2 orbiting the Galactic center supermassive black hole**, Science, 16 Aug 2019

- S. Jia, J. R. Lu, S. Sakai, **A. K. Gautam**, T. Do, M. W. Hosek, Jr., M. Service, A. M. Ghez, E. Gallego-Cano, R. Schödel, A. Hees, M. R. Morris, E. E. Becklin, K. Matthews, **The Galactic Center: Improved Relative Astrometry for Velocities, Accelerations, and Orbits near the Supermassive Black Hole**, ApJ, 873:9, 2019
- S. Sakai, J. R. Lu, A. M. Ghez, S. Jia, T. Do, G. Witzel, **A. K. Gautam**, A. Hees, E. E. Becklin, K. Matthews, M. W. Hosek, Jr., **The Galactic Center: An Improved Astrometric Reference Frame for Stellar Orbits around the Supermassive Black Hole**, ApJ, 873:65, 2019
- D. S. Chu, T. Do, A. Hees, A. M. Ghez, S. Naoz, G. Witzel, S. Sakai, S. Chappell, **A. K. Gautam**, J. R. Lu, K. Matthews, **Investigating the Binariness of S0-2: Implications for Its Origins and Robustness as a Probe of the Laws of Gravity around a Supermassive Black Hole**, ApJ, 854:12, 2018

CONFERENCE TALKS AND POSTERS

- Talk: **Understanding the star formation and dynamical histories of the Milky Way Galactic center with stellar binaries**: AAS 235, 2020.
- Poster: **Constraints on dark cusp around Galactic center supermassive black hole from a newly detected old, 79 day period stellar binary**, GCWS 2019, Yokohama, Japan, 2019.
- Talk: **Photometric detection of a candidate low-mass giant binary system at the Milky Way Galactic Center**: AAS 231, 2018.
- Poster: **Constraining the Variability and Binary Fraction of Galactic Center Young Stars**, IAUS, 322: 237–238, 2017.
- Talk: **SETI Searches for Radio Transients from Kepler Field Planets and Astropulse Candidates**: AAS 224, 2014.
- Poster: **Multiple epoch analysis of the Guitar Nebula and PSR B2224+65 in Radio, Optical, and X-Ray wavelengths**: AAS 221, 2013.

RESEARCH PROJECTS

Current

- Photometric study of stellar population and dynamical environment of the Milky Way Galactic center (2015 – Now)

Previous

- Search for Radio Transients and SETI Signals in Kepler Field and Astropulse Candidates (2011 – 2014)
- Multi-Wavelength and Epoch Analysis of the Guitar Nebula/PSR B2224+65 (2012)
- Calibration of Sgr A* VLBI Observations: (2011 – 2012)

GRANTS, FELLOWSHIPS, TELESCOPE TIME AWARDED

- 2020: Michael A. Jura Memorial Graduate Award
- 2015B – 2020A: Keck Observatory, UCLA Galactic Center Group, Contributing
- 2014: UCLA Astronomy Scholar Fellowship

SCIENCE OUTREACH

Current Outreach Involvement

- **UCLA Planetarium:** Hosting shows for public audiences and K–12 school groups.
- **UCLA Astronomy Live!:** Leading astronomy demonstrations at area schools.
- **Exploring Your Universe:** Volunteering at astronomy booths and planetarium during event.

Past Positions

- **UCLA Planetarium** Coordinator (2015 – 2020)
- **Exploring Your Universe** Design Coordinator and Organizing Committee Member (2015 – 2018)

Past Outreach Experience

- **Bay Area Science Festival**, San Francisco, CA: 2011 – 2013
- **California Academy of Sciences NightLife**, San Francisco, CA: 2013
- **Cal Day**, Berkeley, CA: 2013
- **Sunday Streets**, Berkeley, CA: 2012
- **Focus for Teens**, Ithaca, NY: 2012