

Kyle Franson

CURRICULUM VITAE

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EDUCATION **The University of Texas at Austin**
Ph.D. Astronomy *Expected Spring 2025*
M.A. Astronomy *Fall 2021*

University of Michigan, Ann Arbor *September 2015 – May 2019*
B.S. Physics (High Honors) with Minor in Computer Science
Graduated with High Distinction
Thesis: *Orbit Extension and Refinement for Trans-Neptunian Objects Found in the Dark Energy Survey*

RESEARCH POSITIONS **Graduate Student** *Fall 2019 – Present*
The University of Texas at Austin
Advisor: Brendan Bowler
NSF Graduate Research Fellow *Fall 2021 – Present*
Undergraduate Research Assistant *Fall 2016 – Spring 2019*
University of Michigan, Ann Arbor
Advisor: David Gerdes

RESEARCH INTERESTS

- Understanding the origins and evolution of long-period giant planets.
- Complementing high-contrast imaging of planets and brown dwarfs with astrometric accelerations.
- Direct mass measurements of substellar companions.

AWARDS NSF Graduate Research Fellowship, 2021
Frank N. Edmonds, Jr. Memorial Fellowship in Astronomy, 2021
McDonald Observatory B.O.V. Student Second Year Defense Award, 2021

GRANTS 2023 NASA Keck Observing Support
Establishing the Dynamical Mass and Orbit of AF Lep b (Sci PI; \$5k)
Imaging Giant Planets around Young Accelerating Stars (Sci PI; \$10k)
Imaging Giant Planets around Young Accelerating Stars (Sci PI; \$15k)
2022 NASA Keck Observing Support
Imaging Giant Planets around Young Accelerating Stars (Sci PI; \$14k)

2021 NASA WIYN Observing Support

Optimizing Target Selection of Direct Imaging Planet Campaigns using Accelerating Stars (Sci PI; \$6k)

2021 NASA Keck Observing Support

Imaging Giant Planets around Young Accelerating Stars (Sci PI; \$12k)

Imaging Giant Planets around Young Accelerating Stars (Sci PI; \$13k)

REFEREED
PUBLICATIONS

First-authored publications:

Franson, K., Bowler, B. P., Zhou, Y., Pearce, T. D., et al. “Astrometric Accelerations as Dynamical Beacons: A Giant Planet Imaged Inside the Debris Disk of the Young Star AF Lep” 2023, accepted in ApJL

Franson, K., Bowler, B. P., “Dynamical Mass of the Young Brown Dwarf Companion PZ Tel B” 2023, AJ, 165, 246

Franson, K., Bowler, B. P., Bonavita, M., Brandt, T. D., et al. “Astrometric Accelerations as Dynamical Beacons: Discovery and Characterization of HIP 21152 B, the First T-Dwarf Companion in the Hyades.” 2023, AJ, 165, 39

Franson, K., Bowler, B. P., Brandt, T. D., Dupuy, T. J., et al. “Dynamical Mass of the Young Substellar Companion HD 984.” 2022, AJ, 163, 50

Co-authored publications:

Zhang, Z., Bowler, B. P., Dupuy, T. J., et al. including **Franson, K.** “The McDonald Accelerating Stars Survey: Architecture of the Ancient Five-planet Host System Kepler-444” 2023, AJ, 165, 2

Endl, M., Robertson, P., Cochran, W. D., et al. including **Franson, K.** “A Jupiter Analog Orbiting The Nearby M Dwarf GJ 463” 2022, AJ, 164, 6

Zhou, G., Wirth, C., Huang, C., et al. including **Franson, K.** “A Mini-Neptune from TESS and CHEOPS Around the 120 Myr Old AB Dor Member HIP 94235.” 2022, AJ, 163, 289

Bowler, B. P., Endl, M., Cochran, W. D., et al. including **Franson, K.**, “The McDonald Accelerating Stars Survey (MASS): Discovery of a Long-period Substellar Companion Orbiting the Old Solar Analog HD 47127.” 2021, ApJL, 913, L26

Bowler, B. P., Cochran, W. D., Endl, M., et al. including **Franson, K.** “The McDonald Accelerating Stars Survey (MASS): White Dwarf Companions Accelerating the Sun-like Stars 12 Psc and HD 159062.” 2021, AJ, 161, 106

Khain, T., Becker, J. C., Lin, H. W., et al. including **Franson, K.** “Dynamical Classification of Trans-Neptunian Objects Detected by the Dark Energy Survey.” 2020, AJ, 159, 133

