

# L. Y. Aaron Yung

## Curriculum Vitae

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Space Telescope Science Institute  
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### PROFESSIONAL APPOINTMENTS

<b>STScI's Giacconi Fellow</b> Space Telescope Science Institute (STScI) Baltimore, Maryland, United States	<b>Oct 2023 – Present</b>
<b>NASA Postdoctoral Fellow</b> NASA Goddard Space Flight Center (GSFC) Greenbelt, Maryland, United States <i>science advisor: Dr. Jonathan Gardner</i>	<b>Oct 2020 – Oct 2023</b>
<b>Flatiron Guest Researcher</b> Center for Computational Astrophysics (CCA), Flatiron Institute New York, New York, United States	<b>Sep 2016 – Sep 2020</b>

### EDUCATION

<b>Rutgers University</b> – New Jersey, United States <b>Ph.D. in Astrophysics</b> <i>doctoral thesis advisor: prof. rachel somerville</i>	<b>Class of 2020</b>
<b>University of San Francisco</b> – California, United States <b>B.S. in Physics (with Honors) and Mathematics (with Honors)</b> <i>double minor in Astronomy and Astrophysics, Summa Cum Laude</i>	<b>Class of 2014</b>

### PUBLICATION SUMMARY

162 papers published in or submitted to peer-reviewed journals since 2018, with a total of 10,000+ citations and an *h*-index of 53. Of these, I am the lead author of 11 papers with 830+ citations.

Full publication records are available in [ADS library](#), [ORCID profile](#), and [Google Scholar](#)

### AWARDS & HONORS

- 2024 – NASA Hubble Fellowship Program (NHFP) Finalist – National Aeronautics and Space Administration
  - ranked very highly among >500 applicants by a panel of distinguished astrophysicists and waitlisted
- 2023 – STScI Giacconi Prize Postdoctoral Fellowship – Space Telescope Science Institute
  - fully independent fellowship awarded through a competitive selection process
- 2023 – ESA Research Fellowship in Space Science – European Space Agency
  - fully independent fellowship awarded through a competitive selection process, declined
- 2020 – NASA Postdoctoral Program (NPP) Fellowship – National Aeronautics and Space Administration
  - extremely selective fellowship in recognition of highly ranked academic and scientific achievement
- 2021 – Richard J. Plano Dissertation Prize – Department of Physics & Astronomy, Rutgers University
  - given annually to a PhD graduate who wrote the best physics dissertation in the past year

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

- 2023 Giacconi Fellowship – Semi-Analytic Forecasts for the Universe – a theory framework to bridge seed black holes to rare luminous quasars  
 – a total grant of \$323,165 is awarded towards FY23-26 research and travel
- 2021 *JWST* Cycle 1 – Constraining the Seeding and Growth of First Black Holes via Observable Signatures from the Early Universe ([AR/Theory 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 total grant of \$208,024 is awarded towards FY20-22 research and travel

## SELECTED GRANTS AND OBSERVING TIME AWARDED AS CO-I

**14 successful *JWST* programs** across multiple cycles, together awarded **775.08 (prime) and 290.73 (parallel) hours** of observations. I also routinely contribute to proposals for ground- and space-based observatories, as well as instrumentation proposals and precursor science programs for future telescopes.

- 2025 *JWST* Cycle 4 – SPAM: Star-formation from Photometry through the Addition of Medium-bands  
 PI: Kelcey Davis, 62.8 hours ([GO 8559](#))  
  
*JWST* Cycle 4 – On the search for a primeval black hole in a spectroscopically-confirmed galaxy at z=12.3  
 PI: Ikki Mitsuhashi, 49.1 hours ([GO 7078](#))  
  
*JWST* Cycle 4 – Revealing the True Nature of Little Red Dots with Deep Continuum Observations of an IR-Bright LRD at z=3.1  
 PI: Guillermo Barro, 19.9 hours ([GO 8358](#))
- 2024 *JWST* Cycle 3 – The CANDELS-Area Prism Epoch of Reionization Survey (CAPERS)  
 PI: Mark Dickinson, 193.98 (prime) / 99.23 (parallel) hours ([GO/Treasury 6368](#))  
  
*JWST* Cycle 3 – Deep Spectroscopy of Galaxies at z = 4–14: Uncovering Drivers of Early Galaxy Formation and Black Hole Growth  
 PIs: Taylor Hutchison & Rebecca Larson, 23.3 hours ([GO 5507](#))  
  
 NASA ROSES-23 Astrophysics Decadal Survey Precursor Science (ADSPS) – Probing Cosmic Ecosystems in the Far-Infrared: A Study of Gas, Dust, and Black Holes across Cosmic Time  
 PI: Vivian U, funding partially allotted to support a graduate student collaborator at Tuft
- Gemini 2024B – Unveiling the Brightest Galaxies at Cosmic Dawn: Spectroscopic Confirmation of Six Ultraluminous z>8 Galaxy Candidates  
 PI: Gene Leung, 12.4 hours (GS-2024B-Q-207)

