ADINA D. FEINSTEIN

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LINKS

afeinstein20
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NASA/ADS Library

STATS

Publications

First author	9
Total	43
Under review	4
Total citations	1038
h-index	18

Students advised

Undergraduate	1

Software (GitHub stars)

eleanor	★ 76
stella	★ 20

Presentations

Invited seminars	13
Invited conference	9

Outreach

Presentations	20
Pen-pals	3

RESEARCH INTERESTS

Stellar activity of young stars, Detection and characterization of young planets and planetary atmospheres, Machine learning methods for automated light curve searches and young star identification, Open-source software development.

EDUCATION

2018-2023: University of Chicago, Chicago, IL
Doctor of Philosophy in Astronomy & Astrophysics
Title: "A Multi-wavelength Investigation of Young Stellar and Planetary Systems" advised by Jacob Bean
Master of Physical Sciences (received June, 2019)

2014-2018: Tufts University, Medford, MA
Bachelor of Science in Astrophysics; Minor in English
High Thesis Honors: "Exploring the Low and High Mass Extremes in the Distant Universe" advised by Danilo Marchesini

APPOINTMENTS

2023- : NHFP Sagan Fellow, University of Colorado Boulder

2022-2023: *Visiting Graduate Student*, Cornell University

2019-2023: *NSF Graduate Research Fellow*, University of Chicago

2015-2018: *Undergraduate Research Assistant*, Tufts University

Summer 2017: *Undergraduate Research Assistant*, NASA GSFC
Advisor: Joshua Schlieder

Summer 2013: *High School Research Assistant*, University of Virginia
Advisor: Phil Arras

Summer 2012: *High School Research Assistant*, Cornell University
Advisor: Jonathan Lunine

HONORS & AWARDS

AAS Rodger Doxsey Travel Prize Honorable Mention ($330; December, 2022)

University of Chicago William Rainey Harper Dissertation Fellowship ($4,300; June, 2022)

UChicago Science as Art: Audience Favorite ($150; March, 2022)

Poster Honorable Mention (TESS Science Conference 2; August, 2021)

Letters to a Pre-Scientist "Compassionate Connections" Award (June, 2021)

McCormick Fellowship ($4,500 over two years; 2019-2021)

NSF Graduate Research Fellowship ($36,000 for four years; May, 2019)

University of Chicago Three Minute Thesis competition, Winner of Master's Thesis ($500; May, 2019)

Chambliss Medal for Outstanding Poster Presentation (233rd AAS meeting; January, 2019)

Massachusetts Space Grant (Summer, 2016)

FIRST-AUTHOR PUBLICATIONS (9)

Early Release Science of the exoplanet WASP-39b with JWST NIRISS
Feinstein A. D., Radica M., Welbanks L., et al. + 86 authors. 2023, Nature, 614, 670. arXiv:2211.10493 (Citations: 10)

AU Microscopii in the FUV: Observations in Quiescence, During Flares, and Implications for AU Mic b and c
Feinstein A. D., France K., Youngblood A., et al. 2022, AJ, 164, 110. arXiv:2205.09606 (Citations: 7)

V1298 Tau with TESS: Updated Ephemerides, Radii, and Period Constraints from a Second Transit of V1298 Tau e
Feinstein A. D., David T. J., Montet B. T. et al. 2022, ApJL, 925, L2. arXiv:2111.08660 (Citations: 8)

Testing Self-Organized Criticality Across the Main Sequence using Stellar Flares from TESS
Feinstein A. D., Seligman D. Z., Günther M. N., & Adams F. C. 2022, ApJL, 925, L9. arXiv:2109.07011 (Citations: 9)

Hα and Ca II Infrared Triplet Variations During a Transit of the 23 Myr Planet V1298 Tau c
Feinstein A. D., Montet B. T., Marshall J. C., et al. 2021, AJ, 162, 213. arXiv:2107.01213 (Citations: 11)

