Keely D. Finkelstein
Department of Astronomy & Office of STEM Education Excellence
College of Natural Sciences
University of Texas at Austin
2515 Speedway, Stop C1400
Austin, TX 78712-1199 e-mail address: keelyf@astro.as.utexas.edu
Office phone: 512-471-3339 website: http://www.as.utexas.edu/~keelyf/

Education

Arizona State University, Tempe, AZ
Ph.D. Physics, emphasis in Astronomy, October 2008

University of Washington, Seattle, WA
B.S. Astronomy and Physics, June 2002

Professional Experience

The University of Texas at Austin, Austin, TX
Associate Professor of Instruction / Faculty Director for Instructor Development, Office of STEM Education Excellence, Spring 2023 – Present

The University of Texas at Austin, Austin, TX
Associate Professor of Instruction / STEM Instruction Consultant, Sep. 2020 – Spring 2023

The University of Texas at Austin, Austin, TX
Assistant Professor of Instruction / STEM Instruction Consultant, Aug. 2018-Sep. 2020

The University of Texas at Austin, Austin, TX
Lecturer / STEM Instruction Consultant, June 2017-August 2018

The University of Texas at Austin, Austin, TX
Lecturer / Research Associate, Sept. 2012-June 2017

The University of Texas at Austin, Austin, TX
Postdoctoral Fellow, Sept 2011-Aug 2012

Texas A&M University, College Station, TX
Postdoctoral Research Associate, December 2008-Aug 2011

Title of Dissertation

"An Analysis of Low-Mass Triggered Star Formation in HII Region Environments", October 2008

Current Research Interests

I have been primarily working in the areas of education and evaluation research related to K-12 and undergraduate education, including curriculum reform, pedagogy, best practices, and other aspects of these education programs. These efforts are done through my roles in the Office of STEM Education Excellence within the College of Natural Sciences, with the K-12 Education Team at McDonald Observatory, and through my own teaching, mentoring, and work with faculty and students in the Dept. of Astronomy. I also continue to collaborate on research projects related to galaxy evolution, and star formation in galaxies.

Professional Societies

American Astronomical Society (2004 – Present)
Science Teachers Association of Texas (2011 – Present)
Informal Science Education Association (ISEA) of Texas (2014 – Present)

Awards and Honors

The University of Texas at Austin Dads' Association Centennial Teaching Fellowship – 2021-2022

COVID Transformational Online Instruction Contributions (TONIC) Award – Spring 2021

The University of Texas at Austin President's Associates Teaching Excellence Award – 2018-2019

Clock Award – Services for Students with Disabilities – December 2018

McDonald Observatory Board of Visitors Teaching Excellence Award – February 2017

Professional Development Participation & Leadership Opportunities

Participation in *Rethinking Mentoring: An Alternative Framework for Mentoring Pre- and Post-Tenure Faculty*, presented by National Center for Faculty Development and Diversity (NCFDD), May 2024.

Certificate in Effective Instruction, Association of College and University Educators, 2023

- *This certificate signifies my completion of a 25-module course in effective teaching practices requiring the implementation of evidence-based instructional approaches. The credential is co-issued by the American Council on Education and distinguishes faculty for their commitment to educational excellence and student success*.

Participation in AAC&U Project Kaleidoscope STEM Leadership Institute – Summer 2021

Participation in the Professional Development Program (PDP) through the Institute for Scientist & Engineer Educators (ISEE) – Spring / Summer 2017, Spring / Summer 2018

- *Team taught and worked as Design team lead to create and teach two inquiry-based teaching activities for department venues (TAURUS scholars REU (2017) & AST 376R course (2018)).*

Selected Service

Departmental:

Associate Chair, January 2024 – Present

Graduate Studies Executive Committee (GSEC) member, January 2024 – Present

SACS Assessment Faculty Representative (Dept. of Astronomy), January 2015 – Present

Astronomy Dept. Peer Teaching Review Committee, Fall 2021 - Present

Undergraduate Studies Executive Committee (UGSEC), Dept. of Astronomy, Aug. 2012 - Present

Search / Hiring Committee for Tenure Track Faculty – Dept. of Astronomy – Fall 2019 – Spring 2020

Served on Astronomy Undergrad Curriculum Committee, Aug. 2018 – 2020

Search / Hiring Committee for McDonald Observatory Assistant Director of Education & Outreach, March 2018 – August 2018.

