ETHAN A. KRUSE

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EMPLOYMENT

CRESST Postdoctoral Fellow — October 2021–Present
University of Maryland — College Park, MD

NASA Postdoctoral Fellow — September 2018–October 2021
NASA Goddard Space Flight Center — Greenbelt, MD

EDUCATION

University of Washington — August 2018
Ph.D. in Astronomy
Dissertation title: "A New Transiting Planet Search Applied to Kepler and K2: Discovery of Hundreds of Planet Candidates, Eclipsing Binary Stars, and a Self-lensing Binary System"

University of Washington — December 2013
M.S. in Astronomy

Harvard University — May 2012
B.A. cum laude in Astrophysics
Minor in Computer Science

HONORS & AWARDS

NASA Special Act Award — July 2020
For maximizing TESS Full Frame Image science

Blue Waters Graduate Fellow — 2017–2018

National Science Foundation Graduate Research Fellowship — 2013–2016

Harvard Hoopes Prize for Outstanding Senior Thesis — 2012

RESEARCH EXPERIENCE

Doctoral Research — 2012–2018
Dr. Eric Agol — Seattle, WA
+) Discovering and characterizing the Kepler & K2 planet population, as well as discovering the first self-lensing binary system

Senior Thesis — 2011–2012
Dr. Darin Ragozzine — Cambridge, MA
+) Two semesters searching for circumbinary planets in the Kepler data

NRAO REU — Summer 2011
Dr. Scott Ransom — Charlottesville, VA
+) Extensive GPU coding with CUDA to develop a gamma-ray pulsar search of Fermi data

Space Telescope Science Institute REU Summer 2010
Dr. Jason Tumlinson Baltimore, MD
+) HST spectral analysis on the COS-Halos team with focus on H_2 absorption analysis

Harvard PRISE Research Fellow Summer 2009
Dr. Edo Berger Cambridge, MA
+) Short-term M-dwarf magnetic field variability using SDSS spectra

TEACHING EXPERIENCE

University of Washington TA Seattle, WA
+) Astronomy 101 with Dr. Chris Laws Spring 2013
+) Astronomy 101 with Dr. Oliver Fraser Winter 2013
+) Astronomy 150 with Dr. Toby Smith Autumn 2012

SCIENCE COMMUNICATION, OUTREACH, & SERVICE

Served on 2022 ADAP Review Panel August 2022

Served on TESS Cycle 4 Review Panel March 2021

Presented at AAS 237 Press Conference January 2021

Created TESS Two Year Panorama October 2020

Created TESS One Year Panorama November 2019

Seattle Astronomy on Tap Invited Talk August 2018

Seattle Astronomical Society Invited Talk September 2016

Seattle Astronomy on Tap Invited Talk April 2016

$13,000 University of Washington STF Grant for Computing Resources 2016

Kepler Animation with 900,000+ Views Featured on APOD December 2015

University of Washington Curriculum Review Committee 2015–2016

Moderator and Contributor on reddit /r/AskScience 2014–Present

University of Washington Faculty Search Committee 2014–2015

University of Washington Graduate Representative 2014–2016

Science Podcast Discussing KOI-3278 April 2014

Weekly arXiv Discussion Leader 2013–2016

Science Olympiad Event Coordinator 2009–2011

FIRST AUTHOR PUBLICATIONS

Citations compiled from ADS on 10 Feb 2023.

#	Paper Title First Author	N Authors	Journal	(Year)	Citations
3.	Detection of Hundreds of New Planet Candidates and Eclipsing Binaries in K2 Campaigns 0–8 **E. Kruse**	4	*ApJS*	(2019)	arXiv 42
2.	KOI-3278: A Self-Lensing Binary Star System **E. Kruse**	2	*Science*	(2014)	arXiv 50
1.	Chromospheric Variability in Sloan Digital Sky Survey M Dwarfs. II. Short-timescale Hα Variability **E. Kruse**	7	*ApJ*	(2010)	arXiv 31

CO-AUTHOR PUBLICATIONS

Citations compiled from ADS on 10 Feb 2023.

