Taylor Alexandra Hutchison

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RESEARCH INTERESTS

Reionization, high-z universe, near-infrared spectroscopy, high-z spectroscopic tracers, galaxy formation & evolution, Lyman- α emitters, intergalactic medium, photoionization modeling, high-z analogs

EDUCATION

Ph.D. in Astronomy (in progress)	(expected) May 2022
M.S. in Astronomy	May 2019
Texas A&M University (TAMU)	
Department of Physics and Astronomy	
College Station, TX 77843-4242	
Advisor: Dr. Casey Papovich	
B.S. in Physics, Minor in Mathematics	May 2016
Southwestern University	
1001 E. University Ave.	
Georgetown, TX 78626	

APPOINTMENTS

Advisor: Dr. Mark Bottorff

Graduate Student (UNDER DR. C. PAPOVICH)	Texas A&M, 2016 – present
Keck Visiting Scholar (under Dr. J. Walawender)	Keck Observatory, Fall 2019
Research Assistant (under Dr. M. Bottorff)	Southwestern,2014-2016
King Creativity Scholar (under O.L. Fellows)	Southwestern, $2014 - 2015$
King Creativity Scholar (under Dr. S. Alexander)	Southwestern, $2013 - 2014$
Research Assistant (under Dr. S. Alexander)	Southwestern, Summer 2013

Honors & Awards

—— Q:	Dr. Joseph Newton Graduate Service Award W. M. Keck Observatory Visiting Scholar Texas A&M Prestigious Fellowship Scholar	Fall 2019 Fall 2019 2019 – 2022
FUNDED	Leadership in Equity and Diversity (LEAD) Award	Spring 2018
FU.	NSF Graduate Research Fellowship	2018 - 2022
	Texas A&M Graduate Diversity Excellence Fellowship	2016-2020
SOME	Ruter Scholar Award	2012 - 2016
Ī	Distinction Award	2012 - 2016
	King Creativity Award	Spring 2014
	King Creativity Scholar	2014, 2015

NOTE: any activities that were affected by COVID-19 & occurred virtually are marked by [COVID-19]

Awards & Grants

FY FY	721 720	NASA-Awarded Keck Principal Investigator Data Award NASA-Awarded Keck Principal Investigator Data Award	\$17.2K \$17.2K
FY	720	Dr. Joseph Newton Graduate Service Award	\$1K
	720-22	Texas A&M University Prestigious Fellowship Scholar	1K/yr
FY		Mitchell Institute EPO: Astronomy on Tap	\$1.2K
FY		Mitchell Institute EPO: Conferences for Undergraduate Women in Physics	\$30K
FY		Office of Graduate and Professional Studies Travel Award	\$750
FY		Leadership in Equity and Diversity (LEAD) Award	\$500
FY	19 19–22	Mitchell Institute EPO: Astronomy on Tap NSF Graduate Research Fellowship	\$600 \$138K
	19–22	Dept. of Physics & Astronomy Diversity Grant	\$1.5K / yr
1. 1	117	The Society for the Under-represented in Physics & Astronomy	Φ1.5IX / y1
FY	717-20	Graduate Diversity Excellence Fellowship	\$127.7K
FY	13-16	Ruter Scholar Award	94K
FY	13-16	Distinction Award	\$40K
	714	King Creativity Award	\$1.5K
FY	$714,\!15$	King Creativity Scholar	$2K \times 2$
OBS	SERVING	Programs / General Experience	
	MC	Keck Observatory, HI – Keck I, 10-meter telescope OSFIRE, NIR Spectrograph rimary or secondary science lead ngineering time	14 nights
$_{ m MS}$	Cierro	Tololo Inter-American Observatory, Chile – Blanco 4-meter telesco	ope
PROGRAMS		Cam, Wide-Field CCD Imager	_
300		ontributing scientist	_
ΡΙ	∘ B	egan Dark Energy Survey Year 6 Observations	5 nights
		na Peak Observatory, TX – Robotic 0.6-meter telescope con Digital CCD, primary science lead	10+ nights
	Founte	ninwood Observatory, TX – 0.4-meter telescope	
		con Digital CCD, primary science co-lead	40+ nights
EXPERIENCE —	— Dur • M • Ll	Keck Observatory, HI – Keck I & II, 10-meter telescopes ring W. M. Keck Visting Scholar appointment: IOSFIRE, NIR Spectrograph, shadowed E. Manjavacas	\dots 1 night
GENERAL EXI	— Sili ∘ as	nald Observatory, TX – 0.8-meter telescope con Digital CCD, mentored TAMU REU students sonly graduate student apporting fellow graduate student	6 nights
		le Observatory, AZ – 1.5-meter telescope ST, Optical Spectrograph, assisted L. Macri	3 nights

