L. Y. Aaron Yung

Curriculum Vitae

Observational Cosmology Lab, Astrophysics Science Division
NASA Goddard Space Flight Center
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https://lyaaronyung.github.io/

Professional Appointments

NASA Postdoctoral Fellow **Oct 2020 – Present**
Astrophysics Science Division, Goddard Space Flight Center
Greenbelt, Maryland, United States
science advisor: Dr. Jonathan Gardner

Flatiron Guest Researcher **Sep 2016 – Sep 2020**
Center for Computational Astrophysics, Flatiron Institute
Manhattan, New York, United States

Education

Rutgers University – New Jersey, United States
Ph.D. in Astrophysics **Class of 2020**
doctoral thesis advisor: prof. rachel somerville

University of San Francisco – California, United States
B.S. in Physics (with Honors) and Mathematics (with Honors) **Class of 2014**
double minor in Astronomy and Astrophysics, Summa Cum Laude

Scientific Interests

I am an expert in using semi-analytic methods to model the formation and evolution of galaxies and quasars in the early universe, as well as their subsequent impact on the reionization of the intergalactic hydrogen and helium. My prediction work is published under the banner "Semi-analytic forecasts", which delivers a wide variety of predictions for high-redshift objects that are expected to be detected by Webb, Roman, and other observatories. I also work closely with numerous observing teams that utilize Hubble, Webb, and ground-based instruments, for which I supply physically-backed predictions crucial for survey planning and subsequent interpretations.

Awards & Honors

2021 Richard J. Plano Dissertation Prize – Department of Physics & Astronomy, Rutgers
– *given annually to a PhD graduate who wrote the best PhD dissertation in the past year*

2020 NASA Postdoctoral Program (NPP) Fellowship – National Aeronautics and Space Administration
– *extremely selective fellowship in recognition of highly ranked academic and scientific achievement*

2014 Dr. Raymond Genolio Award – Department of Physics & Astronomy, USF
– *award to graduating senior who ranks highest in scholarship in the Department of Physics*

2012 Mike and Millie Lehmann Scholarship – Department of Mathematics, USF
– *award annually to the most outstanding student in the Department of Mathematics*

2012 Arthur Furst Undergraduate Scholarship – College of Arts & Sciences, USF
– *award to a science student who demonstrates outstanding ability and passion to pursue research*

Grants Awarded as PI

2021 *JWST* Cycle 1 – Constraining the Seeding and Growth of First Black Holes via Observable Signatures from the Early Universe (AR 2108)
– a total grant of $104,327 is awarded towards FY22-23 research and collaborator travel

2020 NPP Fellowship – Semi-analytic model for high-redshift multi-messenger surveys and multi-instrument synergy
– a toal grant of $208,024 is awarded towards FY20-22 research and travel

Selected Grants and Observing Time Awarded as Co-I

2021 *JWST* Cycle 1 – take part in a total of **6 approved GO/AR/Treasury programs**,
– including GO 1837, GO 2079, GO 2123, GO 2426, AR 2608, AR 2687
– totalling 401.6 (prime) / 191.5 (parallel) hours of observations

2020 *JWST* ERS Program – The Cosmic Evolution Early Release Science (CEERS) Survey
PI: Steve Finkelstein, 63.2 hours
– a grant of $9,361 is awarded towards critical theory support work

2019 *HST* Cycle 26 – Photometic Confirmation of the Brightest Known Galaxy Candidate at $z > 9$
PI: Steve Finkelstein, 2 orbits

Selected External Collaborations

JWST Cosmic Evolution Early Release Science (CEERS) Survey — Mar 2018 - Present

PI: Steve Finkelstein

Funded JWST Early Release Science program that surveys the high-redshift Universe. https://ceers.github.io

– **Catalog Architect** and **Dataset Architect** for the CEERS observing program
– **Group Leader** of the Simulation Science Working Group
– **Group Leader** of the Junior Scientist Working Group
– major contributor to the pre-launch simulations and data products

The *Euclid* Consortium — Jul 2022 - Present

An international collaboration in preparation for the Euclid*, an ESA medium class astronomy and astrophysics space mission aims at understanding why the expansion of the Universe. The team is officially selected by ESA and is responsible for the scientific capability of the mission, the data production, and of the scientific instruments.*

– Member of the Cosmological Simulation Science Working Group

Next Generation Deep Extragalactic Exploratory Public (NGDEEP) Survey — Mar 2020 - Present

PI's: Steve Finkelstein, Casey Papovich, & Nor Pirzkal

Selected JWST Cycle 1 major public GO/Treasury extragalactic survey program. Deepest survey among all selected.