#	Paper Title First Author	**E. Kruse** __	of N Authors	Journal	(Year)	Citations
24.	A JWST transmission spectrum of a nearby Earth-sized exoplanet J. Lustig-Yaeger	20	23	*Nature Astronomy*	(2023)	arXiv
23.	TIC 114936199: A Quadruple Star System with a 12-day Outer Orbit Eclipse B. Powell	12	22	*AJ*	(2022)	arXiv
22.	The NASA GSFC TESS Full Frame Image Light Curve Data Set B. Powell	2	23	*RNAAS*	(2022)	arXiv 3
21.	Ninety-seven Eclipsing Quadruple Star Candidates Discovered in TESS Full-frame Images V. Kostov	16	20	*ApJS*	(2022)	arXiv 9
20.	The LHS 1678 System: Two Earth-sized Transiting Planets and an Astrometric Companion Orbiting an M Dwarf Near the Convective Boundary at 20 pc M. Silverstein	10	51	*AJ*	(2022)	arXiv 4
19.	Validation of 13 Hot and Potentially Terrestrial TESS Planets S. Giacalone	23	111	*AJ*	(2022)	arXiv 3
18.	TESS Eclipsing Binary Stars. I. Short-cadence Observations of 4584 Eclipsing Binaries in Sectors 1–26 A. Prša	7	47	*ApJS*	(2022)	arXiv 38
17.	Mysterious Dust-emitting Object Orbiting TIC 400799224 B. Powell	17	27	*AJ*	(2021)	arXiv 4
16.	TIC 172900988: A Transiting Circumbinary Planet Detected in One Sector of TESS Data V. Kostov	30	86	*AJ*	(2021)	arXiv 20

#	Paper Title First Author	**E. Kruse** __	of N Authors	Journal	(Year)	Citations
15.	No Transits of Proxima Centauri planets in high cadence TESS data E. Gilbert	3	5	*FrASS*	(2021)	arXiv 5
14.	TIC 454140642: A Compact, Coplanar, Quadruple-lined Quadruple Star System Consisting of Two Eclipsing Binaries V. Kostov	20	33	*ApJ*	(2021)	arXiv 16
13.	Identifying Planetary Transit Candidates in TESS Full-Frame Image Light Curves via Convolutional Neural Networks G. Olmschenk	5	11	*AJ*	(2021)	arXiv 10
12.	TIC 168789840: A Sextuply-Eclipsing Sextuple Star System B. Powell	7	51	*AJ*	(2021)	arXiv 24
11.	Even More Rapidly Rotating Pre-main-sequence M Dwarfs with Highly Structured Light Curves: An Initial Survey in the Lower Centaurus-Crux and Upper Centaurus-Lupus Associations J. Stauffer	8	9	*AJ*	(2021)	arXiv 9
10.	The First Habitable Zone Earth-sized Planet from TESS. I: Validation of the TOI-700 System E. Gilbert	19	95	*AJ*	(2020)	arXiv 67
9.	A planet within the debris disk around the pre-main-sequence star AU Microscopii P. Plavchan	56	87	*Nature*	(2020)	arXiv 109
8.	Gravity-darkening Analysis of the Misaligned Hot Jupiter MASCARA-4 b J. Ahlers	2	20	*ApJ*	(2020)	arXiv 21
7.	K2-146: Discovery of Planet c, Precise Masses from Transit Timing, and Observed Precession A. Hamann	5	5	*AJ*	(2019)	arXiv 21
6.	The Mass of the White Dwarf Companion in the Self-lensing Binary KOI-3278: Einstein versus Newton D. Yahalomi	6	13	*ApJ*	(2019)	arXiv 2
5.	The L 98-59 System: Three Transiting, Terrestrial-size Planets Orbiting a Nearby M Dwarf V. Kostov	12	115	*AJ*	(2019)	arXiv 78
4.	An Update to the EVEREST K2 Pipeline: Short Cadence, Saturated Stars, and Kepler-like Photometry Down to Kp = 15 R. Luger	2	5	*AJ*	(2018)	arXiv 116
3.	A seven-planet resonant chain in TRAPPIST-1 R. Luger	3	33	*Nature Astronomy*	(2017)	arXiv 236
2.	EVEREST: Pixel Level Decorrelation of K2 Light curves R. Luger	3	7	*AJ*	(2016)	arXiv 205
1.	Kepler-47: A Transiting Circumbinary Multiplanet System J. Orosz	31	39	*Science*	(2012)	arXiv 274

