EMMA NABBIE

PhD Student, University of Southern Queensland | Emma.Nabbie@usq.edu.au |
https://enabbie.github.io

RESEARCH INTERESTS

Detection and characterization of Neptune-sized exoplanets using transit timing variations, radial velocity, and atmospheric analysis. Dynamical modeling of multi-planet systems.

EDUCATION

University of Southern Queensland, Toowoomba, QLD, Australia
Doctor of Philosophy in Astronomy — Sep 2022 - Jan 2026*

Thesis: "Close-in Giant Planet Evolution," advised by Dr. Robert Wittenmyer and Dr. Chelsea Huang (*** Expected**)

University of Florida, Gainesville, FL
Bachelor of Science in Astrophysics, Highest Honors — Jun 2018 - May 2022

Thesis: "Investigating the Relationship Between the Properties of Circumstellar Disks and their Parent Stars," advised by Dr. Elizabeth Lada

EMPLOYMENT

NASA Jet Propulsion Laboratory
Astrophysics & Space Sciences Intern — Summer 2021

PROPOSALS (PI DENOTED WITH *)

JWST Guest Observer Programs

Cycle 2 GO 3385: The first comparative atmospheric study of a Jovian planet and a sub-Neptune in the TOI-1130 system (Co-I; PI Chelsea Huang) **(30h, USD 200,000)**

Competitive Telescope Time Awarded

***ESO VLT/CRIRES+**, 114.272Y, Probing Helium Escape from a Stripped Giant Planet Core **(4.5h)**

ESO VLT/ESPRESSO, 111.24W6 (Co-I; PI Chelsea Huang), An emerging dichotomy in small planet masses: the compositions of stripped planet cores **(6.78h)**

***ESA CHEOPS**, AO-4, Confirming the Transit Timing Variations of a Neptune-Sized Inner Companion to a Hot Jupiter **(36 orbits)**

PUBLICATIONS

First-Author:

[1] **E. Nabbie** et al. (2024) "Surviving in the Hot Neptune Desert: The Discovery of the Ultra-Hot Neptune TOI-3261b", *AJ*, 168, 132. doi:10.3847/1538-3881/ad60be

[2] **E. Nabbie** et al. (2025) "A high mutual inclination system around KOI-134 revealed by transit timing variations," *Nature Astronomy*. doi:10.1038/s41550-025-02594-8

[3] **E. Nabbie** et al. (submitted) "Transit Timing Variations in *TESS*: A Catalog from the First Five Years."

Co-Author:

[1] S. Dholakia, L. Palethorpe, et al. (2024) "Gliese 12 b, A Temperate Earth-sized Planet at 12 Parsecs Discovered with *TESS* and *CHEOPS*," *MNRAS*, 531, 1276. doi:10.1093/mnras/stae1152

[2] N. Lowson et al. (2024) "Two mini-Neptunes transiting the adolescent K-star HIP113103 confirmed with TESS and CHEOPS," *MNRAS*, 527, 1146. doi:10.1093/mnras/stad2756

[3] T. Fairnington*, **E. Nabbie**, et al. (2024) "TOI-5126: a hot super-Neptune and warm Neptune pair discovered by TESS and CHEOPS," *MNRAS*, 527, 8768. doi:10.1093/mnras/stad3036 **(significant contribution; * denotes undergraduate)**

[4] T. Fairnington*, C. X. Huang, J. Dong, **E. Nabbie**, et al. "The Eccentricity Distribution of Warm Sub-Saturns in TESS," *MNRAS*, 540, 1144. doi:10.1093/mnras/staf759

CONFERENCE TALKS

AAS 245 – "Dynamical Investigations of Close-In Giant Planet Evolution" (**Dissertation talk**; January 2025)

TESS Science Conference III – "Transit Timing Variations of TESS Multi-Planet Systems: A Catalog from the First Five Years" (July 2024)

AAS 240 – "Refining Parameters for RV Amenable TESS Planet Candidates" (June 2022)

ACADEMIC SERVICE & LEADERSHIP

Conference Organizing Committees

LOC Member, 10th Australian Exoplanet Workshop

Referee Service

Astronomy & Astrophysics (A&A)

OUTREACH

"Meet a Scientist" Panel Member, 2023 World Science Festival Queensland: Toowoomba

Day-long event educating primary- to high-school students about various careers in STEM

Australian Broadcasting Corporation Radio Brisbane's "Stargazing" Segment

Multiple appearances on a professional radio show to communicate news in astronomy to the public

SEMINARS AND COLLOQUIA

University of Wisconsin-Madison Science Seminar Series (**Invited;** September 2024)

European Southern Observatory, Santiago, Chile (December 2023)

Harvard-Smithsonian Center for Astrophysics (**Invited;** November 2023)

MIT Exoplanet Tea (**Invited;** November 2023)

Carnegie Earth & Planets Lab Journal Club (**Invited;** November 2023)

JPL Exoplanet Exploration Program (October 2023)

SKILLS

Programming: Python, conda
Python Libraries: Astropy, Emcee, Matplotlib, Numpy, Scipy, Pandas
Languages: English (native speaker), French (fluent)