Steven L. Finkelstein

Contact Information

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Research Interests

I study how the first galaxies formed in the early universe, characterizing their nature, and investigating their impact on the universe around them. This requires a combination of deep imaging and spectroscopy from the *Hubble* and *James Webb* Space Telescopes with followup observations from the largest ground-based telescopes, and deep involvment with theoretical physical interpretation.

Academic Positions

The University of Texas at Austin, Austin, TX

Director, Cosmic Frontier Center	Fall 2023 – Present
Isabel McCutcheon Harte Centennial Chair	Fall 2023 – Present
Professor	Fall 2022 – Present
Associate Department Chair	Fall 2019 – Present
Associate Professor	Fall 2017 – Summer 2022
Assistant Professor	Fall 2012 – Summer 2017

The University of Texas at Austin, Austin, TX — Sept. 2011 – Aug. 2012

Hubble Fellow

- Faculty Contact: Professor Karl Gebhardt

Texas A&M University, College Station, Texas — Sept. 2008 – Aug. 2011

Postdoctoral Research Associate

- Faculty Advisor: Professor Casey Papovich

Education

Arizona State University, Tempe, Arizona

Ph.D. Physics, Emphasis in Astronomy — August 2008

- Advisor: Professor James E. Rhoads
- Dissertation: Physical Properties and Dust Effects in High-Redshift Lyman Alpha Galaxies

University of Washington, Seattle, Washington

B.S. Astronomy and Physics — June 2003

Honors and Awards

- 2023 UT Austin Research Leaders Academy
- 2020 UT Austin Provost's Teaching Fellowship
- 2017-2018 Dads' Association Centennial Teaching Fellowship
- 2017 Asa Briggs Visiting Fellow, University of Sussex
- 2016 UT Austin College of Natural Sciences Teaching Excellence Award
- 2015-2016 McDonald Observatory Board of Visitors Teaching Excellence Award
- Hubble Prize Postdoctoral Fellowship (awarded in 2011)

Publications

Summary: 283 papers published in or submitted to peer-reviewed journals, with an h-index of 67. Of these, I am the lead author on 23 papers, which have >3000 citations combined. Some highlights are:

1. Arrabal Haro, P., Dickinson, M., Finkelstein, S. L. et al. **2023**, *Confirmation and refutation of very luminous galaxies in the early universe*, Nature in press, arXiv:230315431

2. Larson, R. L., Finkelstein, S. L., Kocevski, D. D., et al. **2023**, *A CEERS Discovery of an Accreting Supermassive Black Hole 570 Myr after the Big Bang: Identifying a Progenitor of Massive $z > 6$ Quasars*, ApJL in press, arXiv:2303.08918

3. Franco, M., Akins, H. B., Casey, C., Finkelstein, S. L. et al **2023**, *Unveiling the distant Universe: Characterizing $z > 9$ Galaxies in the first epoch of COSMOS-Web*, ApJ Submitted, arXiv:2308.00751

4. Leung, G. C. K., Bagley, M. B., Finkelstein, S. L. et al. **2023**, *NGDEEP Epoch 1: The Faint-End of the Luminosity Function at $z\sim$ 9–12 from Ultra-Deep JWST Imaging*, ApJL Submitted, arXiv:2306.06244

5. Finkelstein, S. L. et al. **2023**, *CEERS Key Paper I: An Early Look into the First 500 Myr of Galaxy Formation with JWST*, Astrophysical Journal Letters, 946, 13

6. Finkelstein, S. L. et al. **2022**, *A Long Time Ago in a Galaxy Far, Far Away: A Candidate $z \sim 12$ Galaxy in Early JWST CEERS Imaging*, Astrophysical Journal Letters, 940, 55

7. Finkelstein, S. L. and Bagley, M. **2022**, *On the Co-Evolution of the AGN and Star-Forming Galaxy Ultraviolet Luminosity Functions at $3 < z < 9$*, Astrophysical Journal, 938, 25

8. Finkelstein, S. L. et al. **2019**, *Conditions for Reionizing the Universe with A Low Ionizing Photon Escape Fraction*, Astrophysical Journal, 879, 36

9. *Invited Review:* Finkelstein, S. L. **2016**, *Observational Searches for Star-Forming Galaxies at $z > 6$*, Publications of the Astronomical Society of Australia, 33, 37

