

JAKOB M. HELTON

jakobhelton@arizona.edu \diamond +1 (304) 360 0337

github.com/jakobhelton/ \diamond jakobhelton.github.io \diamond linkedin.com/in/jakobhelton/

CURRENT POSITION

A third-year doctoral student at the University of Arizona pursuing an M.S. and Ph.D. in Astronomy, with research focused on understanding the formation and evolution of galaxies and galaxy clusters in the early Universe. Member of the JWST Advanced Deep Extragalactic Survey (JADES) in addition to the Near-Infrared Camera (NIRCam) and the Mid-Infrared Instrument (MIRI) Science Teams.

EDUCATION

University of Arizona

Degree: M.S. and Ph.D.

August 2021 - Present

Concentration: Astronomy

Princeton University

Degree: B.A.

September 2017 - May 2021

Concentration: Astrophysical Sciences

FIRST AUTHOR PUBLICATIONS

4. **J. M. Helton**, F. Sun, C. Woodrum, et al., *Identification of High-Redshift Galaxy Overdensities in GOODS-N and GOODS-S*, 2023, ApJ, in review
3. **J. M. Helton**, F. Sun, C. Woodrum, et al., *The JWST Advanced Deep Extragalactic Survey: Discovery of an Extreme Galaxy Overdensity at $z = 5.4$ with JWST/NIRCam in GOODS-S*, 2024, ApJ, 962, 124
2. **J. M. Helton**, A. L. Strom, J. E. Greene, et al., *The nebular properties of star-forming galaxies at intermediate redshift from the Large Early Galaxy Astrophysics Census*, 2022, ApJ, 934, 81
1. **J. M. Helton**, S. D. Johnson, J. E. Greene, et al., *Discovery and origins of giant optical nebulae surrounding quasar PKS0454-22*, 2021, MNRAS, 505, 4

SECOND AUTHOR PUBLICATIONS

2. K. N. Hainline, **J. M. Helton**, B. D. Johnson, et al., *Brown Dwarf Candidates in the JADES and CEERS Extragalactic Surveys*, 2023, ApJ, in review
1. F. Sun, **J. M. Helton**, E. Egami, et al., *JADES: Resolving the Stellar Component and Filamentary Overdense Environment of Hubble Space Telescope (HST)-dark Submillimeter Galaxy HDF850.1 at $z = 5.18$* , 2024, ApJ, 961, 69

CONTRIBUTING AUTHOR PUBLICATIONS

10. S. Alberts, C. C. Williams, **J. M. Helton**, et al., *To high redshift and low mass: exploring the emergence of quenched galaxies and their environments at $3 < z < 6$ in the ultra-deep JADES MIRI F770W parallel*, 2023, ApJ, in review
9. B. Robertson, B. D. Johnson, et al., including **J. M. Helton**, *Earliest Galaxies in the JADES Origins Field: Luminosity Function and Cosmic Star-Formation Rate Density 300 Myr after the Big Bang*, 2023, ApJ, in review
8. Z. Li, Z. Cai, et al., including **J. M. Helton**, *MAGNIF: A Tentative Lensed Rotating Disk at $z = 8.34$ detected by JWST NIRCam WFSS with Dynamical Forward Modeling*, 2023, ApJ, in review

7. L. Sandles, F. D'Eugenio, **J. M. Helton**, et al., *JADES: deep spectroscopy of a low-mass galaxy at redshift 2.3 quenched by environment*, 2023, A&A, in review
6. K. N. Hainline, B. D. Johnson, et al., including **J. M. Helton**, *The Cosmos in its Infancy: JADES Galaxy Candidates at $z > 8$ in GOODS-S and GOODS-N*, 2023, ApJ, in review
5. Y. Sun, G.-H. Lee, et al., including **J. M. Helton**, *Evolution of Gas Flows along the Starburst to Post-Starburst to Quiescent Galaxy Sequence*, 2024, MNRAS,
4. J. Witstok, R. Smit, et al., including **J. M. Helton**, *Inside the bubble: exploring the environments of reionisation-era Lyman- emitting galaxies with JADES and FRESCO*, 2024, A&A, 682, 40
3. S. Tacchella, D. J. Eisenstein, et al., including **J. M. Helton**, *JADES Imaging of GN-z11: Revealing the Morphology and Environment of a Luminous Galaxy 430 Myr After the Big Bang*, 2023, ApJ, 952, 74
2. B. E. Robertson, S. Tacchella, et al., including **J. M. Helton**, *Identification and properties of intense star-forming galaxies at redshifts $z > 10$* , 2023, Nature Astronomy, 7, 611
1. S. Aiola, E. Calabrese, et al., including **J. M. Helton**, *The Atacama Cosmology Telescope: DR4 Maps and Cosmological Parameters*, 2020, JCAP, 12, 047

PRESENTATIONS

5. Poster presentation at the 242th American Astronomical Society Meeting in Albuquerque, NM (June 2023). *The JWST Advanced Deep Extragalactic Survey: Discovery of an Extreme Galaxy Overdensity at $z = 5.4$ with JWST/NIRCam in GOODS-S*.
4. Oral presentation at the Early Results from the James Webb Space Telescope Conference in Cambridge, United Kingdom (March 2023). *The JWST Advanced Deep Extragalactic Survey: Discovery of an Extreme Galaxy Overdensity at $z = 5.4$ with JWST/NIRCam in GOODS-S*.
3. Poster presentation at the International Astronomical Union Symposium 373 in Busan, South Korea (August 2022). *The Spatially Resolved Star-Formation Histories of Post-Starburst Galaxies in SDSS-IV MaNGA*.
2. Poster presentation at the 237th American Astronomical Society Meeting, virtual (January 2021). *Discovery and origins of giant optical nebulae surrounding quasar PKS0454-22*.
1. Poster presentation at the 235th American Astronomical Society Meeting in Honolulu, HI (January 2020). *The physical conditions in $0.6 < z < 1.0$ galaxies from LEGA-C*.

TELESCOPE ALLOCATIONS

JWST/NIRCam & JWST/MIRI	19 Hours (PID: 4549; Co-I)
JWST/NIRCam & JWST/MIRI	27 Hours (PID: 3577; Co-I)
JWST/NIRCam & JWST/NIRSpec	136 Hours (PID: 3215; Co-I)
JWST/NIRCam & JWST/NIRISS	39 Hours (PID: 2883; Co-I)
Keck/MOSFIRE	0.5 Nights (Co-I)
Magellan/FIRE	6.5 Nights (Co-I)
Magellan/IMACS	5.0 Nights (Co-I)
MMT/Binospec	3.0 Nights (Co-I)

SKILLS

Programming Languages	Python, IDL, Java, Javascript, HTML
Software & Tools	Unix, Excel, L ^A T _E X, TensorFlow, FIREHOSE
Observing	Keck/MOSFIRE, Magellan/IMACS, Magellan/LDSS3

REFERENCES

Prof. Marcia Rieke
Prof. George Rieke
Prof. Kevin Hainline
Prof. Jenny Greene

University of Arizona
University of Arizona
University of Arizona
Princeton University

mrieke@arizona.edu
grieke@arizona.edu
kevinhainline@arizona.edu
jgreene@astro.princeton.edu