SERVICE & OUTREACH

FAMU, since Summer 2018 Pen Pal, 2018 – 2019
,
APS, since Spring 2021
FAMU, 2019 – 2020 FAMU, 2017 – 2018 FAMU, April 2017 Southwestern, Fall 2014
FAMU, since Spring 2020 FAMU, since Fall 2019 FAMU, 2018 – 2021 FAMU, 2018 – 2020 FAMU, since 2016 FAMU, since Spring 2017 Southwestern, 2015 – 2016
O16 – 2018 CAMU, since Spring 2018 CAMU, 2017 – 2019 CAMU, Fall 2016 outhwestern, 2012 – 2016 outhwestern, 2013 – 2016 outhwestern, 2014 – 2015

PUBLICATIONS

REFEREED PUBLICATIONS

First Author

Near-Infrared Spectroscopy of Galaxies During Reionization: Measuring CIII] in a Galaxy at z = 7.5 // arXiv:1905.08812 (22 citations)

The Astrophysical Journal, Volume 879, Issue 2, article id. 70, 16 pg. (2019)

T. Hutchison, C. Papovich, S. Finkelstein, M. Dickinson, I. Jung, A. Zitrin, R. Ellis,

S. Malhotra, J. Rhoads, G. Roberts-Borsani, M. Song, V. Tilvi

Co-Author

A Census of the Bright z=8.5–11 Universe with the Hubble and Spitzer Space Telescopes in the CANDELS Fields // arXiv:2106.13813 (1 citations)

Submitted to The Astrophysical Journal

S. Finkelstein, M. Bagley, M. Song, R. Larson, C. Papovich, M. Dickinson, K. Finkelstein, and 17 additional authors, including **T. Hutchison**

Texas Spectroscopic Search for Lyα Emission at the End of Reionization III. The Lyα Equivalent-width Distribution and Ionized Structures at z > 7 // arXiv:2009.10092 (19 citations) The Astrophysical Journal, Volume 904, Issue 2, article id. 144, 27 pg. (2020) I. Jung, S. Finkelstein, M. Dickinson, T. Hutchison, R. Larson, C. Papovich, L. Pentericci, A. Straughn, Y. Guo, S. Malhotra, J. Rhoads, M. Song, V. Tilvi, I. Wold

The properties of He II 1640 emitters at $z \sim 2.5$ -5 from the VANDELS survey // arXiv:1911.09999 The Astronomy & Astrophysics Journal, Volume 636, eid. A47, 21 pg. (2020) (23 citations) A. Saxena, L. Pentericci, M. Mirabelli, D. Schaerer, R. Schneider, F. Cullen, R. Amorin, A. Bolzonella, A. C. Bongiorno, and 17 additional authors, including **T. Hutchison**

Texas Spectroscopic Search for Lyα Emission at the End of Reionization II. The Deepest Near-Infrared Spectroscopic Observation at z > 7 // arXiv:1901.05967 (8 citations)
The Astrophysical Journal, Volume 877, Issue 2, article id. 146, 9 pg. (2019)
I. Jung, S. Finkelstein, M. Dickinson, T. Hutchison, R. Larson, C. Papovich, L. Pentericci, M. Song, H. Ferguson, Y. Guo, S. Malhotra, B. Mobasher, J. Rhoads, V. Tilvi, I. Wold