PRIMER: Public Release IMaging for Extragalactic Research — Oct 2021 - Present

PI's: Jim Dunlop & Garth Illingworth

Selected JWST Cycle 1 major public GO/Treasury extragalactic survey program. Largest survey among all selected.

Ultraviolet Imaging of the CANDELS Fields (UVCANDELS) — Apr 2021 - Present

PI: Harry Teplitz

The definitive extragalactic UV imaging of the four premier HST deep-wide survey fields.

Experiment for Cryogenic Large-Aperture Intensity Mapping (EXCLAIM) — Feb 2019 - Present

PI: Eric Switzer

NASA-funded line intensity mapping survey for CO and CII line emission from $z = 0 - 3.5$ galaxies. (link)

The Isolated and Quenched (IQ) Collaboratory Sep 2017 - Present

PI: Tjitske Starkenburg

The IQ Collaboratory aims to bridge the gap between simulations and observations of star-forming and quiescent galaxies to better characterize internal quenching processes. See https://iqcollaboratory.github.io

Roman Space Telescope Cosmic Dawn Science Investigation Team Jun 2019 - Nov 2021

PI: James Rhoads

NASA-funded Science Investigation Team with objectives focused on studying the epoch of "Cosmic Dawn".

Undergraduate ALFALFA Team Aug 2012 - May 2014

The NSF-funded UAT is a consortium of 19 institutions engaging in an undergraduate research under the Arecibo Legacy Fast ALFA (ALFALFA) project, which aims to detect neutral hydrogen in the local universe by utilizing the Arecibo L-band Feed Array (ALFA) at the Arecibo Observatory.

Professional Service

2021 - Present Extra-Galactic Science Interest Group – as part of NASA's Cosmic Origins Program

2021 - Present Subject Matter Expert for JWST – NASA/STScI Webb Communication Team

2022 - Present Junior Member – the International Astronomical Union (IAU)

2019 - Present Member – the American Astronomical Society (AAS)

Since 2022 Reviewer for astrophysics grant proposals, solicited by *NASA*

Since 2021 Referee for peer-reviewed journals – including *ApJ*, *MNRAS*

2015 - 2016 President – Graduate Student Organization, Rutgers

2013 - 2014 President – USF Astronomy Club

2013 - 2014 Chapter Officer – Mathematics Honor Society (IIME), USF

2012 - 2013 Vice President – USF Astronomy Club

Teaching Appointments

2014 - 2016 Graduate Teaching Assistant – Department of Physics & Astronomy, Rutgers

2012 - 2014 Teaching Assistant – Department of Mathematics, USF

2011 - 2014 Teaching Assistant – Department of Physics & Astronomy, USF

2011 - 2013 Observation Assistant for Astronomy – Department of Physics & Astronomy, USF

Additional Training & Qualifications

2022 NASA ROSES Proposal Writing Workshop – NASA/JPL, supported by NASA Science Mission Directorate

2022 NASA Mission Concept Development Workshop – NASA/GSFC, New Opportunities Office

2021 "Share the Science" Media Training – NASA/HQ, nominated by NASA/GSFC Science Communications

2021 Machine Learning × Physics/Astronomy – Center for Computational Astrophysics, Flatiron Institute

2016 Certificate of Training in Physics Mentorship – Department of Physics & Astronomy, Rutgers

2014 Certificate of Training in Physics Teaching – Department of Physics & Astronomy, Rutgers

Other Skills & Background

Language Proficiency: English (Fluent), Mandarin (Fluent), French (Basic), Japanese (Basic)

Scientific Programming: `Python` (Primary), `C++`, `FORTRAN`, LaTeX, `IDL`, `MATLAB`, `Mathematica`

Conference Contributed Talks

"Beyond semi-analytic forecasts, what physics are we going to learn from JWST observations?"
Aug 15–19, 2022 – Santa Cruz, California – 2022 Santa Cruz Galaxy Workshop *(invited)*

"Paving the way for JWST and Roman with Theory and Simulations" – Contributed Research Talk
"Paving the way for Big Eyes with Theory and Simulations" – NASA's Hyperwall Exhibition Talk
"Quantifying Reionization with Roman" – Roman Space Telescope Galaxy Evolution Splinter Session
Session Chair for the Star Formation session; Chambliss poster award judge
Jun 12–16, 2022 – Pasadena, California – the 240$^{\text{th}}$AAS Meeting