Assistant Undergraduate Faculty Advisor, Dept. of Astronomy, Aug. 2012 – Aug. 2017

College:

CNS Advanced Summer Fellowship, Review Committee, recurring Spring 2018-2024

CNS Undergraduate Research Forum Judge, recurring Spring 2018-2024

SALE / TIDES Scholarship Review Committee, recurring Fall 2018-2021

CNS Undergraduate TA (UGTA) Task Force, Spring 2019

CNS NTT Faculty Committee, Aug. 2017 – 2020

Participate as panelist at CNS Classroom Accommodations Workshop – March 2019

Co-facilitator CNS Course Design Institutes & Faculty Workshops, Fall 2017 – Present

CNS Honors Outreach Committee, Jan. 2017 - 2019

Welch Hall Renovation Ad Hoc committee (2016-2017)

University:

Facilitator for Provost's Office "Professional Track Faculty Peer Networking Circles" – Spring 2023

CNS Representative on UT Teaching & Learning Consortium – Spring 2023 – Present

UGS Science & Technology Core Assessment participation, Spring 2018 – Summer 2018

Community:

Press Coverage, Total Solar Eclipse 2024, gave multiple press interviews (print & video) leading up to Total Solar Eclipse, Fall 2023 – Spring 2024. Examples include: *CBS Austin, KXAN, Spectrum News, Inside Austin radio show, Drift Magazine, Bluebonnet Electric Cooperative website.*

Lead Facilitator Teacher Workshops, McDonald Observatory, July 2011 - Present

- Facilitate & Co-instruct K-12 Teacher professional development workshops.

ISEA Board Member, January 2014 – 2019

- Serve on the board of directors for the Informal Science Education Association of Texas. Executive board member (Treasurer), May 2016 – 2019.

Children's Book Review, Summer 2018, *Nova the Star Eater*

Contributed Blog Post to the American Evaluation Association with TIDES, Spring 2018
https://aea365.org/blog/translating-logic-models-for-stem-faculty-a-who-what-when-why-and-how-approach-by-shelly-engelman-kristin-patterson-brandon-campitelli-and-keely-finkelstein/

AAS Education Prize Committee, January 2014 – June 2017; including Committee Chair (2016-2017)

Invited Talks or Seminars:

Dripping Springs Community Library – "*Totally! Solar Eclipse Time! Science, History & How Best to Observe the Upcoming Total Solar Eclipse*" – March 2024.

UT "Mock Class" – UT Orientation – June 2023 & June 2024

Origins Excellence Cluster, Origins Data Science Laboratory Forum Talk, Munich, Germany – July 2023

Osher Lifelong Learning Institute – Quest Lecture Program, February 2020

Alumni College – Texas EXES, June 2019

Building Astronomy in Texas Meeting, Sept. 2015

Arizona State University, Astronomy Seminar, March 2015

Austin ISD Summer Science Institute, Seminar, August 2014 & August 2015

Harvard-Center for Astrophysics ITC Colloquium, Sept. 2010

Texas A&M University, Particle, Astrophysics & Cosmology Seminar, Feb. 2010

Selected Grants

PI:

National Aeronautics and Space Administration (NASA); *CosmoQuest: Engaging Students and the Public through a Virtual Research Facility;* $37,469; Jan. 2016 – Dec. 2018.

SETI Institute; *The SOFIA EXES Teacher Associate Program*; $29,417; December 2011 – October 2013.

Space Telescope Science Institute; *Exploring the Early Universe at Home and In the Classroom*; $17,300; April 2012 – March 2014.

Co-PI:

Space Telescope Science Institute; Origins Connections: Linking Supernovae & Early Galaxies to our own Origins: A Series of McDonald Teacher Workshops; Wheeler C. (PI) & **Finkelstein, K**. (Co-PI); $40,000; January 2013 – December 2014.

Co-I / Educational Lead:

National Aeronautics and Space Administration (NASA): Citizen Science Seed Funding Program "*Dark Energy Explorers: The Citizen Science Project Fueling the Hobby-Eberly Telescope Dark Energy Experiment (HETDEX".* Gebhardt, K. (PI), **Finkelstein, K**. (Co-I), House, L. (Co-I). $160,000; 2022 – 2023.

