

Emily Gilbert - Curriculum Vitae

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Education

2022	Ph.D.	Astronomy and Astrophysics	University of Chicago
		– Thesis Title: The Detection and Characterization of Exoplanets Around M Dwarf Stars	
		– Thesis Advisor: Prof. Richard Kron	
		– Research Advisor: Dr. Thomas Barclay	
2020	M.S.	Astronomy and Astrophysics	University of Chicago
2014	Sc.B.	Astrophysics	Brown University

Areas of Research

- Habitability of planets around M dwarf stars
- Planet searches in TESS data of M dwarf stars, particularly active stars
- Detection and characterization of flares on M dwarf stars using TESS photometric data
- Multiwavelength flare characterization (X-ray, UV, optical/NIR, radio)
- Stellar contamination in exoplanet transmission spectra

Work and Experience

- 2020 - Present: Pandora Science Team Member and Shadow to the Project Scientist
- 2019 - 2022: LSSTC Data Science Fellow
- 2015-2016: Planet Labs, Image Quality Analyst
- 2014-2015: NASA Goddard, Post-baccalaureate Researcher
- 2012-2014: Brown University, Brown CubeSat Team Leader

First-Author Papers

- “A Second Earth-sized Planet in the Habitable Zone of the M Dwarf, TOI-700” **Gilbert, E.**, et al., 2023, ApJL, 944, 35
- “Flares, Rotation, and Planets of the AU Mic System from TESS Observations” **Gilbert, E.**, et al., 2022, AJ, 163, 147
- “No Transits of Proxima Centauri Planets in High-Cadence TESS Data” **Gilbert, E.**, et al., 2021, Front. Astron. Space Sci. 8:769371. doi: 10.3389/fspas.2021.769371
- “The First Habitable-zone Earth-sized Planet from TESS. I. Validation of the TOI-700 System” **Gilbert, E.**, et al., 2020 AJ, 160, 116

Co-authored Papers

- “Two Warm Super-Earths Transiting the Nearby M Dwarf TOI-2095” Quintana, E., Gilbert, E., et al., 2023, submitted to AAS Journals
- “Updated Planetary Mass Constraints of the Young V1298 Tau System Using MAROON-X” Sikora, J., et al., 2023, accepted to AJ
- “The transmission spectrum of the potentially rocky planet L 98-59 c” Barclay, T., et al., 2023, submitted to AAS journals
- “The Benchmark M Dwarf Eclipsing Binary CM Draconis With TESS: Spots, Flares and Ultra-Precise Parameters” Martin, D., et al., 2023, submitted to MNRAS
- “A transmission spectrum of the sub-Earth planet L98-59 b in 1.1-1.7 μm ” Damiano, M., et al. 2022, 164, 225
- “Scaling K2. V. Statistical Validation of 60 New Exoplanets From K2 Campaigns 2–18” Christiansen, J., et al., 2022, AJ, 163, 244
- “Validation of 13 Hot and Potentially Terrestrial Planets” Giacalone, S., et al., 2022, 163, 99
- “EarthShine: Observing Our World as an Exoplanet from the Surface of the Moon” Boyd, P., et al., 2022, JATIS, 8, 4003
- “The LHS 1678 System: Two Earth-Sized Transiting Planets and an Astrometric Companion Orbiting an M Dwarf Near the Convective Boundary at 20 pc” Silverstein, M., et al., 2022, AJ, 163, 151
- “Orbital Dynamics and the Evolution of Planetary Habitability in the AU Mic System” Kane, S., et al., 2021, AJ, 163, 20
- “Transit Timing Variations for AU Microscopii b & c” Wittrock, J., et al., 2022, AJ, 164, 27
- “Diving Beneath the Sea of Stellar Activity: Chromatic Radial Velocities of the Young AU Mic Planetary System” Cale, B., et al., 2021, AJ, 162, 295
- “Stellar surface inhomogeneities as a potential source of the atmospheric signal detected in the K2-18 b transmission spectrum” Barclay, T., et al., 2021, AJ, 162, 300
- “Simultaneous Multiwavelength Flare Observations of EV Lacertae” Paudel, R., et al., 2021, ApJ, 922, 31
- “The Pandora SmallSat: Multiwavelength Characterization of Exoplanets and their Host Stars” Quintana, E., et al., 2021, Proceedings of the Small Satellite Conference, arXiv:2108.06438
- “L 98-59: a Benchmark System of Small Planets for Future Atmospheric Characterization” Pidrordetska, D., et al., 2021, AJ, 162, 169
- “exoplanet: Gradient-based probabilistic inference for exoplanet data & other astronomical time series” Foreman-Mackey, D., et al., 2021, Journal of Open Source Software, 6, 3285
- “TIC 172900988: A Transiting Circumbinary Planet Detected in One Sector of TESS Data” Kostov, V., et al., 2021, AJ, 162, 234

- “TIC 168789840: A Sextuply Eclipsing Sextuple Star System” Powell, B., et al., 2021 AJ, 161, 162
- “An Unusual Transmission Spectrum for the Sub-Saturn KELT-11b Suggestive of a Sub-Solar Water Abundance” Colón, K., et al., 2020 AJ, 160, 280
- “The First Habitable-zone Earth-sized Planet from TESS. II. Spitzer Confirms TOI-700 d” Rodriguez, J., et al., 2020 AJ, 160, 117
- “The First Habitable-zone Earth-sized Planet from TESS. III. Climate States and Characterization Prospects for TOI-700 d” Suissa, G., et al., 2020 AJ, 160, 118
- “A planet within the debris disk around the pre-main-sequence star AU Microscopii” Plavchan, P., et al., 2020 Nature, 582, 497–500
- “TOI-1338: TESS’ First Transiting Circumbinary Planet” Kostov, V., et al., 2020 AJ, 159, 253
- “The L 98-59 System: Three Transiting, Terrestrial-size Planets Orbiting a Nearby M Dwarf” Kostov, V., et al. 2019 AJ, 158, 32
- “Confirmation of the Planetary Microlensing Signal and Star and Planet Mass Determinations for Event OGLE-2005-BLG-169” Bennett, D., et al. 2015 ApJ, 808, 169