"Semi-analytic forecasts for JWST: mock lightcones and data release"
Mar 14–18, 2022 – Sesto, Italy – The Growth of Galaxies in the Early Universe – VII *(invited)*

"Paving the way for JWST and Roman with Theory and Simulations"
Feb 2–4, 2022 – Virtual – SAZERAC SIP: Learning the High-Redshift Universe

"Semi-analytic forecasts for JWST: Getting into position for observing!" – Contributed Research Talk
"Paving the way for Big Eyes with Theory and Simulations" – NASA's Hyperwall Exhibition Talk
"Quantifying Reionization with Roman" – Roman Space Telescope Galaxy Evolution Splinter Session
Jan 9–13, 2022 – Salt Lake City, Utah – the 239$^{\text{th}}$AAS Meeting – *cancelled due to Omicron outbreak*

"Lightcones for Roman Space Telescope & Simulated Observations"
Nov 15–19, 2021 – Virtual – Roman Science Investigation Team Community Briefing

"Semi-analytic forecasts: uncovering galaxy formation at high redshift with JWST and Beyond"
Jul 6–9, 2020 – Virtual – Summer All Zoom Epoch of Reionization Astronomy Conference (SAZERAC)

"Semi-analytic forecasts: uncovering galaxy formation at high redshift with JWST and Beyond"
Jan 4–8, 2020 – Honolulu, Hawai'i – the 235$^{\text{th}}$AAS Meeting – dissertation talk

"Semi-analytic forecasts: high-redshift galaxy demographics and implications for reionization"
Jan 21–25, 2019 – Sesto, Italy – The Growth of Galaxies in the Early Universe – V *(invited)*

"Semi-analytic forecasts: uncovering galaxy formation with joint constraints from wide and deep surveys"
Aug 30–31, 2018 – Princeton, New Jersey – Workshop on *WFIRST*/LSST Deep Fields

"Semi-analytic forecasts: uncovering galaxy formation with joint constraints from wide and deep surveys"
Jul 23–27, 2018 – Noordwijk, Netherlands – ESA-ESTEC *JWST*/Euclid Synergy Conference

"Galaxy Formation in the Epoch of Reionization with SAM: Predictions for Upcoming JWST Observations"
Feb 4–10, 2018 – Aspen, Colorado – Aspen Winter Conference on Astrophysics: Cosmic Dawn

"Galaxy Formation at Extreme Redshifts: Semi-analytic Predictions and Challenges for Observations"
Jun 12–16, 2017 – Paris, France – Galaxy Evolution Across Time

"UV Luminosity Functions at $z > 6$ predicted by Semi-analytic Models and implications for Reionization"
Jun 20–24, 2016 – Paris, France – the 32$^{\text{nd}}$ Institut d'Astrophysique de Paris Colloquium

Conference Posters

"Semi-Analytic Forecasts for JWST: Uncovering galaxy formation with joint constraints from deep surveys & reionization"
Aug 5–9, 2019 – Santa Cruz, California – 2019 Santa Cruz Galaxy Workshop

"Semi-Analytic Forecasts for JWST: Uncovering galaxy formation with joint constraints from deep surveys & reionization"
Jun 24–28, 2019 – Paris, France –
CosmoGold IAP 2019: The golden age of cosmology from Planck to Euclid

"Semi-Analytic Forecasts for JWST: Uncovering early galaxy evolution in the ALMA and JWST era"
Jun 3–9, 2019 – Viana do Castelo, Portugal –
IAU Symposium 352: Uncovering early galaxy evolution in the ALMA and JWST era

"Evolution of physical properties & scaling relations for high-redshift galaxies"
Jul 15–20, 2018 – Kingston, Ontario, Canada –
The Physics of Galaxy Scaling Relations and the Nature of Dark Matter

"Semi-analytic forecasts for JWST Trilogy"
Jun 18–22, 2018 – Strasbourg, France – Rise and Shine: Galaxies in the Epoch of Reionization

"Constraints on First-Stars Models From Observations of Local Low-Mass Dwarf Galaxies and Galactic Metal-Poor Halo Stars"
Jan 5–9, 2014 – Washington D.C., United States – the 223$^{\text{rd}}$AAS Meeting – Poster #246.54