- Gemini 2024B – Spectroscopic Confirmation and Characterization of the Most Massive Quiescent Galaxies at  $z > 4$   
 PI: Katherine Chworowsky, 25.7 hours (GS-2024B-Q-234)
- 2023 *JWST* Cycle 2 – Breaking the  $z = 10$  barrier with MIRI: redshift confirmation and detection of rest-frame optical emission lines  
 PI: Jorge Zavala, 24.4 hours ([GO 3703](#))
- 2022 *HST* Cycle 30 – Revealing the Nature of Five Potential Bright Galaxies at  $z > 10$   
 PI: Gene Leung, 5 orbits ([GO 17281](#))
- NASA ROSES-22 Nancy Grace Roman Space Telescope Research and Support Opportunities – SPQR: Spectroscopic Probes of Quantitative Reionization  
 PI: James Rhoads, Roman Wide Field Science (WFS) Investigation Team
- 2021 *JWST* Cycle 1 – take part in a total of **6 approved GO/AR Programs**, including
  - Treasury programs [GO 1837](#) (PI: James Dunlop, 194.7 hrs), [GO 2079](#) (PI: Steven Finkelstein, 122.6 hrs)
  - Spectroscopic programs [GO 2123](#) (PI: Susan Kassin, 74.4 hrs), [GO 2426](#) (PI: Micaela Bagley, 17.6 hrs)
  - Theory program [AR 2608](#) (PI: Anson D'Aloisio)
  - Archival program [AR 2687](#) (PI: Micaela Bagley)
  - **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 ([DD-ERS 1345](#))
  - a grant of \$9,361 is awarded towards critical theory support work
- 2019 *HST* Cycle 26 – Photometric Confirmation of the Brightest Known Galaxy Candidate at  $z > 9$   
 PI: Steve Finkelstein, 2 orbits ([GO 15697](#))

## 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>

- **Key Project Architect, Catalog Architect, and Dataset Architect** for the CEERS 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

PRIMA: The PRobe Far-Infrared Mission for Astrophysics Mar 2025 - Present

PI: Jason Glenn

*NASA-selected Probe Explorers class mission currently in Phase A development* <https://prima.ipac.caltech.edu>

- Contributor of various pre-Phase A studies
- Member of the AGN across cosmic time Working Group
- Member of the Galaxy Evolution Working Group

*Roman* SPQR: Spectroscopic Probes of Quantitative Reionization Jul 2023 - Present

PI: James Rhoads

*NASA-funded Roman Space Telescope Wide Field Science (WFS) Investigation Team with objectives focused on studying the Epoch of Reionization.*

Simons Collaboration on Learning the Universe (LtU) Nov 2022 - Present

Director: Greg Bryan

*This collaboration aims to investigate the machineries of Universe across various scales through a Bayesian forward modelling approach informed by the large collection of legacy surveys. See <https://www.learning-the-universe.org>*

- Member of the Synthetic Observation Working Group
- Member of the High- $z$  simulation Working Group

The *CASTOR* Science Team Sep 2022 - Present

*The Cosmological Advanced Survey Telescope for Optical and uv Research (CASTOR) is a proposed Canadian Space Agency (CSA) mission that would image the skies at ultraviolet (UV) and blue-optical wavelengths. The CASTOR Science Team is responsible for high-level science planning and optimization, including overall mission science requirements. <https://www.castormission.org>*

- Contributor of the Galaxies and Cosmic Star Formation Working Group
- Contributor of the Active Galactic Nuclei and Supermassive Black Holes Working Group

The *Euclid* Consortium Jul 2022 - Present

*An international collaboration in preparation for 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 Euclid-US Rhodes Team
- Member of the Cosmological Simulation Science Working Group and the FS2 Team

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.*

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.*

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 Roman Space Telescope Science Investigation Team (SIT) with objectives focused on studying the epoch of “Cosmic Dawn”.*

Undergraduate ALFALFA Team	Aug 2012 - May 2014
<i>The NSF-funded Undergraduate ALFALFA Team 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.</i>	

## PROFESSIONAL SERVICES AND MEMBERSHIPS

2025 - Present	Member, Spatially Resolved UV Spectroscopy for HWO Science Analysis Group
2024 - Present	Member, NASA IRTF-Keck Users Group (NIKUG) Executive Committee ( <a href="#">link</a> )
2024 - Present	Member, NASA's Roman Space Telescope CCS/HLWAS Definition Committee ( <a href="#">link</a> )
2021 - Present	Co-Chair, NASA Cosmic Origins Program's Galaxies Science Interest Group ( <a href="#">link</a> )
Since 2022	Review panellist for NASA astrophysics grants: <i>ADAP</i> , <i>TCAN</i> , <i>ATP</i> , <i>FINESST</i>
Since 2021	Referee for peer-reviewed journals: <i>Nature</i> , <i>A&amp;A</i> , <i>AJ</i> , <i>ApJ</i> , <i>ApJS</i> , <i>MNRAS</i> , <i>PASP</i> , etc.
Since 2021	Subject Matter Expert for JWST – NASA/STScI Webb Communication Team
Since 2022	Junior Member – International Astronomical Union (IAU)
Since 2019	Member – American Astronomical Society (AAS)
2015 - 2016	President – Graduate Student Organization, Rutgers
2013 - 2014	President – USF Astronomy Club
2013 - 2014	Chapter Officer – Mathematics Honor Society (PiME), USF
2012 - 2013	Vice President – USF Astronomy Club

## PROFESSIONAL DEVELOPMENT & ADDITIONAL TRAINING

2024	Introduction to Supervisor and Manager Responsibilities and Skills Training – STScI
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 – Alan Alda Center for Communicating Science, nominated by GSFC OCOMM
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

Scientific Programming:	<b>Python</b> (Primary), C++, FORTRAN, L <sup>A</sup> T <sub>E</sub> X, IDL, MATLAB, Mathematica
Language Proficiency:	English (Fluent), Mandarin (Fluent), French (Basic), Japanese (Basic)
Nationality:	Citizen of the United States, British National (Overseas)