Flare Statistics for Young Stars from a Convolutional Neural Network Analysis of TESS Data
Feinstein A. D., Montet B. T., Ansdell M., et al. 2020, AJ, 160, 5. arXiv:2005.07710 (Citations: 56)

`stella`: Convolutional Neural Networks for Flare Identification in TESS
Feinstein A. D., Montet B. T., & Ansdell M. 2020, The Journal of Open Source Software, 5, 2347. (Citations: 19)

`eleanor`: An open-source tool for extracting light curves from the TESS Full-Frame Images
Feinstein A. D., Montet B. T., Foreman-Mackey D. et al. 2019 PASP, 131, 1003. arXiv:1903.09152 (Citations: 155)

K2-288Bb: A small temperate planet in a low-mass binary system discovered by citizen scientists
Feinstein A. D., Schlieder J. E., Livingston J. H., et al. 2019 AJ, 157, 2. arXiv:1902.02789 (Citations: 13)

SIGNIFICANT CONTRIBUTIONS (13) (2 SUBMITTED)

A broadband thermal emission spectrum of the ultra-hotJupiter WASP-18b
Coulombe L-P., et al. inc. **Feinstein A. D.**, submitted. arXiv:2301.08192.

Awesome SOSS: Transmission Spectroscopy of WASP-96b with NIRISS/SOSS
Radica M., Welbanks L., Espinoza N., Taylor J., Coulombe L-P., **Feinstein A. D.**, et al. submitted to MNRAS.

TESS Asteroseismic Analysis of HD 76920: The Giant Star Hosting An Extremely Eccentric Exoplanet
Jiang C., Wu T., **Feinstein A. D.**, et al. 2023, ApJ, 945, 20.

Eureka!: An End-to-End Pipeline for JWST Time-Series Observations
Bell T. J., Ahrer E., Brande J., Carter A. L., **Feinstein A. D.**, et al. 2022, The Journal of Open Source Software, 7, 4503.

The NASA GSFC TESS Full Frame Image Light Curve Data Set
Powell B. P., Kruse E., Montet B. T., **Feinstein A. D.,** et al., 2022, Res. Notes AAS, 6, 111.

Inferring Late Stage Enrichment of Exoplanet Atmospheres from Observed Interstellar Comets
Seligman D. Z., Adams F. C., Becker J., **Feinstein A. D.**, Rogers, L. A. 2022, ApJL, 933, L7.

Theoretical and Observational Evidence for Coriolis Effects in Coronal Magnetic Fields of Main Sequence Stars Via Direct Current Driven Flaring Events
Seligman D. Z., Rogers, L. A., **Feinstein A. D.**, et al. 2022, ApJ, 929, 54.

Evidence for Centrifugal Breakout around a 45 Million Year Old M Dwarf
Palumbo E. K., Montet B. T., **Feinstein A. D.**, et al. 2022, ApJ, 925, 75.

The TESS View of LOFAR Radio-Emitting Stars
Pope B. J. S., Callingham J. R., **Feinstein A. D.**, et al. 2021, ApJL, 919, L10.

H-Alpha Variability of V1298 Tau c
Schlawin E., Ilyin I., **Feinstein A. D.**, et al. 2021, RNAAS, 5, 195. doi:10.3847/2515-5172/ac1f2f.

Low-frequency monitoring of flare star CR Draconis: Detection of long-term electron-cyclotron maser emission
Callingham J. R., Pope B. J. S., **Feinstein A. D.**, et al. 2021, MNRAS, 648, A13.

TOI 122b and TOI 237b, two small warm planets orbiting inactive M dwarfs, found by TESS
Waalkes W. C., Berta-Thompson Z. K., Collins K. A., **Feinstein A. D.**, et al. 2020, AJ, 161, 13.

TOI-1338: TESS' First Transiting Circumbinary Planet
Kostov V. B., Orosz J. A., **Feinstein A. D.**, et al. 2020, AJ, 159, 253.