Selected External Talks

Apr 4, 2023 – Montreal, Quebec – McGill Space Institute, Astro Seminar (*invited*)

Dec 7, 2022 – New Brunswick, New Jersey – Rutgers University, Physics Colloquium (*invited*)

Nov 2, 2022 – College Park, Maryland – UMD Center for Theory and Computation (CTC) Seminar

Oct 12, 2022 – New Haven, Connecticut – Yale University, Galaxy Lunch Talk

Sep 26, 2022 – Toronto, Ontario – Dunlap institute / University of Toronto, Astronomy Seminar (*virtual)*

Jul 21, 2022 – Roman Virtual Lecture Series, jointly hosted by JPL, IPAC, GSFC, and STScI *(virtual)*

May 31, 2022 – Victoria, B.C. – NRC of Canada's Herzberg Research Centre Colloquium (*virtual, invited)*

Apr 28, 2022 – Austin, Texas – UT Austin, Cosmos Seminar (*invited)*

Mar 31, 2022 – New York, New York – Flatiron Institute, CCA Lunch Seminar (*invited)*

Feb 24, 2022 – Baltimore, Maryland – JWebbinar for the JWST community, hosted by STScI (*virtual)*

Dec 9, 2021 – Baltimore, Maryland – Joint STScI–JHU Galaxies and AGN Seminar *(virtual, invited)*

Oct 14, 2021 – New York, New York – Columbia University, Astro Seminar *(invited)*

Feb 1, 2021 – Santa Cruz, California – UC Santa Cruz, CGI Seminar *(virtual, invited)*

Jul 16, 2020 – Sussex, England – University of Sussex, Astro Seminar *(virtual, invited)*

Mar 2, 2020 – New York, New York – *WFIRST* Science Jamboree II, *WFIRST* Science Community Meeting

Feb 7, 2020 – Toledo, Ohio – University of Toledo, Astro Seminar

Nov 7, 2019 – Oxford, England – University of Oxford, Galaxy Evolution Seminar

Nov 5, 2019 – Copenhagen, Denmark – Dark Cosmology Centre, Niel Bohr Institute

Nov 1, 2019 – Leiden, Netherlands – Lorentz Center, Leiden galaxy workshop

Sep 17, 2019 – Cambridge, Massachusetts – Harvard-Smithsonian *CfA*, Galaxies & Cosmology Seminar

Sep 4, 2019 – New Haven, Connecticut – Yale University, Galaxy Journal Club

Jul 30, 2019 – Greenbelt, Maryland – *WFIRST* Science Jamboree, *WFIRST* Science Community Meeting

Jun 21, 2019 – New York, New York – *Origins Space Telescope* Community Science Meeting

Feb 15, 2019 – Baltimore, Maryland – Space Telescope Science Institute, Galaxy Seminar

Nov 8, 2018 – San Francisco, California – University of San Francisco, Physics Colloquium

Oct 16, 2017 – Cape Town, South Africa – MPA-UWC Bilateral Workshop

Oct 12, 2017 – Heidelberg, Germany – Max-Planck-Institut für Astronomie, Galaxy Coffee

Conferences & Workshops Organized

Aspen Summer Workshop 2023 – "Revealing the Detailed Astrophysics of Early Galaxies with *JWST*"
- *three-week workshop at the Aspen Center for Physics from Aug 10 – Sept 8, 2023*
- *served as workshop co-organizer with Allison Strom, Michael Maseda, and Risa Wechsler*
- *the workshop is selected through a competitive proposing process*

SAZERAC SIP – "Models and Simulations of High-Redshift Galaxies"
- *Virtual conference in the midst of the COVID pandemic from Oct 27 – 28, 2021*
- *served as Chair of the SOC, conference talk priorities given to junior scientists*
- *this conference is part of a long line of topic-focused, all-zoom mini conference series*

Joint CCA/STScI Workshop on "Epoch of Reionization and Early Galaxy Evolution with *JWST*"
- *served as one of the five main organizers for the two-part conference series*
- *Part I at the Space Telescope Science Institute (STScI), Baltimore, MD on Apr 20, 2018*
- *Part II at the Center for Computational Astrophysics (CCA), New York, NY on Jun 1, 2018*

SKA Pathfinders HI Science Coordination Committee (PHISCC) Workshop
- *took place at Rutgers University, Mar 16 – 18, 2015* (served as LOC)