## NOTABLE INVITED LECTURES

Jan 18, 2023 – New Brunswick, New Jersey – <i>Richard J. Plano Dissertation Prize Lecture</i>
– topic: <i>Paving the Way for Future Space Telescopes with Theory and Simulations</i> ( <a href="#">link</a> )
– physics colloquium at the Rutgers Physics Department for the Plano Prize in 2021

Dec 8, 2022 – Houston, Texas –

*Keynote address at the Society of HPC Professionals Annual Technology Meeting*

- topic: *HPC and the James Webb Space Telescope*

- industry-facing conference for the high performance computing (HPC) community ([link](#))

- invited presentation reviewing the state-of-the-art HPC applications in the field of astronomy ([link](#))

Nov 15, 2022 – New York, New York – *Invited Guest Lecture at Columbia University*

- topic: *James Webb Space Telescope – a new frontier in distant universe exploration*

- covering the JWST mission and the controversy related to the discovery of extreme-redshift galaxies

- invited special-topic lecture for the graduate-level *Galaxies* course (GR6003) in Fall 2022

Jul 18, 2022 – Oeiras, Portugal – *Distinguished Guest Lecture at the International Space University*

- topic: *First Light Observations from the James Webb Space Telescope* ([link](#))

- public lecture took place during ISU's flagship, professional Space Studies Program ([SSP2022](#))

- SSP2022 is sponsored by Portugal Space and Instituto Superior Técnico (Técnico Lisboa)

- ISU is sponsored by NASA, ESA and other government, academic, industry, and private entities

## CONFERENCE CONTRIBUTED TALKS

“*The star formation histories of ultra-high-redshift galaxies and their EoR descendants*” – Contributed Talk

“*What we have learned from deep surveys so far – a modelling and simulation perspective*” – Invited Talk

“*Galaxies across cosmic time with JWST and Roman*”

– NASA’s Hyperwall Exhibition Talk

*Co-organizer for the joint SIG splinter session at the COPAG meeting*

*Panellist for the “Beyond Academe Roundtable Discussions”*

*Chambliss poster award judge*

*Session Chair for the “Clumps, Feedback, and Quenching in High-Redshift Galaxies with JWST” session*

Jan 4–8, 2026 – Phoenix, Arizona – the 247<sup>th</sup>AAS Meeting

“*New results on modelling the properties and photometry of ultra-z galaxies up to z ~ 30 with GUREFT*”

Aug 4–8, 2025 – Santa Cruz, California – 2025 Santa Cruz Galaxy Workshop (*invited*)

“*New results on modelling the properties, photometry, and ionizing emissivity of ultra-z galaxies with GUREFT-II*”

May 27–30, 2025 – Austin, Texas – The Inaugural Cosmic Frontier Center Conference on

“The Formation of the Earliest Cosmic Structures from a Joint Observational and Theoretical Perspective”

“*State-of-the-art dark-matter simulations in the ultra-z universe and implications on galaxy evolution*”

Apr 28 – May 2, 2025 – Leiden, the Netherlands –

2025 Lorentz Center Workshop on “Big Galaxies, Big Problems” (*invited*)

“*State-of-the-art dark-matter simulations in the ultra-z universe and galaxy evolution*” – Contributed Talk

“*The Earliest Galaxies in the Universe and Where (and How) To Find Them*”

– Astronomy On Tap

*Co-organizer for the joint SIG splinter session at the COPAG meeting*

*Session Chair for the “AGN/Quasars II (High-z)” session*

*Chambliss poster award judge*

Jan 12–16, 2025 – National Harbor, Maryland – the 245<sup>th</sup>AAS Meeting

“*State-of-the-art dark-matter simulations in the ultra-z universe and implications on galaxy evolution*”

Dec 2–6, 2024 – Leiden, the Netherlands –

2024 Lorentz Center Workshop on “Synergistic ALMA+JWST view of the early universe” (*invited*)

“*State-of-the-art dark-matter simulations in the ultra-z universe and implications on galaxy evolution*”

Nov 6–8, 2024 – Austin, Texas – Inaugural CFC-CCA Joint Workshop: Extreme Star Formation (*invited*)

*“Semi-analytic models for galaxies in the ultra-z universe”* – talk during the workshop

*“Simulating galaxies in the ultra-z universe with GUREFT + SC SAM”* – talk during the conference

Aug 4–30, 2024 – Santa Barbara, California –

2024 KITP Workshop and Conference on “Cosmic Origins: The First Billion Years” (*invited*)

*“Star formation models in the ultra-high-redshift universe inspired by two years of JWST observations”*

Jul 29 – Aug 2, 2024 – Santa Cruz, California – 2024 Santa Cruz Galaxy Workshop (*invited*)

*“Science cases motivating future deep-wide Roman surveys for galaxy formation and evolution”* – review talk

*“CCS Status Update: High Latitude Wide Area Survey”* – update on behalf of the Definition Committee

Jul 9–12, 2024 – Pasadena, California –

Challenging Theory with Roman: From Planet Formation to Cosmology (*invited*)

*“Modeling emission lines in SC SAM from nearby galaxies to the ultra-z universe”*

May 13–15, 2024 – Madrid, Spain – 2024 CEERS Collaboration Meeting

*“Challenges and first results on modeling halos and galaxies in the ultra-high-z universe”* – Contributed Talk

*“The Galaxies Science Interest Group (Galaxies SIG)”* – Cosmic Origins Program Splinter Session