National Science Foundation; *Enrichment of Trans-Iron Elements in Planetary Nebulae: Probing Stellar Evolution & Nucleosynthesis*; Dinerstein, H. (PI), **Finkelstein, K.** (Co-I & Education Lead); **$21,000** (for education / broader impact part), $280,000 (full award amount); 2017 – 2020.

National Science Foundation; *Collaborative Research: Galaxy Growth in Different Environments from z=1.9 to 3.5*; Jogee, S. (Co-PI), Finkelstein, S. (Co-PI), **Finkelstein, K.** (Co-I & Education Lead); **$28,000** (for education / broader impact part), $374,992 (full award amount); 2016 – 2019.

National Science Foundation; *Spectroscopic Probes of Reionization and Galaxy Evolution in the First Billion Years*; Finkelstein, S. (PI), **Finkelstein, K.** (Co-I & Education Lead); **$20,000** (for education / broader impact part), $280,397 (full award amount); 2015 – 2018.

Space Telescope Science Institute; *Solar System Origins: The Discovery and Formation of Other Planetary Systems*; Dupuy, T. (PI), **Finkelstein, K**. (Education Lead & Co-I); $19,950; March 2015 – Feb. 2018.

National Science Foundation; *Unveiling the Assembly History of Galaxies by Dissecting their Structure, Chemical Evolution, and Stellar Populations*; Jogee, S. (PI), **Finkelstein, K**. (Education Lead & Co-I); **$28,000** (for education / broader impact part); Sept. 2014 – Aug. 2017.

Selected Publications

[19] House, L.; Gebhardt, K.; **Finkelstein, K**.; Cooper, E. M.; Davis, D.; Ciardullo, R.; Farrow, D.; Schneider, D.P. 2024. *Participatory Science and Machine Learning Applied to Millions of Sources in the Hobby-Eberly Telescope Dark Energy Experiment,* ApJ, 975, 172.

[18] Sun, L., Wang, X., Teplitz, H., et al. (including Finkelstein, K.) 2024. *The Ultraviolet Luminosity Function at 0.6 < z < 1 from UVCANDELS*, 2024, ApJ, 972, 8.

[17] Bagley, M., Finkelstein, S., Rojas-Ruiz, S., Diekmann, J., **Finkelstein, K.**, Song, M., Papovich, C., Sommerville, R., Baronchelli, I., Dai, Y. 2024. *Bright z~9 Galaxies in Parallel: The Bright End of the Rest-Fram UV Luminosity Function from HST Parallel Programs*, ApJ, 961, 209.

[16] House, L.; Gebhardt, K.; **Finkelstein, K**.; Cooper, E. M.; Davis, D.; Ciardullo, R.; Farrow, D.; Finkelstein, S.; Gronwall, C.; Jeong, D.; Johnson, C.; Liu, C.; Thomas, B.; Zeiman, G. 2023. *Using Dark Energy Explorers and Machine Learning to Enhance the Hobby-Eberly Telescope Dark Energy Experiment*, ApJ, 950, 82.

[15] Finkelstein, Steven; Bagley, Micaela B.; Arrabal Haro, Pablo, et al. (including Finkelstein, K.) 2022. *A Long Time Ago in a Galaxy Far, Far Away: A Candidate z ∼12 Galaxy in Early JWST CEERS Imaging*, ApJ, 940, 55.

[14] **Finkelstein**, **Keely**, Martinez, Raquel, Vanderbosch, Zachary. "*Designing and Implementing a PDP Inquiry Activity for an Introductory Astronomy Research Methods Course*". 2022, in S. Seagroves, A. Barnes, A.J. Metevier, J. Porter, & L. Hunter (Eds.), Leaders in effective and inclusive STEM: Twenty years of the Institute for Scientist & Engineer Educators. UC Santa Cruz: Institute for Scientist & Engineer Educators. p. 221-232.

[13] Rojas-Ruiz, S., Finkelstein, S. L., Bagley, M., B., Stevans, M., **Finkelstein, K, D**., Mechtley, M. and Diekmann, J. 2020. *Probing the Bright End of the Rest-Frame Ultraviolet Luminosity Function at z = 8–10 with Hubble Pure-Parallel Imaging*, ApJ, 891, 146.