Presentations

- *Caltech, DIX Planetary Science Seminar*, “Detecting and Characterizing Planets Around M Dwarf Stars,” Pasadena, CA – March 2023
- *JPL Virtual Exoplanet Lecture*, “Characterizing the TOI-700 System of Planets,” Virtual – February 2023
- *American Astronomical Society 240th Meeting, Press Panel*, “A Second Earth-Sized Planet in the Habitable Zone of the M Dwarf TOI-700,” Seattle, CA – January 2023
- *American Astronomical Society 240th Meeting*, “A Second Earth-Sized Planet in the Habitable Zone of the M Dwarf TOI-700,” Seattle, CA – January 2023
- *American Astronomical Society 240th Meeting*, “The Detection and Characterization of Exoplanets Around M Dwarf Stars Using TESS,” Pasadena, CA – June 2022
- *Michigan State University, Exoplanet Seminar* “The Detection and Characterization of Exoplanets Around M Dwarf Stars Using TESS,” Virtual, – January 2022
- *TESS Science Team Meeting*, “An Update on the TOI-700 System,” Virtual – December 2021
- *ExoPAG 24*, “The Pandora SmallSat Mission,” Virtual – June 2021
- *American Astronomical Society 238th Meeting* “The Pandora SmallSat Mission,” Virtual – June 2021
- *JPL Exoplanet Group*, “How to Characterize a Planet and its Flaring Host Star,” Virtual – June 2021
- *TESS Science Team Meeting*, “AU Mic Under the Microscope,” Virtual – January 2021
- *Harvard Pizza Lunch*, “AU Mic Under the Microscope,” Virtual – December 2020

- *Exoplanets III*, “The First Earth-sized Habitable Zone Planet from TESS,” Virtual – July 2020
- *American Astronomical Society 235 Meeting, Press Panel* “New Discovery of a Compact TESS Multiplanet System,” Honolulu, HI – January 2020
- *American Astronomical Society 235 Meeting*, “TOI-700 d: TESS’s First Habitable Zone Earth Sized Planet,” Honolulu, HI – January 2020
- *Emerging Researchers in Exoplanet Science*, “M Dwarf Flares Through Time,” Ithaca, NY – June 2019
- *Space Horizons: Destination Alpha Centauri*, “Exoplanet Science at Proxima Centauri,” Providence, RI – February 2017
- *19th International Conference on Microlensing*, “A New Luminosity Function for the Galactic Bulge,” Annapolis, MD – January 2015
- *American Astronomical Society 225th Meeting*, “A New Luminosity Function for the Galactic Bulge,” Seattle, WA – January 2015
- *NASA Rhode Island Space Grant Consortium*, “EQUiSat,” Providence, RI – April 2012, 2013, 2014
- *Space Horizons: Micro Meets Macro*, “EQUiSat,” Providence, RI – April 2014

Posters

- *Extremely Precise Radial Velocities V*, “Measuring the Masses of the TOI-700 Planets with ESPRESSO,” Santa Barbara, CA – March 2023
- *American Astronomical Society 237 Meeting*, “A Joint Analysis of TESS Cycles 1 and 3 Observations,” Cambridge, MA – January 2020
- *TESS Science Conference* “M Dwarf Flares: Detection and Characterization with TESS,” Cambridge, MA – July 2019
- *Extremely Precise Radial Velocities III*, “The MAROON-X Solar Telescope,” State College, PA – August 2017
- *19th International Conference on Microlensing*, “A New Luminosity Function for the Galactic Bulge,” Annapolis, MD – January 2015
- *American Geophysical Union Fall Meeting*, “A New Luminosity Function for the Galactic Bulge,” San Francisco, CA – December 2014
- *International Workshop on Instrumentation for Planetary Missions*, “Investigating an Ultra-Low Cost Precision High-Altitude Star Tracker (PHAST) for Future Sub-Orbital Missions,” Greenbelt, MD – November 2014

Honors and Awards

- Invited author for *Frontiers in Astronomy and Space Sciences Journal, Rising Stars Edition*
- Recipient of the 2020 Robert H. Goddard Award for science

- Chambliss Astronomy Achievement Student Award for the 237th AAS meeting, 2021
- LSSTC Data Science Fellow
- Illinois Space Grant Consortium Fellow (2018-2019)
- CubeSat, EQUiSat, selected for launch as a part of NASA's CubeSat Launch Initiative (2014)

Outreach and Service

- Supervised Cornell undergraduate student's senior thesis on the flare rate of binary stars systems
- Co-mentored NASA GSFC summer interns
- Member of UChicago Astronomy and Astrophysics Inclusion, Diversity and Equity in Astronomy (IDEA) group
- Physics Mentoring Program mentor for female undergraduate students at UChicago
- Astronomy Conversations presenter at the Adler Planetarium's Space Visualizations Lab
- Organizer for Chicago Chapter of Astronomy on Tap
- Instructor for Yerkes Summer Institute, a summer course for Chicago-area students

Observing Experience (PI programs in **bold**)

Awarded time on the following telescopes/instruments:

- HST/COS/STIS/WFC3
- Keck/NIRC2
- **Magellan/MIKE/LDSS-3**
- NICER/XTI
- Swift/UVOT/XRT
- TESS
- UH88/SNIFS
- **VLT/ESPRESSO**