*Panellist for the “Beyond Academe Roundtable Discussions”*

*Session Chair for the “Evolution of Galaxies - Present Day” session*

Jan 7–11, 2024 – New Orleans, Louisiana – the 243<sup>rd</sup> AAS Meeting

*“Are ultra-high-redshift galaxies at  $z > 10$  surprising in the context of standard galaxy formation models?”*

Aug 7–11, 2023 – Santa Cruz, California – 2023 Santa Cruz Galaxy Workshop (*invited*)

*“Guiding future deep-wide Roman surveys with galaxy formation physics we learn from JWST”*

Jun 20–23, 2023 – Baltimore, Maryland – Roman Science Inspired by Emerging JWST Results

([doi:10.5281/zenodo.8117664](https://doi.org/10.5281/zenodo.8117664))

*“What have we learned from JWST and what do we do next?”*

May 30 – Jun 2, 2023 – New York, New York – CCA Fake Light Workshop

*“Are the ultra-high-redshift galaxies surprising in the context of standard galaxy formation models?”*

May 8–10, 2023 – Austin, Texas – CEERS Collaboration Meeting

*“Interpretation of JWST galaxies and predictions for wide-field survey telescopes”* – Contributed Talk

*“Yields from large-area, HST-resolution Galaxy Surveys in the Unresolved regime”* – Roman Splinter Session

*“Building a ‘Science Gaps’ Plan for the Next Great Observatories”* – Stars & Galaxies SIGs Splinter Session

*“Paving the way for Big Eyes with Theory and Simulations”* – NASA’s Hyperwall Exhibition Talk

*“The Galaxies Science Interest Group (Galaxies SIG)”* – Cosmic Origins Program Splinter Session

*Chambliss poster award judge*

Jan 8–12, 2023 – Seattle, Washington – the 241<sup>st</sup> AAS Meeting

*“Semi-analytic forecasts for JWST: Paving the way to the deep universe with theory and simulations”*

Nov 14–16, 2022 – Virtual Event – 2022 NPP Symposium, Oak Ridge Associated Universities (*invited*)

*“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<sup>th</sup> 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 Event – SAZERAC SIP: Learning the High-Redshift Universe

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

*“Semi-analytic forecasts: uncovering galaxy formation at high redshift with JWST and Beyond”*  
 Jul 6–9, 2020 – Virtual Event –  
 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<sup>th</sup> 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, the 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 ([doi:10.5281/zenodo.809702](https://doi.org/10.5281/zenodo.809702))

*“UV Luminosity Functions at  $z > 6$  predicted by Semi-analytic Models and implications for Reionization”*  
 Jun 20–24, 2016 – Paris, France – the 32<sup>nd</sup> Institut d’Astrophysique de Paris Colloquium

## CONFERENCE POSTERS

*“Are the ultrahigh-redshift galaxies surprising in the context of standard galaxy formation models?”*  
 Jun 12–16, 2023 – Cambridge, Massachusetts – the First Light conference at MIT

*“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<sup>rd</sup> AAS Meeting – Poster #246.54

## SELECTED EXTERNAL TALKS

- Apr 15, 2026 – College Park, Maryland – UMD Center for Theory and Computation Seminar (invited)
- Apr 2, 2026 – Charlottesville, Virginia – University of Virginia, Joint NRAO/UVA Colloquium (invited)
- Mar 13, 2026 – Montréal, Québec – Université de Montréal, Departmental Colloquium (invited)
- Feb 26, 2026 – Norman, Oklahoma – University of Oklahoma, Physics and Astronomy Colloquium (invited)
- Jan 23, 2026 – Waco, Texas – Baylor University, Graduate Colloquium Series (invited)
- Dec 16, 2025 – Hsinchu, Taiwan – National Tsing Hua University, Colloquium (invited)
- Dec 10, 2025 – Hsinchu, Taiwan – National Yang Ming Chiao Tung University, Colloquium (invited)
- Nov 24, 2025 – Waco, Texas – Baylor University, Department Seminar (invited, virtual)
- Nov 18, 2025 – Hilo, Hawai‘i – Gemini Observatory, Gemini-North Talk
- Oct 31, 2025 – Seoul, Korea – Yonsei University, Colloquium (invited)
- Oct 28, 2025 – Seoul, Korea – University of Seoul, Seminar (invited)
- Oct 22, 2025 – Kashiwa, Japan – UTokyo/ICRR, Kashiwa Mitaka Meeting (KMM) seminar
- Oct 21, 2025 – Kashiwa, Japan – Kavli IPMU, Seminar
- Oct 16, 2025 – Hsinchu, Taiwan – National Yang Ming Chiao Tung University, Colloquium (invited)
- Oct 15, 2025 – Taipei, Taiwan – ASIAA, Colloquium (invited)
- Apr 18, 2025 – Louisville, Kentucky – University of Louisville, Physics Colloquium (invited)
- Mar 14, 2025 – Medford, Massachusetts – Tufts University, Astronomy Seminar (invited)
- Feb 18, 2025 – Columbia, Missouri – University of Missouri, Astronomy Seminar (invited, virtual)
- Nov 21, 2024 – Honolulu, Hawai‘i – UH Institute for Astronomy, Extragalactic Seminar
- Apr 1, 2024 – Minneapolis, Minnesota – University of Minnesota Twin Cities, Cosmology Seminar (invited)
- Nov 14, 2023 – New York, New York – New York University, Astrophysics and Relativity Seminar (invited)
- Apr 4, 2023 – Montréal, Quebec – McGill Space Institute, Astro Seminar (invited)
- Mar 10, 2023 – Pasadena, California – Carnegie Observatories, Lunch Talk (invited, virtual)
- Mar 6, 2023 – Cambridge, Massachusetts – MIT Kavli Institute, Monday Afternoon Talk (invited, virtual)
- Feb 16, 2023 – New York, New York – Flatiron Institute, CCA Lunch Seminar (invited)
- Nov 18, 2022 – Greenbelt, Maryland – GSFC Sciences and Exploration Directorate, Director’s Seminar
- Nov 7, 2022 – Tucson, Arizona – University of Arizona, Steward / NOIRLab Galaxy Group Talk
- Nov 2, 2022 – College Park, Maryland – UMD Center for Theory and Computation Seminar
- Oct 28, 2022 – Cambridge, Massachusetts – Harvard-Smithsonian CfA, Hernquist’s Galaxy Group Meeting
- Oct 20, 2022 – *Euclid* Early Career Researchers Workshop, *Euclid Consortium* (virtual)
- Oct 12, 2022 – New Haven, Connecticut – Yale University, Galaxy Lunch Talk
- Sep 26, 2022 – Toronto, Ontario – Dunlap institute, University of Toronto, Astro Tea (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 (invited, virtual)
- Apr 28, 2022 – Austin, Texas – University of Texas at 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 (invited, virtual)
- Oct 14, 2021 – New York, New York – Columbia University, Astro Seminar (invited)
- Mar 11, 2021 – Greenbelt, Maryland – GSFC Sciences and Exploration Directorate, Director’s Seminar
- Feb 1, 2021 – Santa Cruz, California – UC Santa Cruz, CGI Seminar (invited, virtual)
- Jul 16, 2020 – Sussex, England – University of Sussex, Astro Seminar (invited, virtual)