Selected Invited Public Talks & Outreach Activities

Jul 18, 2022 – Oeiras, Portugal – *First Light Observations from the James Webb Space Telescope*
- Distinguished Guest Public Lecture at the professional-level Space Studies Program (SSP2022)
- as part of a nine-week interdisciplinary immersion program hosted by the International Space University

Nov 14, 2021 – Arlington, Virginia – David M. Brown Planetarium – JWST Community Event

Oct 28, 2021 – Annapolis, Maryland – Cafe Scientifique – JWST Community Event

2021 - Present Main host for the popular weekly science series on the social platform *"Clubhouse"*
- I run the *"Astronomy &Astrophysics"* club that attracted 28.5k+ members since March 2021 debut
- in collaboration with *NASA's Chief Scientist Jim Green*, *Heidi Hammel*, and many experts
- weekly events include an *"Astro Newsroom"* and a topical room *"Ask An Astronomer – $[A^3]$"*
- typical rooms reach hundreds of listeners, with a peak of 1.6k for our room on Black Holes
- special-topic rooms feature guest experts, notable guests include *John Mather* on COBE and JWST

NASA's Webb Instruments Q&A – *official public engagement event on Twitter and Instagram*
- as part of a celebration of Asian American and Pacific Islanders (AAPI) Heritage Month – *May 11-13, 2022*
- interact with a worldwide audience on Webb and its instruments as JWST subject matter expert

Selected Press & Media Appearances

Omni Television Cantonese Service (Canada-based nation-wide broadcasting company)
- *JWST* media inquiry as part of live news broadcast, multiple appearances in 2022
- invited to comment on the Webb mission and the Webb's first images as subject matter expert

Press Release – *"One of the Universe's Earliest Galaxies Revealed in Widest View Yet of Cosmos"*
- following the discovery of the extremely distant "Maisie's Galaxy" found in the CEERS survey – *Aug 4, 2022*
- joint press release by Flatiron Institute, UT Austin, etc. on Finkelstein et al. 2022

Press Release – *"Scientists Have Spotted the Farthest Galaxy Ever"*
- following the discovery of extremely distant galaxy candidates HD-1 and HD-2 – *Apr 7, 2022*
- joint press release by Univ. of Tokyo ICRR, Harvard–Smithsonian CfA, etc. on Harikane et al. 2022
- news articles and commentary featured in NY Times, Reuters, The Daily Beast, Cosmos Magazine, etc.

NASA's Early Career Scientist Spotlights
– featured article showcasing the early career scientists working at NASA Goddard – *Jul 20, 2022*

NASA's Gravity Assist Podcast – *Season 5, Episode 22: "Using Webb to Trace Galactic Histories"*
– interview on research and personal story, hosted by Jim Green – *Mar 4, 2022*

NASA's Official Webb Blog – *"To Find the First Galaxies, Webb Pays Attention to Detail and Theory"*
– blog post featuring results from the *Semi-analytic forecasts for JWST* project – *Feb 24, 2022*

The Independent – *"NASA simulation of the universe will guide future Webb telescope observations"*
– news article featuring results from the *Semi-analytic forecasts for JWST* project – *Feb 25, 2022*

USF Featured News Article – *"To Infinity and Beyond"*
– alumni story reporting on my scientific journey and my role with *JWST* – *Oct 20, 2021*

VOA - Voice of America Mandarin Service (U.S.-based broadcasting company)
– *JWST* media inquiry as part of live news broadcast, multiple appearances from 2021 to 2022
– invited to comment on *JWST*'s launch, deployment, and first images as subject matter expert

Main Author Publications

[1] **Yung L.Y.A.**, Somerville R. S., Finkelstein S. L., Popping G., Davé R., 2019a, *Semi-analytic forecasts for JWST – I. UV luminosity functions at* $z = 4{-}10$, MNRAS, 483, 2983 (arXiv:1803.09761)

[2] **Yung L.Y.A.**, Somerville R. S., Popping G., Finkelstein S. L., Ferguson H. C., Davé R., 2019b, *Semi-analytic forecasts for JWST – II. Physical properties and scaling relations for galaxies at* $z = 4 - 10$, MNRAS, 490, 2855 (arXiv:1901.05964)

[3] **Yung L.Y.A.**, Somerville R. S., Popping G., Finkelstein S. L., 2020a, *Semi-analytic forecasts for JWST – III. Intrinsic production rate of Lyman-continuum radiation*, MNRAS, 494, 1002 (arXiv:1910.11345)

