Zhuo Chen

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RESEARCH INTERESTS
Stellar population, star formation, galaxy formation and evolution, nearby galaxies, the Galactic center, galactic nuclei, star clusters, stellar photometry & spectroscopy

PROFESSIONAL POSITION
University of Washington, Seattle, WA USA
Postdoc Scholar, Department of Astronomy, August 2022 - Present

EDUCATION
University of California, Los Angeles, Los Angeles, CA USA
Ph.D. in Astronomy and Astrophysics, September 2022
Dissertation: "Exploring the Supermassive Black Hole at the Galactic Center and the Stars in its Environment"
Chair: Prof. Andrea Ghez

Nanjing University, Nanjing, Jiangsu, China
B.A. in Astronomy and Space Science, June 2016

RESEARCH EXPERIENCE

University of Washington, Seattle, WA USA
Postdoc Scholar   **Fall 2022 - Present**
- Leading the Panchromatic Hubble Andromeda Southern Treasury (PHAST) survey program.
- Creating the legacy photometry catalog of M31's southern disk and mapping star formation history and merger history of Andromeda.

University of California, Los Angeles, Los Angeles, CA USA
Graduate Student Researcher   **Fall 2016 - Summer 2022**
Advisors: Prof. Andrea Ghez & Prof. Tuan Do
- Modeled the star formation history of the Milky Way's nuclear star cluster with the first metallicity constraints measured from Keck, Gemini and VLT.
- Predicted compact object remnants (SBH, NS & WD) and their rate of mergers at the Galactic Center for gravitational-wave detections.
- Monitoring the long-term variability of the Milky Way supermassive black hole at the Galactic Center.

Shanghai Astronomical Observatory, Chinese Academy of Sciences, China
Advisor: Prof. Lei Hao   **Winter 2016 - Summer 2016**
- Undergraduate thesis title: Interpreting the star formation-extinction relation with nearby galaxies from the MaNGA survey.

National Astronomical Observatories, Chinese Academy of Sciences, China
Advisor: Prof. Di Li   **Summer 2014**
- REU program: Analyzed dust emission from dense molecular cores to probe star formation.

APPROVED PROPOSALS	• **2017A - 2023A: Keck Observatory**, *UCLA Galactic Center Orbits Initiative, co-I*
	• **Cycle 1: James Webb Space Telescope**, *The Galactic Center, co-I*
	• **Cycle 29, 30: Hubble Space Telescope**, *Advancing a decades long experiment at the Galactic Center, co-I*
	• **2023A, 2022A & 2020A: Gemini Observatory**, *Galactic Center Adaptive Optics Spectroscopic Survey, co-I*

COLLABORATION MEMBERSHIP

- Galactic Center Orbits Initiative Collaboration
- Panchromatic Hubble Andromeda Southern Treasury (PHAST) Collaboration

INVITED TALKS

- **2022 AAS Press Conference Presenter and Briefing**, USA, January 2022
- Colloquium, University of Washington, USA, May 2023
- Colloquium, National Astronomical Observatories, Chinese Academy of Sciences, China, June 2023
- Seminar, Kavli Institute for Astronomy and Astrophysics, Peking University, China, June 2023
- Galactic Center Workshop, Spain, April 2023

Additionally, a total of **23** seminar and contributed conference talks.

OBSERVING EXPERIENCE

Total of 6 years (2016 - 2022) of observing experience at W. M. Keck Observatory, accumulating over **60 nights** with NIRC2 and OSIRIS

DATA EXPERIENCE

W. M. Keck Observatory (NIRC, NIRC2, OSIRIS); James Webb Space Telescope (NIRCam, NIRSpec); Hubble Space Telescope (ACS, WFC3); Gemini Observatory (NIFS); Very Large Telescope (KMOS); Spitzer Space Telescope (IRAC)

PUBLIC OUTREACH

Astronomy Live!, coordinated visits to K-12 schools with astronomy demos and organized outreach events in the Los Angeles community, 2017 - 2021
Exploring Your Universe, organized one of UCLA's largest annual science outreach events, 2016 - 2022
Planetarium show, presented star shows and public talks, 2018 - 2020
Preparing Thirty Meter Telescope Future Science and Technology Leaders Workshop, led the seminar section on outreach organization management, 2017

MENTORING AND TEACHING

Mentoring:
- Mentored undergraduate students through the Pre-Major in Astronomy Program at the University of Washington and summer REU students at UCLA.
- **Ellis Alley**: University of Washington undergraduate — Project on identifying detections of cataloged planetary nebulae in M31 and refining their astrometric accuracy. (Fall 2023)
- **Amelia Mangian**: Summer REU student at UCLA — Worked on speckle holography imaging improvements at the Galactic Center. Co-authored and submitted a paper. (Summer 2019)
- REU students at UCLA — Co-mentored on Galactic Center observings and data management.