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

## ORGANIZED CONFERENCES, WORKSHOPS, & SEMINAR SERIES

NASA's Galaxies Science Interest Group (Galaxies SIG) Seminar Series

- serve as the main organizer for the NASA-branded seminar series ([website](#)) from 2023 to 2026
- fully responsible for speaker invitation, schedule coordination, advertising, and posting recorded talks
- all recorded talks are made available on YouTube for the community: [2023-24](#), [2024-25](#), [2025-26](#)
- the seminars are well-received and routinely reach dozens of live audiences and hundreds of views

STScI Spring Symposium 2024

- “Recipes to Regulate Star Formation at All Scales: From the Nearby Universe to the First Galaxies”
- week-long symposium at the Space Telescope Science Institute from Apr 15 – 19, 2024
- served as a member of the SOC and LOC

Aspen Summer Workshop 2023 – “Revealing the Detailed Astrophysics of Early Galaxies with *JWST*”

- three-week workshop at the Aspen Center for Physics from Aug 20 – Sep 10, 2023
- served as workshop co-organizer with Allison Strom, Michael Maseda, and Risa Wechsler
- the workshop is selected through a competitive proposing process

“The Fake Light™ Workshop” – CCA workshop on synthetic observations for *JWST*

- four-day workshop hosted by the Center for Computational Astrophysics from May 30 – Jun 2, 2023
- served as workshop co-organizer with Chris Hayward, Rachel Cochrane, and Matt Orr
- this workshop aims to foster timely discussions between the observation and simulation communities

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 in the LOC)

## SELECTED PUBLIC OUTREACH ACTIVITIES

NASA Exhibition at the American Astronomical Society (AAS) Meetings

- engaging with attendees and students of diverse interest and sharing the excitement of NASA science
- representing the *Roman Space Telescope* mission at exhibitor booths in the 2022 and 2023 meetings
- representing the Cosmic Origins Program Analysis Group (COPAG) at the exhibitor booths in 2024 and 2025

Mar 2021 – Aug 2022      Main host for the popular weekly science series on the social platform “*Clubhouse*”  
 – I run the “*Astronomy & Astrophysics*” club that attracted 29.4k+ members since March 2021 ([link](#), [recordings](#))  
 – 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<sup>3</sup>]*”  
 – 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 JWST 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

Jan 11, 2025 – Astronomy on Tap at AAS245 – *The Earliest Galaxies in the Universe* ([link](#))  
 Jul 11, 2023 – Greenbelt, Maryland – STScI Interns Visit to GSFC – *Clean Room and I&T Area Tour*  
 Jun 20, 2023 – Astronomy on Tap Baltimore – *Staring Deep into the Abyss with Big Space Telescopes* ([link](#))  
 May 22, 2023 – Astronomy on Tap D.C. – *What do we see when we stare into the abyss with JWST?* ([link](#))  
 Apr 13, 2023 – Greenbelt, Maryland – U.S. Air Force Visit to GSFC – *Roman Space Telescope Tour*  
 Jan 8, 2022 – YouTube Live Stream – Launch Pad Astronomy – *Webb Final Deployment Live!* ([link](#))  
 Nov 14, 2021 – Arlington, Virginia – David M. Brown Planetarium – *JWST Community Event* ([link](#))  
 Oct 28, 2021 – Annapolis, Maryland – Cafe Scientifique – *JWST Community Event* ([link](#))

Mar 5, 2020 – Washington D.C. – Congressional Visit at United States Capitol – *Campaign to Save WFIRST*  
 – advocate for WFIRST and solicit Congress to restore the mission to the Federal Budget  
 – took part in the joint Princeton/Rutgers delegation with David Spergel and Blakesley Burkhart ([link](#))

## SELECTED PRESS & MEDIA APPEARANCES

The Webb Mission – “*The People Behind Webb*”