[4] **Yung L.Y.A.**, Somerville R. S., Finkelstein S. L., Popping G., Davé R., Venkatesan A., Behroozi P., Ferguson H. C., 2020b, *Semi-analytic forecasts for JWST – IV. Implications for cosmic reionization and LyC escape fraction*, MNRAS, 496, 4574 (arXiv:2001.08751)

[5] **Yung L.Y.A.**, Somerville R. S., Finkelstein S. L., Hirschmann M., Davé R., Popping G., Gardner J. P., Venkatesan A., 2021, *Semi-analytic forecasts for JWST – V. AGN luminosity functions and helium reionization at* $z = 2 - 7$, MNRAS, 508, 2706 (arXiv:2109.13241)

[6] **Yung L.Y.A.**, Somerville R. S., Ferguson H. C., Finkelstein S. L., Gardner J. P., Davé R., Bagley M., Popping G., Behroozi P., 2022, *Semi-analytic forecasts for JWST – VI. Simulated lightcones and galaxy clustering predictions*, MNRAS, 515, 5416 (arXiv:2206.13521)

[7] **Yung L.Y.A.**, Somerville R. S., Finkelstein S. L., Gardner J. P., Popping G. et al., 2022, *Semi-analytic forecasts for Roman – an early assessment for the potential of next generation wide-field high-redshift galaxy surveys*, to be submitted to MNRAS in August 2022

Co-author Publications

[1] Jones, Michael G.; Papastergis, Emmanouil; Pandya, Viraj; ... ... include **Yung, L.Y.A.** 2018, *The contribution of HI-bearing ultra-diffuse galaxies to the cosmic number density of galaxies*, A&A 614, A21 (arXiv:1712.01855)

[2] Stevans, Matthew L.; Finkelstein, Steven L.; Wold, Isak; ... ... include **Yung, L.Y.A.** 2018, *Bridging Star-Forming Galaxy and AGN Ultraviolet Luminosity Functions at $z = 4$ with the SHELA Wide-Field Survey*, ApJ 863, 63 (arXiv:1806.05187)

[3] Popping, Gergö; Pillepich, Annalisa; Somerville, Rachel S.; ... ... include **Yung, L.Y.A.** 2019, *The ALMA Spectroscopic Survey of the Hubble Ultra Deep Field: putting the H2 content of galaxies and of the Universe in a theoretical context with IllustrisTNG and the Santa Cruz SAM*, ApJ 882, 137 (arXiv:1903.09158)

[4] Walter, Fabian; Carilli, Chris; Neeleman, Marcel; ... ... include **Yung, L.Y.A.** 2020, *The Evolution of the Baryons Associated with Galaxies Averaged over Cosmic Time and Space*, ApJ 902, 111 (arXiv:2009.11126)

[5] Behroozi, Peter; Conroy, Charlie; Wechsler, Risa H.; ... ... include **Yung, L.Y.A.** 2020, *The Universe at $z > 10$: Predictions for JWST from the* UniverseMachine *DR1*, MNRAS 499, 5702 (arXiv:2007.04988)

[6] Yang, Guang; Papovich, C.; Bagley, M. B.; ... ... include **Yung, L.Y.A.** 2021, *JWST/MIRI Simulated Imaging: Insights into Obscured Star-Formation and AGN for Distant Galaxies in Deep Surveys*, ApJ 908, 144 (arXiv:2011.08192)

[7] Somerville, Rachel S.; Olsen, Charlotte; **Yung, L.Y.A.**; ... ... 2021, *Mock Lightcones and Theory Friendly Catalogs for the CANDELS Survey*, MNRAS 502, 4858 (arXiv:2102.00108)

[8] Dickey, Claire M.; Starkenburg, Tjitske K.; Geha, Marla; ... ... include **Yung, L.Y.A.** 2021, *IQ Collaboratory II: The Quiescent Fraction of Isolated Galaxies Across Simulations and Observations*, ApJ 915, 53 (arXiv:2010.01132)

[9] Switzer, Eric R.; Ade, Peter A. R.; Anderson, Christopher J.; ... ... include **Yung, L.Y.A.** 2021, *Experiment for Cryogenic Large-Aperture Intensity Mapping: Instrument design*, Journal of Astronomical Telescopes, Instruments, and Systems 7(4), 044004 (doi: 10.1117/1.JATIS.7.4.044004)