Differences in signal contrast and camouflage among different colour variations of a stomatopod crustacean
Franklin A. M., Marshall J., **Feinstein, A. D.**, et al. 2020, Sci Rep 10, 1236.

The Young Planet DS Tuc Ab has a Low Obliquity
Montet B. T., **Feinstein A. D.**, Luger R. et al. 2020, AJ, 159, 112.

K2-136: A binary system in the Hyades open cluster hosting a Neptune-sized planet
Ciardi D. R., Crossfield I. J. M., **Feinstein, A. D.**, Luger R. et al. 2020, AJ, 159, 112.

OTHER REFEREED PUBLICATIONS (21) (2 SUBMITTED)

Awesome SOSS: Atmospheric Characterization of the Early Release Observations of WASP-96b
Taylor J., Radica M., Welbanks L., et al. Submitted to MNRAS.

Updated Planetary Mass Constraints of the Young V1298 Tau System using MAROON-X
Sikora J., Rowe J., Barat S., et al. Accepted at AAS Journals.

Direct Evidence of Photochemistry in an Exoplanet Atmosphere
Tsai S-M. Lee E. K. H., Powell D., et al. Under Review at Nature.

Early Release Science of the exoplanet WASP-39b with JWST NIRSpec G395H
Alderson, L., Wakeford, H. R., Alam, M. K., et al. 2023, Nature, 614, 664.

Early Release Science of the exoplanet WASP-39b with JWST NIRSpec PRISM
Rustamkulov Z., Sing D., et al. 2023, Nature, 614, 659.

Early Release Science of the exoplanet WASP-39b with JWST NIRCam
Ahrer E-M., Stevenson K., Mansfield M. et al. 2023, Nature, 614, 653.

Identification of carbon dioxide in an exoplanet atmosphere
JWST Transiting Exoplanet Community Early Release Science Team et al. Accepted at Nature. arXiv:2208.11692.

The Volatile Carbon to Oxygen Ratio as a Tracer for the Formation Locations of Interstellar Comets
Seligman D. Z., Rogers L. A., Cabot S. H. C., et al. 2022, PSJ, 3, 150.

Complex Modulation of Rapidly Rotating Young M Dwarfs: Adding Pieces to the Puzzle
Günther M. N., Berardo D. A., Ducrot E. et al. 2022, AJ, 163, 144.

Extending the evolution of the stellar mass-size relation at $z \leq 2$ to low stellar mass galaxies from HFF and CANDELS
Nedkova K. V., Häußler B., Marchesini D., et al., 2021, MNRAS. doi:10.1093/mnras/s1744.

Enhanced and Persistent Flare Driven Bio-indicating Chemistry on Synchronously-Rotating Rocky Worlds
Chen H., Zhan Z., Youngblood A. et al. Nature Astronomy, 2021, 5, 298.

TOI-954b and K2-329b: Short-Period Saturn-Mass Planets that Test Whether Irradiation Leads to Inflation
Sha L., Huang C. X., Shporer A., et al. 2021, AJ, 161, 82.

Revisiting the HD 21749 Planetary System with Stellar Activity Modeling
Gan T., Wang S. X., Teske J. K. et al. 2020, MNRAS, 501, 6042.

TOI-824 b: A New Planet on the Lower Edge of the Hot Neptune Desert
Burt J. A., Nielsen L. D., Quinn S. N., et al. 2020, AJ 160, 153.

TESS-Point: High precision TESS pointing tool
Burke C. J., Levine A., Fausnaugh M. et al. 2020, Astrophysics Source Code Library.

Planet Hunters TESS I: TOI 813, a subgiant hosting a transiting Saturn-sized planet on an 84-day orbit
Eisner N. L., Barragán O., Aigrain S., et al. 2020, MNRAS, 148.

THOR 42: A touchstone ~24 Myr-old eclipsing binary spanning the fully-convective boundary
Murphy S. J., Lawson W. A., Onken C. A., et al. 2019, MNRAS, 2794.

