

CURRICULUM VITAE

Dominic Oddo

Phone: 440-856-5205 | Email: doddo@unm.edu | Website: <https://doddo15.github.io/#>

EDUCATION

University of New Mexico, Albuquerque, NM **Aug. 2020 – present**
Pursuing a PhD in Physics w/ concentration in Astrophysics

Case Western Reserve University, Cleveland, OH **Aug. 2016 - May 2020**
Graduated with B.S. in Physics and Secondary major in Astronomy

OBJECTIVE

I am currently earning a PhD in Physics with Concentration in Astrophysics at the University of New Mexico in Albuquerque, New Mexico. I seek to become a professional astronomer!

CURRENT RESEARCH

University of New Mexico – Research Assistant **(Fall 2022 – present)**

*Finding the occurrence rate of circumbinary planets (CBPs) in the TESS dataset

- Finding physical properties of stars in binaries from photometric/SED fitting.
- Building methods to detect single- or multi-transit events in TESS light curves.
- Checking validity of found CBP candidates with statistical validation.

PAST RESEARCH EXPERIENCES

University of New Mexico – Research Assistant **(Fall 2020 – Fall 2022)**

Radial velocity follow-up of a multi-planet TESS Object of Interest (TOI) with gap between planets

- Most multis are dynamically packed, but this TOI is not, according to TESS observations
- CFHT SPIRou instrument awarded time for RV characterization
- Fitted Keplerian orbit to RV curve

Characterizing small planets from TESS with CHEOPS observations

- Combined NASA TESS and ESA CHEOPS observations of five systems
- Jointly fitted transit models to light curves to obtain precise orbital and physical parameters
- Reported radii of planets bordering radius valley

Case Western Reserve University – Research Assistant **(Fall 2019 – Summer 2020)**

Optimization of direct-imaging survey strategies for max exoplanet yield with Dr. Benjamin Monreal

- Developed completeness calculations for terrestrial planets orbiting various stellar types
- Completed time-optimization calculations for max first-observation yield
- Researching optimal second or third observation strategies

Exoplanet simulations for ground-based telescopes with Dr. Benjamin Monreal

- Modeled the effects of Earth's atmosphere on the point spread function of a ground telescope
- Calculated the observation time required to resolve terrestrial exoplanets
- Used existing Python packages to create end-to-end mission simulations

Rochester Institute of Technology – NSF REU **(Summer 2018)**

Earth-like exoplanet yield for space-based LUVOIR mission with Dr. Don Figer

- Simulated terrestrial planets orbiting nearby AFGKM stars for injection and recovery
- Calculated observing completeness for the set of nearby stars using Monte Carlo techniques
- Calculated metrics such as SNR and required exposure time to resolve targets

PUBLICATIONS

First-author publication: D. Oddo*, D. Dragomir, A. Brandeker, et al. (2023). “Characterizing a set of small planets bordering the radius valley with TESS and CHEOPS observations.”

<https://iopscience.iop.org/article/10.3847/1538-3881/acb4e3/pdf>

Publication (submitted & under review): Nies, M., et al. (2024). “HD 21520 b: A warm sub-Neptune transiting a bright G dwarf”

Publication: Barragan, O., et al. (August, 2022). “The young HD 73583 (TOI-560) planetary system: Two 10- M_{\oplus} mini-Neptunes transiting a 750-Myr-old, bright, and active K dwarf.”

<https://academic.oup.com/mnras/article/514/2/1606/6548902>

Publication: Monreal, B., Oddo, D., Rodriguez, C. (2019). “WAET: low-cost ground based telescopes for accelerated exoplanet direct imaging.” *ASTRO2020 APC Whitepaper*.

<https://arxiv.org/abs/1907.04897>

ORAL/POSTER PRESENTATIONS

Invited outreach talk: The Albuquerque Astronomical Society: Albuquerque, NM, Feb. 2024

Invited Early Career Researcher @ EXOPAG-29: New Orleans, LA, Jan. 2024

“The Path to Uncovering the Histories of TESS Circumbinary Planets”

Research-contributed talk: AAS Meeting 243: New Orleans, LA, Jan. 2024

“Towards Transiting Tatooinis: A search for TESS circumbinary planets”

Research-contributed talk: AAS Meeting 242: Albuquerque, NM, Jun. 2023

“Probing the limits of planet formation through the demographics of circumbinary planets”

Invited Seminar speaker: TESS Science Talk Series, Boston, MA, Mar. 2023

“Characterizing a set of small planets bordering the radius valley with TESS and CHEOPS observations.”

Invited Seminar speaker: Boston University Center for Space Physics, Boston, MA, Mar. 2023

“An exploration of the radius valley & a comparison of NASA TESS and ESA CHEOPS.”