[10] Stevans, Matthew L.; Finkelstein, Steven; ... ... include **Yung, L.Y.A.** 2021, *The NEWFIRM HETDEX Survey: Photometric Catalog and the Quiescent Fraction of Massive Galaxies at $z = 3$ – 5 over 17.5 deg^2 in the SHELA Field*, ApJ 921, 58 (arXiv:2103.14690)

[11] Hahn, ChangHoon; Starkenburg, Tjitske K.; Angles-Alcazar, Daniel; ... ... include **Yung, L.Y.A.** 2022, *IQ Collaboratory III: The Empirical Dust Attenuation Framework – Taking Hydrodynamical Simulations with a Grain of Dust*, ApJ 926, 122 (arXiv:2106.09741)

[12] Tacchella, Sandro; Finkelstein, Steven L.; ... ... include **Yung, L.Y.A.** 2022, *On the Stellar Populations of Galaxies at z=9–11: the Quest of Measuring Star-Formation Histories to Elucidate the First Galaxies*, ApJ 927, 170 (arXiv:2111.05351)

[13] Finkelstein, Steven L.; Bagley, Micaela; Song, Mimi; ... ... include **Yung, L.Y.A.** 2022, *A Census of the Bright z=8.5–11 Universe with the Hubble and Spitzer Space Telescopes in the CANDELS Fields*, ApJ 928, 52 (arXiv:2106.13813)

[14] Harikane, Yuichi; Inoue, Akio K.; Mawatari, Ken; ... ... include **Yung, L.Y.A.** 2022, *A Search for H-band Dropout Lyman Break Galaxies at $z \sim 12$ – 16*, ApJ 929, 1 (arXiv:2112.09141)

[15] Kakos, James; Primack, Joel R.; Rodríguez-Puebla, Aldo; ... ... include **Yung, L.Y.A.** 2022, *Galaxy Correlation Function and Local Density from Photometric Redshifts Using the Stochastic Order Redshift Technique (SORT)*, MNRAS 514, 1867 (arXiv:2201.05258)

[16] Gabrielpillai, Austen; Somerville, Rachel S.; Genel, Shy; ... ... include **Yung, L.Y.A.** 2022, *Galaxy Formation in the Santa Cruz semi-analytic model compared with IllustrisTNG – I. Galaxy scaling relations, dispersions, and residuals at* $z = 0$, accepted for publication in MNRAS (arXiv:2111.03077)

[17] Perez, Lucia A.; Genel, Shy; Villaescusa-Navarro, Francisco; ... ... include **Yung, L.Y.A.** 2022, *Constraining cosmology with machine learning and galaxy clustering: the CAMELS–SAM suite*, submitted to ApJ (arXiv:2204.02408)

[18] Kuschel, Maxwell; Scarlata, Claudia; Mehta, Vihang; ... ... include **Yung, L.Y.A.** 2022, *Investigating the Dominant Environmental Quenching Process in UVCANDELS/COSMOS Groups*, submitted to ApJ (arXiv:2205.12169)

[19] Trump, Jonathan R.; Arrabel-Haro, Pablo; Simons, Raymond C.; ... ... include **Yung, L.Y.A.** 2022, *The Physical Conditions of Emission-Line Galaxies at Cosmic Dawn from JWST/NIRSpec Spectroscopy in the SMACS 0723 Early Release Observations*, submitted to ApJ (arXiv:2207.12388)

[20] Finkelstein, Steven L.; Bagley, Micaela B.; Arrabel-Haro, Pablo; ... ... include **Yung, L.Y.A.** 2022, *A Long Time Ago in a Galaxy Far, Far Away: A Candidate* $z \sim 14$ *Galaxy in Early JWST CEERS Imaging*, submitted to ApJ (arXiv:2207.12474)

[21] García-Argumáne, Ángela; Pérez-González, Pablo G.; Gil de Paz, Armando; ... ... include **Yung, L.Y.A.** 2022, *Probing the earliest phases in the formation of massive galaxies with simulated HST+JWST imaging data from Illustris*, submitted to ApJ (arXiv:2207.14062)

[22] Costantin, Luca; Pérez-González, Pablo G.; Vega-Ferrero, Jesus; ... ... include **Yung, L.Y.A.** 2022, *Expectations of the size evolution of massive galaxies at* $3 \leq z \leq 6$ *from the TNG50 simulation: the CEERS/JWST view*, submitted to ApJ (arXiv:2208.00007)