- [interview and quotes](#) on my work with JWST – *Mar 15, 2024*

Further Together the ORAU Podcast –

“*Episode 117: Telling the story of the universe, a conversation with NASA NPP Fellow Aaron Yung*”

- [podcast interview](#) on my theory work with JWST and personal stories – *Jul 5, 2023*
- part of a podcast series *Further Together* by Oak Ridge Associated Universities (ORAU)

NASA Featured Article – “*How NASA’s Roman Space Telescope Will Rewind the Universe*”

- [featured article](#) highlighting the contribution of computational models to Roman programs – *Mar 1, 2023*
- [tumblr post](#) “*Caution: Universe Work Ahead*” also featured results and graphics from this work – *May 10, 2023*

Flatiron Institute Featured Article – “*Seeing the Early Universe Through a Simulation*”

- [featured article](#) highlighting the contribution of computational models to JWST survey programs – *Oct 19, 2022*

Omni Television Cantonese Service (Canada-based nation-wide broadcasting company)

- *JWST* media inquiry during live news broadcast interview, multiple appearances in 2022
- invited commentary on [the Webb mission](#) and [Webb’s first images](#) as subject matter expert

Voice of America (VOA) Mandarin Service (U.S.-based broadcasting company)

- *JWST* media inquiry during live news broadcast interview, multiple appearances from 2021 to 2022
- invited commentary on *JWST*’s [launch](#), [deployment](#), and [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”*  
 – [podcast interview](#) on my theory work with JWST and personal stories – *Mar 4, 2022*  
 – part of a long series of *Gravity Assist* podcast series, hosted by the then NASA Chief Scientist Jim Green

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*

Various commentaries featured in [Scientific American](#), [IFLScience](#), [the Daily Beast](#)

## STUDENT MENTORSHIP THROUGH FUNDED PROGRAMS

Students that I supervise as formal co-advisor through funded programs:

Aryanna Schiebelbein-Zwack – Flatiron CCA Pre-Doctoral Program Jan 2025 - Jun 2025  
 – PhD Physics Student at University of Toronto at the time of mentorship  
 – co-mentor with rachel somerville (CCA), Viraj Pandya (Columbia), and Aklant Bhowmick (Florida)

Derek Zapata – ngVLA Community Studies Round 5 (funded by NRAO) Jun 2022 - Dec 2023  
 – PhD Physics Student at Rutgers University at the time of mentorship  
 – mentorship shared with Andrew Baker (Rutgers) and rachel somerville (Flatiron/CCA)

Tri Nguyen – Flatiron CCA Pre-Doctoral Program Aug 2022 - Jan 2023  
 – PhD Physics Student at Massachusetts Institute of Technology at the time of mentorship  
 – starting a CIERA Postdoctoral Fellowship at Northwestern University in Fall 2024  
 – mentorship shared with rachel somerville (Flatiron/CCA) and Chirag Modi (Flatiron/CCM)

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)

## STUDENT COLLABORATORS

Students that I collaborate closely with and provide support for their thesis research. I hold regular meetings with these students individually or with their advisors (listed).

Javier Gomez	Rutgers U.	Eric Gawiser	Jul 2025 – Present
Jacob Kennedy	Rutgers U.	Eric Gawiser	Feb 2024 – Present
Louise Seeyave	U. Sussex	Steve Wilkins	Aug 2023 – Present
Rakshitha Thaman	NYU	Anthony Pullen	Mar 2023 – Present
Tri Nguyen	MIT→Northwestern	Rachel Somerville	Jan 2023 – Present
Austen Gabrielpillai	CCA→GSFC→CUNY→Columbia	Rachel Somerville	May 2019 – Present
Nakul Gangoli	UC Riverside→Industry	Anson D'Aloisio	May 2021 – Sep 2025
Derek Zapata	Rutgers U.	Andrew Baker	Jun 2022 – Feb 2024

## 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

## TEACHING EXPERIENCE

Graduate Teaching Assistant at Rutgers University			2014 - 2018
2018 Spring	Physics 607	Galaxies and Galaxy Dynamics	Grader
2016 Spring	Physics 327	Modern Instrumentation	Lab Instructor
2015 Fall	Physics 275	Classical Physics Lab	Lab Instructor
2015 Spring	Physics 230	Analytical Physics II Lab	Lab Instructor
2014 Fall	Physics 227	Analytical Physics II	Recitation

Teaching Assistant (Physics & Astronomy) at University of San Francisco			2011 - 2014
2014 Spring	PHYS 371	Methods of Mathematical Physics	Recitation, Grader
2014 Spring	PHYS 121L	Planetary Astronomy Lab	Lab Instructor
2014 Spring	PHYS 121	Planetary Astronomy	Course TA
2013 Fall	PHYS 121	Planetary Astronomy	Course TA
2013 Fall	PHYS 120	Astronomy: From Earth to the Cosmos	Course TA
2013 Spring	PHYS 120	Astronomy: From Earth to the Cosmos	Course TA
2013 Spring	PHYS 210	General Physics II	Course TA
2012 Fall	PHYS 110	General Physics I	Course TA
2012 Fall	PHYS 121	Planetary Astronomy	Tutor, Grader
2012 Spring	PHYS 121	Planetary Astronomy	Tutor, Grader
2012 Spring	PHYS 210	General Physics II	Tutor, Grader
2011 Fall	PHYS 110	General Physics I	Tutor, Grader
2011 Spring	PHYS 120L	Astronomy: From Earth to the Cosmos Lab	Lab Assistant