RESEARCH PRESENTATIONS

14. Poster. Hundreds of Thousands of Eclipsing Binaries Discovered Through Machine Learning
    E. Kruse et al., *TESS Conference II*, (Virtual 2021).
13. Talk. Hundreds of Thousands of Eclipsing Binaries Discovered Through Machine Learning
    E. Kruse et al., *AAS Meeting 237*, (Virtual 2021).
12. Talk. Finding TESS's "Missing" Planets in the Full Frame Images
    E. Kruse et al., *Chesapeake Bay Area Exoplanet Meeting*, (Virtual 2020).
11. Poster. Rapid Discovery of FFI Planets in the CVZ to Add to Short Cadence
    E. Kruse et al., *TESS Science Conference I*, (Cambridge, MA 2019).
10. Dissertation Talk. Hundreds of New Planet Candidates from K2
    E. Kruse et al., *AAS Meeting 233*, 408.07D (Seattle, WA 2019).
9. Poster. K2 Planet Candidates in Campaigns 0-8
    E. Kruse et al., *Kepler & K2 Science Conference IV* (Moffett Field, CA 2017).
8. Talk. Hundreds of New K2 Planet Candidates
    E. Kruse et al., *Formation and Dynamical Evolution of Exoplanets* (Aspen, CO 2017).
7. Poster. Doubling the Number of K2 Planet Candidates
    E. Kruse et al., *Exoplanets I* (Davos, Switzerland 2016).
6. Talk. Kepler's Missing Planets: Using QATS to Search for Planets with TTVs
    E. Kruse & E. Agol, *AAS Meeting 225*, 105.04 (Seattle, WA 2015).
5. Talk. Discovery of a New Class of Eclipsing Binary
    E. Agol & **E. Kruse**, *University of Washington Astronomy Colloquium*, (Seattle, WA 2014).
4. Poster. Searching for Extreme TTV Planets with QATS
    E. Kruse & E. Agol, *Kepler Science Conference II*, 1.307 (Moffett Field, CA 2013).
3. Talk. A Systematic Search for Circumbinary Planets
    E. Kruse, *Exoplanets in Multi-planet Systems in the Kepler Era* (Aspen, CO 2013).
2. Poster. Speeding Up Blind Gamma-Ray Pulsar Searches with GPUs
    E. Kruse & S. Ransom, *AAS Meeting 219*, 237.05 (Austin, TX 2012).
1. Poster. COS Observations of Molecular H_2 at $z = 0.248$
    E. Kruse, J. Tumlinson, C. Thom, K. Sembach, *AAS Meeting 217*, 335.09 (Seattle, WA 2011).

SELECT PRESS COVERAGE

+) NASA's TESS Presents Panorama of Southern Sky
+) Scientific American: One Search to (Almost) Rule Them All: Hundreds of Hidden Planets Found in Kepler Data
+) The Planetary Report: A Kepler Orrery
+) Astronomy Picture of the Day (APOD): Kepler Orrery IV
+) Scientific American: White Dwarf Acts as Cosmic Magnifying Glass
+) Tech Times: KOI-3278, a bizarre 'self-lensing' binary star system, discovered in Lyra
+) Gizmodo: A Mesmerizing Animation Shows Just How Weird Our Solar System Is