[23] Zavala, Jorge A.; Buat, Véronique; Casey, Caitlin M.; ... ... include **Yung, L.Y.A.** 2022, *A dusty starburst masquerading as an ultra-high redshift galaxy in JWST CEERS observations*, submitted to ApJ (arXiv:2208.01816)

[24] Rose, Caitlin; Kartaltepe, Jeyhan B.; Snyder, Gregory F.; ... ... include **Yung, L.Y.A.** 2022, *Identifying Galaxy Mergers in Simulated CEERS NIRCam Images using Random Forests*, submitted to ApJ (arXiv:2208.11164)

[25] Kocevski, Dale D.; Barro, Gillermo; McGrath, Elizabeth J.; ... ... include **Yung, L. Y. A.** 2022, *CEERS Key Paper III: The Resolved Host Properties of AGN at* $3 < z < 5$ *with JWST*, submitted to ApJ (arXiv:2208.14480)

Conference Proceedings

[1] Essinger-Hileman, Thomas; Oxholm, Trevor; Siebert, Gage; ... ... include **Yung, L.Y.A.** 2022, *EXCLAIM: The EXperiment for Cryogenic Large-Aperture Intensity Mapping*, Proceedings of the SPIE, Volume 12190, in preparation

Non-refereed / White Papers

[1] Harikane, Yuichi et al. (include **Yung, L.Y.A.**) 2021, *Roman Cosmic Dawn Survey*, NASA/Goddard's call for Roman Early-Definition Astrophysics Survey Concept

[2] Koekemoer, Anton et al. (include **Yung, L.Y.A.**) 2021, *Roman Ultra Deep Field*, NASA/Goddard's call for Roman Early-Definition Astrophysics Survey Concept

[3] Malhotra, Sangeeta et al. (include **Yung, L.Y.A.**) 2021, *Deep Slitless Spectroscopy with Roman*, NASA/Goddard's call for Roman Early-Definition Astrophysics Survey Concept

[4] Papovich, Casey et al. (include **Yung, L.Y.A.**) 2021, *Roman Multi-Tiered Surveys (Roman-MTS) for Extragalactic Science*, NASA/Goddard's call for Roman Early-Definition Astrophysics Survey Concept

Student Mentorship

Tri Nguyen – Flatiron CCA Pre-Doctoral Program Aug 2022 - Present

– PhD Physics Student at Massachusetts Institute of Technology at the time of mentorship

– mentorship shared with rachel somerville (Flatiron/CCA) and Chirag Modi (Flatiron/CCM)

Derek Zapata – ngVLA Community Studies Round 5 (funded by NRAO) Jun 2022 - Aug 2022

– PhD Physics Student at Rutgers University at the time of mentorship

– mentorship shared with Andrew Baker (Rutgers) and rachel somerville (Flatiron/CCA)

Nicole Taylor – NASA Summer Internship Program Jun 2021 - Aug 2021

– MS Chemistry Student at Rensselaer Polytechnic Institute at the time of mentorship

– mentorship shared with James Rhoads (NASA/GSFC)

References

Dr. Jonathan P. Gardner

– *Deputy Senior Project Scientist for the James Webb Space Telescope*

– *Research Astrophysicist at the Observational Cosmology Lab of the Astrophysics Science Division*

– *Long-term collaborator on JWST theory support work and other observing teams*

– *Science Advisor for the NASA Postdoctoral Fellowship at NASA/GSFC*

Dr. James L. Green

– *Senior Advisor to the Office of the Chief Scientist at NASA Headquarters*

– *NASA Chief Scientist (2018 to 2022), Director of the Planetary Science Division (2006 to 2018)*

– *Long-term collaborator on numerous outreach events on planetary science and space exploration*

Dr. Rachel S. Somerville

– *Group leader at the Center of Computational Astrophysics, Flatiron Institute*

– *Long-term collaborator on semi-analytic model development and related science*

– *Doctoral Thesis Advisor at Rutgers University during my PhD*

Prof. Steven L. Finkelstein

– *Associate Professor at the University of Texas at Austin*

– *PI of the JWST CEERS and NGDEEP Teams and Co-I of the Roman Cosmic Dawn SIT*

– *Main collaborator for the Semi-analytic forecasts work series*

– *Long-term collaborator on JWST, HST, ALMA, Keck observing programs*

Prof. Romeel Davé

- *Chair of Physics at the University of Edinburgh*
- *Main collaborator for the Semi-analytic forecasts work series*
- *Long-term collaborator on projects related to cosmic reionization and 21-cm mapping*