A super-Earth and two sub-Neptunes transiting the bright nearby, and quite M-dwarf TOI-270
Günther M. N., Pozuelos F. J., Dittmann J. A., et al. 2019, Nature Astronomy, 3, 1099.

The L 98-59 System: Three transiting terrestrial-size planets orbiting a nearby M dwarf
Kostov V. B., Schlieder J. E., Barclay T., et al. 2019, AJ, 158, 32.

Characterizing K2 candidate planetary systems orbiting low-mass stars IV: Updated properties for 86 cool dwarfs observed during campaigns 1-17
Dressing C. D., Hardegree-Ullman K., Schlieder J. E., et al. 2019, AJ, 158, 87.

A TESS Dress Rehearsal: Planetary Candiates and Variables from K2 Campaign 17
Crossfield I. J. M., Guerrero N., David T., et al. 2018 AJ, 239, 1.

HFF-Deepspace photometric catalogs of the twelve Hubble Frontier Fields , clusters, and parallels: Photometry, photometric redshifts, and stellar masses
Shipley H., Lange-Vagle D., Marchesini D., et al. 2018 ApJS, 235, 14.

Planetary Candidates from K2 Campaign 16
Yu, L. Crossfield I. J. M., Schlieder J. E., et al. 2018 AJ, 156, 22.

TALK & POSTERS

Selected presentation slides are available on SpeakerDeck - @afeinstein20; Links for specific talks are to YouTube recordings.

Upcoming

*Seminars (* denotes invited)*

Cornell Exoplanet Conference (April 11, 2023)

***** Arizona State University Exoplanet Seminar (March 17, 2023)

***** Stony Brook University, Astronomy Seminar (March 7, 2023)

***** University of Wisconsin-Milwaukee (February 10, 2023)

Origins of Life Seminar Series, University of Chicago (October 20, 2022)

***** University of Colorado at Boulder (September 30, 2022)

***** Princeton University (September 26, 2022)

* Massachusetts Institute of Technology Brown Bag Lunch (September 19, 2022)

* University of Illinois at Urbana-Champaign Center for AstroPhysical Surveys (May, 2022)

* Carnegie Earth & Planets Laboratory Astronomy Seminar (May, 2022; virtual)

University of Chicago Chalk Talk (November, 2021)

* Yale Exoplanets/Stars Seminar Series (November, 2021; virtual)

* Kansas University Learning Machine Learning club seminar (October, 2021; virtual)

* Harvard-Smithsonian CfA Exoplanet Seminar Series (October, 2021; virtual)

Kansas University Astronomy & Space Physics Seminar (September, 2021; virtual)

* California Institute of Technology, Knutson Group Meeting (July, 2021; virtual)

* University of Maryland, College Park, Exoplanet Journal Club (August, 2019)

Conference Talks (* denotes invited)

* AAS 241 JWST Exoplanet Special Session, Seattle, WA USA (January 9, 2023)

AAS 241 Ph.D. Dissertation Talk in "Young Transiting Systems & Architectures", Seattle, WA, USA (January 11, 2023)

AAS 240, Transiting Exoplanets III, Pasadena, CA USA (Thursday, June 16, 2022)

CHAMPs Exoplanet ECR Highlight Seminar (January 13-14, 2022; virtual)

* NASA ExoPAG 25 (January 10 & 12, 2022; virtual)

Great Lakes Exoplanet Area Meeting (November 11-12, 2021)

TESS Science Conference II (August, 2021; virtual)

    * Data Analysis panelist

    * Machine Learning Splinter Session panelist

    * FFI Splinter Session speaker

Emerging Researchers in Exoplanet Science (May, 2021; virtual)

* AAS 237, TESS Machine Learning Special Session (January, 2021; virtual)

* Earth 2.0 Workshop I, Tsung-Dao Lee Institute, Shanghai (December 7-11, 2020; virtual)