Teaching: Teaching assistant for six Astronomy/Physics courses at UCLA.

FIRST AUTHOR PUBLICATIONS	• **Chen Z.**, Zhang K., Williams B., Durbin M., *"A New Cosmic Ray Rejection Routine for HST WFC3/UVIS via label-free training of deepCR"*, 2023, submitted to ApJ

- **Chen Z.**, Do T., Ghez A., Hosek M. Jr., Feldmeier-Krause A., Chu D., Bentley R., Lu J. R., Morris M. R. *"The Star Formation History of the Milky Way's Nuclear Star Cluster"*, 2023, ApJ, 977, 79

- **Chen Z.**, Gallego-Cano E., Do T., Witzel G., Ghez A., Schödel R., Sitarski B. N., Becklin E. E., Lu J. R., Morris M. R., Dehghanfar A., Gautam A. K., Hees A., Hosek M. Jr., Jia S., Mangian A. C., Matthews K. *"Consistency of the Infrared Variability of SGR A* over 22 yr"*, 2019, ApJ, 882, 28

CONTRIBUTED PUBLICATIONS

- Chu D. S., Do T., Ghez A., Gautam A. K., Ciurlo A., Kosmo O'Niel K., Hosek M. Jr., Hees A., Naoz S., Sakai S., Lu J. R., **Chen Z.**, Bentley R. O., Becklin E. E., Matthews K. *"Evidence of a decreased binary fraction for massive stars within 20 milliparsecs of the Supermassive Black Hole at the Galactic Center"*, 2023, ApJ, 948, 94

- Hua, Z., Li, Z., Zhang, M., **Chen Z.**, Morris M. R. *"Chandra X-ray measurement of gas-phase heavy element abundances in the central parsec of the galaxy"*, 2023, MNRAS, 522, 635

- Bentley R. O., Do T., Kerzendorf W. E., Chu, D. S., **Chen Z.**, Konopacky Q., Ghez A. *"Measuring the α-abundance of subsolar-metallicity stars in the Milky Way's central half-parsec: testing globluar cluster and dwarf galaxy infall scenarios"*, 2022, ApJ, 925, 77

- Do T., Witzel G., Gautam A. K., **Chen Z.**, Ghez A., Morris M. R., Becklin E. E., Ciurlo A., Hosek M. Jr., Martinez G., Matthews K., Sakai S., Schödel R. *"Unprecedented Near-infrared Brightness and Variability of Sgr A*"*, 2019, ApJ, 882, 27

- Do T., Hees A., Ghez A., Martinez G., Chu, D. S., Jia S., Sakai S., Lu J. R., Gautam A. K., Kosmo O'Niel K., Becklin E. E., Morris M. R., Matthews K., Nishiyama S., Campbell R., Chappell S., **Chen Z.**, Ciurlo A., Dehghanfar A., Gallego-Cano E., Kerzendorf W., Lyke J., Naoz S., Saida H., Schödel R., Takahashi M., Takamori Y., Witzel G., Wizinowich P. *"Relativistic redshift of the star S0-2 orbiting the Galactic center supermassive black hole"*, 2019, Science, 365, 6454

- Do T., Ghez A., Lu J. R., Morris M. R., Hosek M. Jr., Hees A., Naoz S., Ciurlo A., Armitage P., Beaton R. L., Becklin E. E., Bellini A., Bentley R. O., Chakrabarti S., **Chen Z.**, Chu, D. S., Dehghanfar A., Gammie C., Gautam A. K., Genzel R., Greene J., Hora J., Kerzendorf W. E., Libralato M., Nishiyama S., Kosmo O'Niel K., Ozel F., Perets H., Psaltis D., Quataert E., Ramirez-Ruiz E., Rich R. M., Rasio F., Sakai S., Smith H., Weinberg N. N., Witzel G. *"Envisioning the next decade of Galactic Center science: a laboratory for the study of the physics and astrophysics of supermassive black holes"*, 2019, Astro2020: Decadal Survey onAstronomy and Astrophysics, science white papers, no. 530