Honors and Awards

- 2020 UT Austin Provost's Teaching Fellowship
- 2017-2018 Dads' Association Centennial Teaching Fellowship
- 2016 UT Austin College of Natural Sciences Teaching Excellence Award
- 2015-2016 McDonald Observatory Board of Visitors Teaching Excellence Award
- 2011 Hubble Prize Postdoctoral Fellowship

Awarded Grants

Summary: Total of $6.2M awarded as PI since starting as faculty in 2012, including multiple succesful proposals each from NASA and the NSF. Recent highlights are:

2022 UT Austin Spark Grant, $200,000 (**Finkelstein PI**)
- *Solving Reionization with ERMOS on the Giant Magellan Telescope*

JWST Cycle 1 General Observer Grant, $309,297 (**Finkelstein Co-PI**),
- *NGDEEP: Next Generation Deep Extragalactic Exploratory Public Survey*

2021 NASA ADAP Grant, $495,418 (**Finkelstein PI; C. Casey Co-PI**)
- *Leveraging Spitzer and VIRUS to Investigate Reionization and the Growth of Massive Cosmic Structures*

JWST Cycle 1 Early Release Science Grant, $1.3M (**Finkelstein PI**, Individual grant $430,470)
- *Cosmic Evolution Early Release Science Survey*

2020 NSF AAG Grant, $229,660 (Finkelstein PI)
- *The Onset of Star-Formation Quenching in Massive Galaxies in the Early Universe*

2019 NSF AAG Grant, $459,079 (Finkelstein PI)
- *Leveraging the Hobby Eberly Telescope Dark Energy Experiment to Understand Lyα Emission, Galaxy Evolution, and Reionization*

Selected Professional Experience

Associate Department Chair (2019 – present)
Invited Testimony, US House of Representatives (Nov 2022)
Principal Investigator of Approved *JWST* Early Release Science Program (CEERS) and Large Cycle 1 program (NGDEEP)
Member, Hubble Space Telescope Users Committee (2018 – 2021)
Member, NASA Cosmic Origins Executive Committee (2018 – 2021)
Chair (Member), Department Peer Teaching Review and Awards Committee — 2018 (2017) –Present
Member, HETDEX Survey Steering Committee — 2018–Present
Chair, McDonald Observatory Faculty Advisory Committee — 2017–Present
Referee for ApJ, ApJL, MNRAS, A&A, Science and Nature

Recent Invited Talks

1. Trottier Space Institute Seminar, McGill University, Dec 2023
2. "JWST Turns One", Sesto, Italy, July 2023
3. Osservatorio Astronomico di Roma Colloquium, July 2023
4. Munich Joint Astronomy Colloquium, June 2023
5. National Academy of Sciences Science Week Plenary, Remote, March 2023
6. "First Science with JWST", Baltimore, MD, December 2022
7. "Cosmic Dawn with the James Webb Space Telescope", Ringberg, Germany, October 2022
8. "CCA Reionization on a Blackboard", NY, NY, September 2022
9. Hebrew University of Jerusalem, Seminar (remote), November 2022
10. EAS Annual Meeting (remote), June 2022

Postdoc Advising

- 2023 – Present: Dr. Anthony Taylor (leading JWST spectroscopic work)
- 2022 – Present: Dr. Seiji Fujimoto (Hubble Fellow)
- 2020 – Present: Dr. Gene Leung (leading HETDEX work)
- 2018 – Present: Dr. Micaela Bagley (leading JWST imaging work)
- 2014 – 2018: Dr. Isak Wold (went on to NASA Prize Postdoc)
- 2013 – 2017: Dr. Rachael Livermore (went on to prize postdoc in Australia)

Undergraduate Student Advising Experience

I have worked with ∼25 undergraduate students while at UT Austin, including 11 currently. Of the 14 who have graduated, nine went on to graduate school, and five led their own publications (two peer-reviewed, three research notes).

Selected Teaching Experience

INSTRUCTOR, The University of Texas at Austin 2013 – Present
- Instructor of AST301, a 200-student astronomy survey course.
- Instructor of AST358, an upper-level undergraduate course on galaxies.
- Instructor of AST376, an under/graduate experiential telescope observing course.
- Instructor of AST386, a graduate course on galaxy evolution at high redshift.