TESS Science Team Meeting #22 (September, 2020; virtual)

online.tess.science Working Meeting (September, 2020; virtual)

Extreme Solar Systems IV, Reykjavik, Iceland (August, 2019)

* 5th TESS Asteroseismic Science Consortium (TASC) Workshop, Cambridge, MA USA (July, 2019)

TESS Science Conference I, Splinter Session, Cambridge, MA USA (July, 2019)

* TESS Data Workshop, Space Telescope Science Institute, Baltimore, MD USA (February, 2019)

AAS 233, TESS Special Session, Seattle, WA USA (January, 2019)

Lake Michigan Area Exoplanet Meeting (November, 2019)

AAS 231, Session 104. Detection of Extrasolar Planets I, National Harbor, MD USA (January, 2018)

Conference Posters

Cool Stars 21, Toulouse, France (July, 2022) | TESS Science Conference II (August, 2021; virtual) | Sagan Exoplanet Summer Virtual Workshop (July, 2021; virtual) | Cool Stars 20.5 (February, 2021; virtual) | Exoplanets III (July, 2020; virtual) | TESS Science Conference I, Boston, MA USA (July, 2019) | AAS 233, Poster 140.14, Seattle, WA USA (January, 2019) | AAS 233, Poster 467.04, Seattle, WA USA (January, 2019) | 2017 NASA Goddard Space Flight Center summer intern poster session (July, 2017) | The 4th AstroCon DC Meeting, George Washington University (August, 2017)

PROPOSALS & GRANTS

NASA Astrophysics Data Analysis (ADAP) Program

Detecting Activity Cycles using Stellar Flares, 2022 ($544,087; PI James Davenport)

TESS Guest Investigator Proposals

Cycle 5

- Planets And Stellar Activity Through Time: Understanding The Evolution, Diversity And Habitability Of Planetary Systems (PI Edward Gillen)
- One Thousand and One (+49) Flary Nights: a Comprehensive Mini-Survey of Flares and Exoplanets (PI Maximillian Günther)

Cycle 4

- 1,050 Flaring Stars: A Comprehensive Survey Of Flares And Exoplanets (PI Maximilian Günther)

Cycle 3

- Uniform Light Curves Across the Entire Sky from TESS FFIs with `eleanor` ($150,000; PI Benjamin Montet)
- Searching for Planets in the Continuous viewing Zone with TESS Full Frame Image Data ($50,000; PI Veselin Kostov)

Cycle 2

- Measuring Long Rotation Periods from TESS's Short Light Curves ($200,000; PI Ruth Angus)
- Searching for Planets in the Continuous viewing Zone with TESS Full Frame Image Data ($50,000; PI Elisa Quintana)

Competitive Telescope Time Awarded (as PI unless noted)

Gemini-North, GRACES

6 hours awarded through Gemini Fast-Turnaround Program, 2020 (GN-2019B-FT-215)

Gemini-South, IGRINS

6 hours awarded through Gemini Fast-Turnaround Program, 2022 (GS-2022A-FT-105)

Magellan Telescopes, awarded through University of Chicago

1 night on LDSS-3C, 2021
1 night on MIKE, 2021
2 nights on MIKE, 2019
1 night on PFS, 2019 (PI Benjamin Montet)
1 night on FIRE, 2018 (PI Jacob Bean)

Palomar

6 nights (PI Garett Levine)

XMM-Newton
118000 seconds, 2020 (PI Katija Poppenhaeger)

Student-Advised Funding (per project)

Measuring Stellar Cycles of Young Stars with K2 and TESS
University of Chicago Quad Summer Undergraduate Research Scholars ($5,500; May, 2022)
Illinois Space Grant Consortium for Undergraduate Research Scholarship ($3,000; March, 2022)