Contributing Scientist

Space Telescope and Optical Reverberation Mapping Project. IX. Velocity-Delay Maps for Broad Emission Lines in NGC 5548

The Astrophysical Journal, Volume 907, Issue 2, article id. 76, 19 pp. (2021)

K. Horne, G. De Rosa, B. M. Peterson, A. J. Barth, B. M. Peterson, and 153 additional authors, including **T. Hutchison**.

Space Telescope and Optical Reverberation Mapping Project. XII. Broad-Line Region Modeling of NGC 5548

The Astrophysical Journal, Volume 902, Issue 1, article id. 74, 26 pg. (2020)

P. R. Williams, A. Pancoast, T. Treu, B. J. Brewer, B. M. Peterson, A. J. Barth, and 153 additional authors, including **T. Hutchison**.

Space Telescope and Optical Reverberation Mapping Project. VIII. Time Variability of Emission and Absorption in NGC 5548 Based on Modeling the Ultraviolet Spectrum The Astrophysical Journal, Volume 881, Issue 2, article id. 153, 36 pg. (2019) G. A. Kriss, G. De Rosa, J. Ely, B. M. Peterson, J. Kaastra, and 163 additional authors, including **T. Hutchison**.

Continuum Reverberation Mapping of the Accretion Disks in Two Seyfert 1 Galaxies The Astrophysical Journal, Volume 854, Issue 2, article id. 107, 24 pg. (2018) M. Fausnaugh, D. Starkey, K. Horne, C. Kochanek, B. Peterson, and 67 additional authors, including **T. Hutchison**.

Space Telescope and Optical Reverberation Mapping Project. VII. Understanding the Ultraviolet Anomaly in NGC 5548 with X-Ray Spectroscopy

The Astrophysical Journal, Volume 846, Issue 1, article id. 55, 24 pg. (2017)

S. Mathur, A. Gupta, K. Page, R. Pogge, Y. Krongold, M. Goad, and 144 additional authors, including **T. Hutchison**.

Reverberation Mapping of Optical Emission Lines in Five Active Galaxies
The Astrophysical Journal, Volume 840, Issue 2, article id. 97, 27 pg. (2017)
M. Fausnaugh, C. Grier, M. Bentz, K. Denney, G. De Rosa, B. Peterson, and 65 additional authors, including **T. Hutchison**.

Space Telescope and Optical Reverberation Mapping Project. IV. Anomalous Behavior of the Broad Ultraviolet Emission Lines in NGC 5548

The Astrophysical Journal, Volume 824, Issue 1, article id. 11, 10 pg. (2016)

M. Goad, T. Korista, G. De Rosa, A. Kriss, and 96 additional authors, including T. Hutchison.

Space Telescope and Optical Reverberation Mapping Project. III. Optical Continuum Emission and Broadband Time Delays in NGC 5548

The Astrophysical Journal, Volume 821, Issue 1, article id. 56, 25 pg. (2016)

M. Fausnaugh, K. Denney, A. Barth, M. Bentz, M. Bottorff, and 92 additional authors, including **T. Hutchison**.

SPIE Conference Proceedings

First Author

Flexure updates to MOSFIRE on the Keck I telescope // arXiv:2012.09308

Proc. SPIE 11447, Ground-based and Airborne Instrumentation for Astronomy VIII, 114476A **T. Hutchison**, J. Walawender, S. H. Kwok // Paper No. 11447-114

WHITE PAPERS

Contributing Scientist -

UV Diagnostics of Galaxies from the Peak of Star-Formation to the Epoch of Reionization C. Papovich, D. Stark, S. Finkelstein, S. Ravindranath, D. Berg, M. Bradac, and 16 additional authors, including **T. Hutchison**. // arXiv:1903.04524