Teaching Assistant (Mathematics) at University of San Francisco			2012 - 2014
2014 Spring	MATH 235	Introduction to Formal Method	Grader
2014 Spring	MATH 110	Calculus and Analytical Geometry II	Grader
2013 Fall	MATH 110	Calculus and Analytical Geometry II	Grader
2012 Fall	MATH 103	Statistics for Social Sciences	Grader
2012 Spring	MATH 102	Biostatistics	Grader

## 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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/2206.13521))
- [7] **Yung L.Y.A.**, Somerville R. S., Finkelstein S. L., Behroozi P., Davé R., Ferguson H. C., Gardner J. P., Popping G. et al., 2023, *Semi-analytic forecasts for Roman – the beginning of a new era of deep-wide galaxy surveys*, MNRAS 519, 1578 ([arXiv:2210.04902](https://arxiv.org/abs/2210.04902))

\*\*\* Publications [1] – [7] together are the “*Semi-analytic forecasts of the Universe*” paper series. See the [project homepage](#) for an overview of this work and visit [Flathub](#) to access the data products.

- [8] **Yung L.Y.A.**, Somerville R. S., Finkelstein S. L., Wilkins S. M., Gardner J. P., 2024a, *Are the ultra-high-redshift galaxies at  $z > 10$  surprising in the context of standard galaxy formation models?*, MNRAS 527, 5929 ([arXiv:2304.04348](https://arxiv.org/abs/2304.04348))

### \*\*High-Impact Research from MNRAS 2024 – most cited articles

- [9] **Yung L.Y.A.**, Somerville R. S., Nguyen T., Behroozi P., Modi C., Gardner J. P., 2024b, *Characterising ultra-high-redshift dark matter halo demographics and assembly histories with the GUREFT simulations*, MNRAS 530, 4868 ([arXiv:2309.14408](https://arxiv.org/abs/2309.14408))
- [10] **Yung L.Y.A.**, Somerville R. S., Iyer K. G., 2025,  *$\Lambda$ CDM is still not broken: empirical constraints on the star formation efficiency at  $z \sim 12 – 30$* , MNRAS 543, 3802 ([arXiv:2504.18618](https://arxiv.org/abs/2504.18618))
- [11] Somerville R. S. **Yung L.Y.A.**, Lancaster, L., Menon S., Sommovigo, L., Finkelstein S. L., 2025, *Density modulated star formation efficiency: implications for the observed abundance of ultra-violet luminous galaxies at  $z > 10$* , MNRAS 544, 3774 ([arXiv:2505.05442](https://arxiv.org/abs/2505.05442))
- [–] **Yung L.Y.A.**, Somerville R. S. et al., in prep., *Deciphering the star formation histories and stellar mass growth in ultra-high-redshift galaxies with the Santa Cruz SAM*, in preparation

\*\*\* Publications [8] – [11] together are the “*Semi-analytic galaxies in the ultra-high redshift universe*” paper series, where we push the theoretical framework and cosmological simulations to the limit and provide timely interpretations and responses to the extremely distant galaxies discovered by *JWST*.

[–] **Yung L.Y.A.**, Hirschmann M., Somerville R. S. et al., in prep., *Nebular emission in SC-SAM – I. Luminosity functions, scaling relations, and diagnostic diagrams at  $0 < z < 2$* , in preparation

[–] **Yung L.Y.A.**, Hirschmann M., Somerville R. S. et al., in prep., *Nebular emission in SC-SAM – II. High-redshift emission line diagnostics in the era of JWST, Roman, and beyond*, in preparation

## Co-AUTHOR PUBLICATIONS

### – Published –

[1] Jones, Michael G.; Papastergis, Emmanouil; Pandya, Viraj; ... ... include **Yung, L.Y.A.** 2018, *Contribution of HI-bearing ultra-diffuse galaxies to the cosmic number density of galaxies*, A&A 614, A21 ([arXiv:1712.01855](https://arxiv.org/abs/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](https://arxiv.org/abs/1806.05187))

[3] Popping, Gergö; Pillepich, Annalisa; Somerville, Rachel S.; ... ... include **Yung, L.Y.A.** 2019, *The ALMA Spectroscopic Survey in the HUDF: the Molecular Gas Content of Galaxies and Tensions with IllustrisTNG and the Santa Cruz SAM*, ApJ 882, 137 ([arXiv:1903.09158](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/2007.04988))

[6] Yang, Guang; Papovich, Casey.; Bagley, Micaela B.; ... ... include **Yung, L.Y.A.** 2021, *JWST/MIRI Simulated Imaging: Insights into Obscured Star Formation and AGNs for Distant Galaxies in Deep Surveys*, ApJ 908, 144 ([arXiv:2011.08192](https://arxiv.org/abs/2011.08192))

[7] Somerville, Rachel S.; Olsen, Charlotte; **Yung, L.Y.A.**; Pacific, Camilla et al. 2021, *Mock light-cones and theory friendly catalogues for the CANDELS survey*, MNRAS 502, 4858 ([arXiv:2102.00108](https://arxiv.org/abs/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, Low-mass Galaxies across Simulations and Observations*, ApJ 915, 53 ([arXiv:2010.01132](https://arxiv.org/abs/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:10.11117/1.JATIS.7.4.044004](https://doi.org/10.11117/1.JATIS.7.4.044004))