[12] Larson, R. L., Finkelstein, S. L., Pirzkal, N., Ryan, R., Tilvi, V., Malhotra, S., Rhoads, J.E., **Finkelstein, K.**, Jung, I., Chistensen, L., et al. 2018, *Discovery of a z = 7.452 High Equivalent Width Lyα Emitter from the Hubble Space Telescope Faint Infrared Grism Survey*, ApJ, 858, 94.

[11] Malhotra, S., Rhoads, J.E., **Finkelstein, K.** Yang, H., Carilli, C., et al. 2017, *Herschel Extreme Lensing Line Observations: [CII] Variations in Galaxies at Redshifts z=1-3*, ApJ, 835, 110.

[10] **Finkelstein, K.D**., Finkelstein, S.L., Tilvi, V., Malhotra, S., Rhoads, J.E., Grogin, N.A., Pirzkal, N., Dey., A., Jannuzi, B.T., Mobasher, B., Pakzad, S., Salmon, B., & Wang, S. 2015, *Probing the Physical Properties of z=4.5 Lyman Alpha Emitters with Spitzer*, ApJ, 813, 78.

[9] **Finkelstein, K.D.**, Hemenway, M.K., Preston, S., Wetzel, M., Meyer, J., & Rood, M. 2014, The Results of an Era of Teacher Professional Development at McDonald Observatory, ASP Conf. Series 483 "Ensuring Stem Literacy: A National Conference on STEM Education and Public Outreach", 369

[8] Rhoads, J.E., Malhotra, S., Allam, S., Carilli, C., Combes, F., **Finkelstein, K**., Finkelstein, S., et al. 2014, *Herschel Extreme Lensing Line Observations: Dynamics of Two Strongly Lensed Star-forming Galaxies near z=2*, ApJ, 787, 8.

[7] Finkelstein, S.L., Papovich, C., Dickinson, M., Song, M., Tilvi, V., Koekemoer, A.M., **Finkelstein, K.D**., Mobasher, B., Ferguson, H.C., Giavalisco, M., et al. 2013, *A galaxy rapidly forming stars 700 million years after the Big Bang at redshift 7.51*, Nature, 502, 524.

[6] Zheng, Z.Y., Finkelstein, S.L., **Finkelstein, K.D**., Tilvi, V., Rhoads, J. E., Malhotra, S., Wang, J. X., Miller, N., Hibon, P., Xia, L. 2013, *Lya Luminosity functions at redshift z~4.5*, MNRAS, 431, 3589.

[5] Hemenway, M.K., **Finkelstein, K.D**., Redfield, S., 2013, Exploring the Nominal Group Technique in

the Evaluation of Teacher Professional Development Workshops', ASP Conf. Series 473 "Communicating Science: A National Conference on Science Education and Public Outreach", 315.

[4] **Finkelstein, K.D**., Papovich, C., Finkelstein, S.L., Rudnick, G., Rigby, J.R., Willmer, C.N.A., Smith, J.-D.T., Egami, E., & Rieke, M., 2011, *Probing the SFR and IMF of the z~2.5 Lensed Galaxy SMM J163554.2 with Herschel*. ApJ, 742, 108.

[3] Tran, K.-V.H., Papovich, C., Saintonge, A., Brodwin, M., Dunlop, J.S., Farrah, D., **Finkelstein, K.D.**, Finkelstein, S.L., Lotz, J., McLure, R.J., Momcheva, I., Wilmer, C.N.A., 2010, *Reversal of Fortune: Confirmation of an Increasing Star Formation-Density Relation in a Cluster at z=1.62,* ApJ, 719, L126.

[2] Papovich, C. Momcheva, I., Wilmer, C.N.A., **Finkelstein, K.D.**, Finkelstein, S.L., Tran, K.-V.H., Brodwin, M., Dunlop, J.S., Farrah, D., Kahn, S.A., Lotz, J., McCarthy, P., McLure, R.J., Rieke, M., Rudnick, G., Sivanandam, S., Pacaud, F., \& Pierre, M., 2010, *A Spitzer-selected Galaxy Cluster at z=1.62*, ApJ, 716, 1503.

[1] **Snider, K.D**., Hester, J.J., Desch, S., Healy, K., Bally, J., 2009, *Spitzer Observations of the HII Region NGC 2467: An Analysis of Triggered Star Formation*, ApJ, 700, 506.