

JAKOB M. HELTON

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CURRENT POSITION

A second-year graduate student at the University of Arizona pursuing a 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 James Webb Space Telescope (JWST) Advanced Deep Extragalactic Survey (JADES) and the Near-Infrared Camera (NIRCam) Science Team.

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., *The JWST Advanced Deep Extragalactic Survey: Identification of High-Redshift Overdensity Candidates in GOODS-N and GOODS-S*, 2023, ApJ, in preparation
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*, 2023, ApJ, in review
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

1. F. Sun, **J. M. Helton**, E. Egami, et al., *The JWST Advanced Deep Extragalactic Survey: Resolving the Stellar Component and Filamentary Overdense Environment of HST-Dark Submillimeter Galaxy HDF850.1 at $z = 5.18$* , 2023, ApJ, in review

CONTRIBUTING AUTHOR PUBLICATIONS

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, in review
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+NIRSpec	Near-Infrared Imaging/Spectroscopy, 136 Hours (PID: 3215; Co-I)
JWST/NIRCam+NIRISS	Near-Infrared Imaging/Spectroscopy, 39 Hours (PID: 2883; Co-I)
Keck/MOSFIRE	Near-Infrared Spectroscopy, 0.5 Nights (Co-I)
Magellan/FIRE	Near-Infrared Spectroscopy, 6.5 Nights (Co-I)
Magellan/IMACS	Optical Spectroscopy, 2.0 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	University of Arizona	mrieke@arizona.edu
Prof. Kevin Hainline	University of Arizona	kevinhainline@arizona.edu
Prof. Jenny Greene	Princeton University	jgreene@astro.princeton.edu
Prof. Allison Strom	Northwestern University	allison.strom@northwestern.edu
Prof. Sean Johnson	University of Michigan	seanjoh@umich.edu