Poster Presentation: Exoplanets IV Conference, Las Vegas, NV, May 2022

D. Oddo, D. Dragomir, M. Harris, N. Crouzet. “Characterizing a set of small planet candidates bordering the radius valley with TESS and CHEOPS observations.”

Oral Presentation: TESS Science Conference II, Virtual, Aug. 2021

“Characterizing small planet candidates from TESS with CHEOPS observations.”

Poster: AAS Meeting 233, Seattle, WA, Jan. 2019

“Simulating the earth-like exoplanet yield of the NASA LUVOIR ‘A’ architecture direct-imaging mission.”

AWARDS/OBSERVING

NASA FINESST Graduate Research Grant, 2023-2026

Approved Observing Proposals

PI for CFHT-SPIRou spectropolarimeter, Mauna Kea, HI

2021B: ~30 hrs for “A deeper look at the architecture of multi-planet systems” (21BC06)

2022B: ~25 hrs for “Determining the masses of a dense inner planet and sub-Neptunian outer planet (22BC10+22BC97)

Co-I on CHEOPS proposal (cycles 2 & 3), “Exploring the Diversity of Small Planet Compositions”, 120 orbits

PROFESSIONAL ACTIVITIES

2022 Sagan Exoplanet Summer Workshop: Exoplanet Science in the Gaia Era, Pasadena, CA

Workshop detailing the effective use of Gaia data in exoplanet science.

AAS Astronomy Ambassador Program, AAS 239th Meeting, Salt Lake City, UT (virtual)

Workshop for early-career astronomers interested in public engagement.

TESS Planet Candidate Vetting, Albuquerque, NM

Examining light curves from TESS data pipeline outputs to determine outcome

Case Western Reserve University, Cleveland, OH

Women in Physics and Astronomy Club, executive member, 2018 – 2020

INVOLVEMENT AND LEADERSHIP ACTIVITIES

University of New Mexico, Albuquerque, NM

United Graduate Workers at UNM, Chief Steward for Arts & Sciences 2021-present

- Organized co-workers in card drive for labor union recognition (2021-2022)
- Organized colleagues to work towards the largest wage increase for GAs, TAs, and Ras at UNM in decades and other benefits, including as co-lead negotiator (2024)

P&A Graduate Student Association, Communications Officer 2021 – 2022

- Responsible for creating content to disseminate to fellow graduate students
- Upkeep of website, monthly newsletter, social media, and event announcements

P&A Graduate Student Association, UNM GPSA Representative 2020 – 2021

- Served as departmental representative to campus-wide Graduate and Professional Student Association Council
- Advocated for grad students to receive COVID-19 relief funding from UNM
- Supported UNM graduate student union for better pay and benefits to grad students

Case Western Reserve University, Cleveland, OH

Residence Life, residential assistant 2017 – 2020

- Foster development of floors of ~35 first-year students for three consecutive years
- Promote resident well-being through community-building strategies
- Organize and promote floor-specific programming to engage with Cleveland community

CWRU Feminist Collective, secretary 2018 – 2020

- Advocate for gender equity and inclusion
- Organize and promote events on campus
- Record general body meeting minutes

CWRU Women in Physics and Astronomy, co-founder 2019 – 2020

- Formed to promote and support women and gender non-conforming individuals in Physics and Astronomy departments at CWRU
- Created social support network and advocated for gender equality in these depts.
- Organized professional development workshops and women-led science talks

Varsity Track and Field, athlete, co-captain 2016 - 2020

- Provided leadership and organization as team captain during junior and senior years

National Residence Hall Honorary, Donald J. Kamalsky Chapter, member 2019

- Advanced pillars of service and recognition in residence life
- Participated in community service opportunities
- Recognized outstanding work by campus community members

External organizations

Know Your Neighbors CWRU, co-founder 2020 – 2022

- Co-founded group of Cleveland community residents and CWRU students dedicated to bridging the divide between CWRU campus community and local neighborhoods
- Developed events both virtually and in-person to bring students and residents together
- Advocated university to include local resident perspective in decision-making

Right to Health Action, Regional Organizer 2020 – 2022

- Grassroots organization of thousands of activists nationwide working to end the COVID-19 pandemic and prevent future ones from ever occurring
- Regional organizer duties include building state teams in the Southwest and providing training and support to State Captains and state teams

SKILLS

Lab skills

Analog + digital electronics
Experience w/ cryogenics
2D Hall Effect/muon decay

Software

Mathematica
Origin
GitHub

Coding Languages

Python - Strong
Matlab - Proficient
Java – Competent