Spatially-resolved studies of star-forming galaxies in the reionization epoch S. Ravindranath, C. Papovich, B. James, G. Snyder, A. Jaskot, H. Ferguson, and 12 additional authors, including **T. Hutchison**. // article link

Unveiling the Phase Transition of the Universe During the Reionization Epoch with Lyman-alpha S. Finkelstein, M. Bradac, C. Casey, M. Dickinson, R. Endsley, and 13 additional authors, including **T. Hutchison**. // arXiv:1903.04518

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Conferences & Presentations

Science Presentations	
(anticip.) Poster: Keck Science Meeting	9-10 September 2021
Talk: TAMU Astrosymposium (College Station, TX)	27 August 2021
Talk: SAZERAC 2.0 Virtual Conference (recording)	15 July 2021
Invited Talk: EURECA Virtual Seminar, UofA	16 April 2021
Poster: SPIE Telescopes & Instrumentation (interactive) [COVID-19]	14 December 2020
Invited Talk: TAMU Nuclear+Astro Seminar [COVID-19]	25 September 2020
Poster: Keck Science Meeting (interactive) [COVID-19]	24-25 September 2020
Talk: TAMU Astrosymposium [COVID-19]	17 August 2020
Talk: SAZERAC Virtual Conference (recording)	6 July 2020
Invited Talk: Lancaster XGAL Seminar (UK) [COVID-19]	14 April 2020
Invited Talk: Gemini Headquarters (HILO, HI)	24 February 2020
Talk: American Astronomical Society #235 (HONOLULU, HI)	5 January 2020
Talk: Keck Summit Talk (MAUNAKEA)	9 December 2019
Talk: Keck Visiting Scholar: Exit Talk (WAIMEA, HI)	24 October 2019
Talk: Keck Visiting Scholar: Entrance Talk (WAIMEA, HI)	2 October 2019
Talk: Keck Science Meeting, UCLA (LOS ANGELES, CA)	20 September 2019
Talk: TAMU Astrosymposium (College Station, TX)	23 August 2019
Talk: Barefoot in the EoR (FITZROY ISLAND, QLD, AU)	17 July 2019
Talk: Extremely Large Telescopes Conf., UCLA (LOS ANGELES, CA)	29 January 2019
Talk: TAMU Astrosymposium (College Station, TX)	24 August 2018
Talk: 2-min; DES Collaboration Meeting (COLLEGE STATION, TX)	17 May 2018
Talk: CEERS Team Meeting (MAGNOLIA, TX)	1 February 2018
Talk: Star Formation in Era of JWST (COLLEGE STATION, TX)	1 November 2017
Led by D. Calzetti & R. Kennicutt	
Poster: Frank N. Bash Symposium (Austin, TX)	24–25 October 2017
Talk: 1-min; Frank N. Bash Symposium (Austin, TX)	24 October 2017
Talk: TAMU Astrosymposium (College Station, TX)	25 August 2017
Talk: ZFOURGE Team Meeting (MAGNOLIA, TX)	24-28 October 2016
Talk: TAMU Astrosymposium (College Station, TX)	26 August 2016
Professional Development Presentations	
Talk: Telescope Proposals, a "How To" Guide (recording)	5 March 2021
Talk: GLASS, matplotlib & Effective Plotting (recording)	9 October 2020
Talk: MAGIC+GLASS, Grants & Opportunities (& Finding Them)	14 August 2020
Talk: MAGIC, Conferences & Presentations (Making a Good One)	10 July 2020
Talk: MAGIC+GLASS, Crafting Your CV/Resume (recording)	24 June 2020
Talk: MAGIC, Building Your Professional Website (recording)	3 April 2020
Outreach Presentations	
Invited: W. M. Keck Observatory Virtual Public Talk (recording)	9 December 2020
Talk: Astronomy on Tap (BRYAN, TX) [COVID-19] (recording)	16 September 2020
Invited: The Earth is Flat on Planet Pluto, David Sobral (recording)	1 July 2020