ACADEMIC SERVICE

Leadership Opportunities

2023 - present: ESCAPE Small Explorer Mission Science Advisory Group

2022 - present: JWST Exoplanet ERS Science Council Elected Member

NASA Exoplanets Research Program Graduate Student Secretary

Referee (for 8 articles total)

Nature Astronomy - 1

NeurIPS 2021 Workshop on Machine Learning and the Physical Sciences — 1

Journal of Open Source Software (JOSS; 2020-) — 1

Monthly Notices of the Royal Astronomical Society (2020-) — 1

The Astronomical Journal (2020-) — 4

High Level Science Products on MAST

NASA GSFC-eleanor-lite light curves

`stella` convolutional neural network models

`eleanor` light curves

Available Catalogs

HFFDeepSpace: Hubble Frontier Fields Catalogs

Department Service (denotes DEI efforts)*

2021 - 2022: Co-organizer for UChicago Exoplanet Journal Club

2020, 2021: Lead organizer for the UChicago Virtual Graduate School Information Session *****

September, 2021: NSF Graduate Research Fellowship Panelist for UChicagoGRAD

2020 - 2022: Lead organizer of the UChicago Graduate Admissions Reform Working Group *****

2020 - Present: Member and Website Creator, Inclusion, Diversity and Equity in Astronomy (IDEA) *****

2020 - Present: Website Committee, University of Chicago, Student Representative

2019, 2020, 2021: Graduate Women in Astronomy event coordinator *****

2019-2020: ERC Space Committee, University of Chicago, Student Representative

Community Service

Cornell Exoplanet Conference session chair

AAS 241: “Stars and X-rays/UV” session chair

January, 2022: CHAMPs Exoplanet ECR Highlight Seminar session chair

2021: Aided TESS Senior Review for Extended Mission 2 (stellar flares)

2019: LOC Member, ``Building early science with TESS" Meeting, Chicago

STUDENTS ADVISED

Rowen Glusman (University of Chicago undergraduate; Summer 2022 — Spring 2023)

TEACHING

Graduate Teaching Assistant, University of Chicago

Spring 2022: Astronomy 48900: Undergraduate Research Seminar (guest lecture)

Spring 2021: Astronomy 12720: Exoplanets

Fall 2020: Astronomy 12700: Stars

Undergraduate Teaching Assistant, Tufts University

Spring 2018: Women Gender and Sexuality Studies 85: The Universe: Illuminated By Women

Spring 2017: Astronomy 9: Concepts of the Cosmos

Fall 2017: Astronomy 31: Stellar Structure & Evolution

OUTREACH

Letters to a Pre-Scientist pen-pal (2018-Present; 3 pen-pals to-date)

Skype a Scientist volunteer (2018-Present; 17 classrooms to-date)

Lifelong Learning guest lecturer (October 8, 2021; virtual)

Real Scientists Curator (January 17-24, 2021)

University of Chicago Physics Mentorship Program mentor (2019, 2021)

Soapbox Science Chicago speaker (2019)

HerStory volunteer (2019)

Adler After Dark speaker (2019)

Naperville Astronomical Association lecture (invited; 2019)

Chicago Astronomical monthly lecture (invited; 2019)

Hyde Park Neighborhood Club after-care program volunteer in the Maker Lab (2018)

@astrotweeps guest host (2018)

WMFO Heard Mentality guest speaker (2018)

MEDIA APPEARANCES

JWST Transiting Exoplanet Community Early Release Science Program NIRISS Results — NASA Exoplanets; UChicago News; Sky and Telescope; inverse.com; SETI Live Interview (12/15)

The Flares of AU Mic — Press release at 240th AAS meeting

December 21 Christmas Star — ABC7 Chicago; Chicago Tribune

UChicago scientists teach a neural net to find baby star flares; SciTechDaily

The Young DS Tuc Ab is Aligned

Discovery of TOI 1338b

Discovery of TOI 270

Discovery of K2-288Bb — Press release at 233rd AAS meeting; JPL press release; NBC News; WGN radio

Last updated: April 12, 2023