[10] Stevans, Matthew L.; Finkelstein, Steven; Kawinwanichakij, Lalitwadee; ... ... include **Yung, L.Y.A.** 2021, *The NEWFIRM HETDEX Survey: Photometric Catalog and a Conservative Sample of Massive Quiescent Galaxies at  $z = 3\text{-}5$  over  $17.5 \text{ deg}^2$  in the SHELA Field*, ApJ 921, 58 ([arXiv:2103.14690](https://arxiv.org/abs/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](https://arxiv.org/abs/2106.09741))

- [12] Tacchella, Sandro; Finkelstein, Steven L.; Bagley, Micaela; ... ... include **Yung, L.Y.A.** 2022, *On the Stellar Populations of Galaxies at  $z = 9\text{--}11$ : The Growth of Metals and Stellar Mass at Early Times*, 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  $z = 8.5\text{--}11$  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-Dropout Lyman Break Galaxies at  $z \sim 12\text{--}16$* , 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] 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  $z \sim 12$  Galaxy in Early JWST CEERS Imaging*, ApJL 940, L55 ([arXiv:2207.12474](#))

**\*\*IOP North America Top Cited Paper Awards 2024**

- [17] 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  $z = 0$* , MNRAS 517, 6091 ([arXiv:2111.03077](#))

- [18] Rose, Caitlin; Kartaltepe, Jeyhan B.; Snyder, Gregory F.; ... ... include **Yung, L.Y.A.** 2023, *Identifying Galaxy Mergers in Simulated CEERS NIRCam Images Using Random Forests*, ApJ 942, 54 ([arXiv:2208.11164](#))

- [19] Zavala, Jorge A.; Buat, Véronique; Casey, Caitlin M.; ... ... include **Yung, L.Y.A.** 2023, *Dusty Starbursts Masquerading as Ultra-high Redshift Galaxies in JWST CEERS Observations*, ApJL 943, L9 ([arXiv:2208.01816](#))

- [20] García-Argumáne, Ángela; Pérez-González, Pablo G.; Gil de Paz, Armando; ... ... include **Yung, L.Y.A.** 2023, *Probing the Earliest Phases in the Formation of Massive Galaxies with Simulated HST+JWST Imaging Data from Illustris*, ApJ 944, 3 ([arXiv:2207.14062](#))

- [21] Snyder, Gregory F.; Peña, Theodore; **Yung, L.Y.A.**; Rose, Caitlin et al. 2023, *Mock galaxy surveys for HST and JWST from the IllustrisTNG simulations*, MNRAS 518, 6318 ([arXiv:2211.09677](#))

- [22] Trump, Jonathan R.; Arrabel-Haro, Pablo; Simons, Raymond C.; ... ... include **Yung, L.Y.A.** 2023, *The Physical Conditions of Emission-line Galaxies at Cosmic Dawn from JWST/NIRSpec Spectroscopy in the SMACS 0723 Early Release Observations*, ApJ 945, 35 ([arXiv:2207.12388](#))

- [23] Guo, Yuchen; Jogee, Shardha; Finkelstein, Steven L.; ... ... include **Yung, L.Y.A.** 2023, *First Look at  $z > 1$  Bars in the Rest-frame Near-infrared with JWST Early CEERS Imaging*, ApJL 945, L10 ([arXiv:2210.08658](#))

- [24] Bagley, Micaela B.; Finkelstein, Steven L.; Koekemoer, Anton M.; ... ... include **Yung, L.Y.A.** 2023, *CEERS Epoch 1 NIRCam Imaging: Reduction Methods and Simulations Enabling Early JWST Science Results*, ApJL 946, L12 ([arXiv:2211.02495](#))

- [25] Finkelstein, Steven L.; Bagley, Micaela B.; Ferguson, Henry C.; ... ... include **Yung, L.Y.A.** 2023, *CEERS Key Paper. I. An Early Look into the First 500 Myr of Galaxy Formation with JWST*, ApJL 946, L13 ([arXiv:2211.05792](#))

**\*\*IOP North America Top Cited Paper Awards 2025**

- [26] Kocevski, Dale D.; Barro, Guillermo; McGrath, Elizabeth J.; ... ... include **Yung, L.Y.A.** 2023, *CEERS Key Paper. II. A First Look at the Resolved Host Properties of AGN at  $3 < z < 5$  with JWST*, ApJL 946, L14 ([arXiv:2208.14480](https://arxiv.org/abs/2208.14480))
- [27] Kartaltepe, Jeyhan S.; Rose, Caitlin; Vanderhoof, Brittany N.; ... ... include **Yung, L.Y.A.** 2023, *CEERS Key Paper. III. The Diversity of Galaxy Structure and Morphology at  $z = 3.9$  with JWST*, ApJL 946, L15 ([arXiv:2210.14713](https://arxiv.org/abs/2210.14713))
- [28] Pérez-González, Pablo G.; Barro, Guillermo; Annunziatella, Marianna; ... ... include **Yung, L.Y.A.** 2023, *CEERS Key Paper. IV. A Triality in the Nature of HST-dark Galaxies*, ApJL 946, L16 ([arXiv:2211.00045](https://arxiv.org/abs/2211.00045))
- [29] Costantin, Luca; Pérez-González, Pablo G.; Vega-Ferrero, Jesus; ... ... include **Yung, L.Y.A.** 2023, *Expectations of the Size Evolution of Massive Galaxies at  $3 \leq z \leq 6$  from the TNG50 Simulation: The CEERS/JWST View*, ApJ 946, 71 ([arXiv:2208.00007](https://arxiv.org/abs/2208.00007))
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**CONFERENCE PROCEEDINGS / WHITE PAPERS / NON-REFEREED**

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