Bernardinelli, P. H., Bernstein, G. M., Sako, M., et al. including **Franson, K.** “Trans-Neptunian Objects Found in the First Four Years of the Dark Energy Survey.” 2020, ApJS, 247, 32

Lin, H.W., Gerdes, D. W., Hamilton, S. J., et al. including **Franson, K.** “Evidence for Color Dichotomy in the Primordial Neptunian Trojan Population.” 2019, Icarus, 321, 426

Khain, T., Becker, J. C., Adams, F., et al. including **Franson, K.** “Dynamical Analysis of Three Distant Trans-Neptunian Objects with Similar Orbits.” 2018, AJ, 156, 6

Becker, J. C., Khain, T., Hamilton, S. J., et al. including **Franson, K.** “Discovery and Dynamical Analysis of an Extreme Trans-Neptunian Object with a High Orbital Inclination.” 2018, AJ, 156, 81

TELESCOPE Keck/NIRC2 via NASA, *Imaging Giant Planets around Young Accelerating*
TIME AWARDED *Stars*, 5 nights (2021A, 2021B, 2022B, 2023A, 2023B)
AS PI

Keck/NIRC2 via NASA, *Establishing the Dynamical Mass and Orbit of the Giant Planet AF Lep b*, 0.5 nights (2023B)

Keck/NIRC2 via NOIRLab, *Imaging Giant Planets around Young Accelerating Stars*, 0.5 nights (2023A)

VLT/SPHERE, ESO, *Imaging Giant Planets around Young Accelerating Stars*, 36h32m (P109, P110, P111)

SCEXAO/CHARIS, Subaru Telescope (Gemini-Subaru Exchange), *Imaging Giant Planets around Young Accelerating Stars*, 2 nights (2022A, 2023A)

WIYN via NOIRLab, *Optimizing Target Selection of Direct Imaging Campaigns using Accelerating Stars*, 5.5 nights (2021B, 2022B, 2023A)

Southern Astrophysical Research Telescope (SOAR) via NOIRLab, *Optimizing Target Selection of Direct Imaging Campaigns using Accelerating Stars*, 2.5 nights (2021A, 2021B, 2022B)

MINERVA-Australis via NOIRLab, *Enabling Dynamical Mass Measurements of Planets around Accelerating Stars*, 32 hours (2023A)

Harlan J Smith Telescope, McDonald Observatory, *Optimizing Target Selection of Direct Imaging Campaigns using Accelerating Stars*, 13 nights (2021-3, 2022-1, 2022-2, 2022-3)

Habitable-Zone Planet Finder, Hobby-Eberly Telescope, *Enabling Dynamical Mass Measurements of Planets around Accelerating Stars*, 13.7 hours (2023-1)

Habitable-Zone Planet Finder, Hobby-Eberly Telescope, *Testing Evolutionary Models with a New Substellar Dynamical Mass*, 9 hours (2019-3 – 2020-3)

TALKS

UT Austin ISM, Stars, and Planets Seminar, Austin TX, November 16, 2022

Keck Science Meeting 2022, CIT, Pasadena CA, Sep. 15, 2022

In the Spirit of Lyot 2022, Leiden NL, June 30, 2022

UT Austin ISM, Stars, and Planets Seminar, Austin TX, April 13, 2022

UT Austin Cosmos Seminar (2nd-Year Defense), Austin TX, May 6, 2021

UT Austin ISM, Stars, and Planets Seminar, Austin TX, April 8, 2020

University of Michigan REU Symposium, Ann Arbor MI, Aug. 9, 2018

POSTERS

Sagan Summer Workshop, CIT, Pasadena CA, July 2022

Exoplanets IV, Las Vegas NV, May 2022

Keck Science Meeting, Virtual, Sep 2021

Exoplanets Demographics Conference, Virtual, Nov 2020

SERVICE AND OUTREACH

TAURUS Seminar Co-Organizer *Summer 2022 – Present*

Starbound Foundation Volunteer *Fall 2021 – Present*

Co-organizer *Fall 2022 – Present*

TAURUS Mentor *Summer 2021 – Present*

UT Girl Day Volunteer *Spring 2020*

UT Astronomy Undergraduate Mentor *Fall 2019 – Present*

University of Michigan Physics Help Room, Tutor *Fall 2018 – Spring 2019*