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Talk: Warrior Scholar Project (College Station, TX) [COVID-19]	26 June 2020
Talk: Astronomy on Tap (BRYAN, TX) [COVID-19] (recording)	24 June 2020
Talk: Astronomy on Tap (Austin, TX) [COVID-19] (recording)	31 March 2020
Talk: Society for Physics Students (College Station, TX) [COVID-19]	$24~\mathrm{March}~2020$
Talk: Astronomy on Tap (BRYAN, TX)	14 August 2019
Talk: Warrior Scholar Project (COLLEGE STATION, TX)	27 June 2019
Talk: Warrior Scholar Project (COLLEGE STATION, TX)	28 June 2019
Talk: Astronomy on Tap (BRYAN, TX)	11 October 2018
Talk: Warrior Scholar Project (COLLEGE STATION, TX)	29 June 2018
Talk: Warrior Scholar Project (COLLEGE STATION, TX)	28 June 2018
Talk: Camp For All (BURTON, TX)	21 April 2018
Undergraduate Presentations	

Undergraduate Presentations

Talk: Creative Works Symposium, Senior Capstone (GEORGETOWN, TX)	12 April 2016
Poster*: Creative Works Symposium (Georgetown, TX)	April 2015
Poster*: King Creativity Symposium (Georgetown, TX)	April 2015
Poster: APS March Meeting (SAN ANTONIO, TX)	March 2015
Poster: CUWiP (BROWNSVILLE, TX)	January 2015
Poster: APS Meeting; Texas Section (COLLEGE STATION, TX)	October 2014
Poster*: Creative Works Symposium (Georgetown, TX)	April 2014
Poster*: King Creativity Symposium (GEORGETOWN, TX)	April 2014

^{*} Poster paired with Display Table

AWARDED TELESCOPE TIME // ARCHIVAL FUNDING

Principal Investigator

- NASA Keck Observatory/MOSFIRE 2020B Using Nebular UV Metal Lines to Probe Redshifts and Physical Conditions in Galaxies During Reionization; 2 nights, Oct/Dec 2020 [COVID-19]
- NASA Keck Observatory/MOSFIRE 2020A Using Nebular UV Metal Lines to Probe Redshifts and Physical Conditions in Galaxies During Reionization; 2 nights, Feb 2020
- (Co-PI) IRAM/NOEMA A Physical Study of the Galaxy z7_GND_42912 at the End of Reionization (z=7.51); 30 hours, 2019 (not observed)

Co-Investigator

- JWST Cy1 Probing the Interstellar Medium of Galaxies in the Early Universe; archival
- JWST Cy1 − Spectroscopic Confirmation and Characterization of Bright Galaxies at z~9; 18.1 hours prime
- JWST Cy1 Leveraging Early Public JWST Data to Measure Luminosity Functions and Rest-UV Slopes from 6<z<12; archival
- JWST Cy1 Confirming a Potential Ultra-Massive Galaxy at z=10.57; 2.6 hours prime
- JWST Cy1 The Webb Deep Extragalactic Exploratory Public (WDEEP) Survey: Feedback in Low-Mass Galaxies from Cosmic Dawn to Dusk; 121.7 hours prime, 96.4 hours parallel

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• JWST Cy1 – The First Observations of the Ionizing Luminosity of Galaxies within the Epoch of Reionization; 22.2 hours prime

- NASA Keck Observatory/MOSFIRE 2021A CEERS proposal to target z>7 Lyα (z~4-5 rest-UV) in the EGS field; 2 nights, Apr 2021
- NSF NOIRLab Gemini/GNIRS 2021A Near-infrared Spectroscopy of an Extremely-Large Equivalent-width Lyman-alpha Emitter at z=7.608; 5 hours, 2021 (not observed, [COVID-19])
- LBT/LUCI 2020A Detection of CIII] and Lyα at high redshifts through near-infrared spectroscopy; 15 hours, Jan 2020
- NASA Keck Observatory/MOSFIRE 2019B Islands of Reionization; 2 nights, Dec 2019
- NASA Keck Observatory/MOSFIRE 2019A Islands of Reionization; 2 nights, Mar 2019
- NASA Keck Observatory/MOSFIRE 2018B Islands of Reionization; 2 nights, Nov 2018
- NASA Keck Observatory/MOSFIRE 2018A Islands of Reionization; 2 nights, Apr 2018
- JWST Early Release Science The Cosmic Evolution Early Release Science (CEERS), 2017

TEACHING EXPERIENCE

Workshops

Pitt-TAMU Python Camp, instructor Co-organizer of local JWST proposal planning workshops; STScI JWST master scholars (virtual) 24–26 May 2021 UT Austin & Texas A&M Spring 2020

Assistant

Warrior Scholar Project: STEM Week

ASTR 314: Survey of Astronomy ASTR 101: Honors, Basic Astronomy ASTR 314: Survey of Astronomy ASTR 101: Honors, Basic Astronomy

Advisor, Independent Study Undergraduate Astronomy TAMU, Summer 2018, 2019,

[COVID-19] 2020, 2021

TAMU, Spring 2018
TAMU, Fall 2017
TAMU, Spring 2017
TAMU, Fall 2016
Southwestern, 2016
Southwestern, Fall 2014

SUPERVISION / MENTORING

High School Students (2)

Independent Study & Mentorship Program, Frisco ISD

- N. Sathishkumar (Fall 2020 present)
- A. Kothuri (Spring 2021)

Programming

Fluent: Python, Tex, html Experience with: C++, bash, IDL, R, CSS

PANELS

(invited) Graduate Students, APS April Meeting Activism & Outreach, TAMU CUWiP 2020 Undergraduate Advice, Intro. to Physics Seminar [COVID-19], 18 April 2020 TAMU, 18 January 2020 TAMU, 26 April 2017

CERTIFICATES

CIRTL Associate Certificate – Evidenced-Based Teaching Practices April 2021 OGAPS Intermediate Leadership Development Certificate 4 May 2017 OGAPS Basic Leadership Development Certificate 4 May 2017

CIRCULARS & TELEGRAMS

ASASSN-17bq: Discovery of A Supernova in GALEXASC J072538.14+590010.5 L. Macri, T. Hutchison, R. A. Koff et al. 2017, ATel. 10027, 1

Website Architect

Personal website: aibhleog.github.io, created starting websites for (5) colleagues TAMU Astronomy website (with other grads): tamu-astro.github.io GLASS, Astronomy Graduate Professional Development Program: tamu-glass.github.io JWST Texas Master Scholars (with Dr. M. Bagley): jwst-texas-master-scholars.github.io Mentoring & Advising Graduates in an Inclusive Community (MAGIC): tamu-magic.github.io Conference for Undergraduate Women in Physics (CUWiP) at TAMU: cuwip.tamu.edu Society for the Under-represented in Physics & Astronomy (SUPA): tx.ag/supa

Press Coverage

Constellations with host Sarafina Nance, Seeker, "How Space-Time Works When You Look at the Stars" – Episode 3, 29 January 2021

The STEM Squad, Making Space Award Nominee, September 2019

Texas A&M Today, "Stargazing", 1 July 2019

Texas A&M University: Science, "Texas A&M NSF Graduate Research Fellow
Taylor Hutchison Finds Focus in Studying Universe's Earliest Stars and
Sharing Passion for Science", 28 June 2019

PROFESSIONAL SOCIETIES

SPIE: The International Society for Optics & Photonics	2020-present
American Astronomical Society	2019-present
Sigma Xi, The Scientific Research Honor Society	2018-present
American Physical Society	2014-present
Alpha Delta Pi (academic sorority)	2015-present