Dominic Oddo

Curriculum Vitae

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Education

Ph.D. Physics w/ Astrophysics Conc., University of New Mexico Expected May 2026
Dissertation: *A Probe of the Limits of Planet Formation by Finding the Frequency of Tatooines*
Advisor: Dr. Diana Dragomir

B.S. Physics, Case Western Reserve Univesity May 2020
Secondary Major in Astronomy
Thesis: *Defining a Path to an Optimized Exoplanet Detection Survey for Asymmetric Wide-Aperture Telescopes*
Advisor: Dr. Ben Monreal

Research Interests

- Exoplanet detection, characterization, and demographics in binary systems
- Stellar characterization of eclipsing binary stars
- Planetary system architectures & formation and evolution processes

Research Experience

***Current Research - NASA FINESST Future Investigator** Sept 2023 - present

- Finding the occurrence rate of circumbinary planets (CBPs) with TESS
  - Building methods to detect single- or multi-transit events in TESS light curves
  - Checking validity of found CBP candidates with statistical validation.
- Defining a catalog of M&M eclipsing binaries with TESS
  - Finding physical properties of stars in binaries from photometric/SED fitting.
  - Calculating statistical properties such as circularization period, mass ratio distribution.

University of New Mexico - Research Assistant Fall 2020 — Spring 2023

- 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
- 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

Case Western Reserve University - Research Assistant Fall 2019 — Summer 2020

Optimization of direct-imaging survey strategies for max exoplanet yield with Dr. Benjamin Monreal. I developed completeness calculations for terrestrial planets orbiting various stellar types; I completed time-optimization calculations for max first-observation yield

Rochester Institute of Technology - NSF REU Summer 2018

Earth-like exoplanet yield for space-based LUVOIR mission with Dr. Don Figer. I calculated observing completeness for the set of nearby stars using Monte Carlo techniques; I calculated metrics such as SNR and required exposure time to resolve targets

Awards & Observing

NASA FINESST Graduate Research Grant September 2023 — September 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)

CHEOPS proposal, Co-I, "Exploring the Diversity of Small Planet Compositions", Cycles 2 & 3

Publications

Essack, Zahra et al. (July 2025). "Giant Outer Transiting Exoplanet Mass (GOT 'EM) Survey. VI. Confirmation of a Long-period Giant Planet Discovered with a Single TESS Transit". In: *AJ* 170.1, 41, p. 41. DOI: 10.3847/1538-3881/add88b. arXiv: 2506.20019 [astro-ph.EP].

Oddo, Dominic, Diana Dragomir, Brian P. Powell, et al. (Aug. 2025). "A Catalog of M&M Eclipsing Binaries with TESS". In: *arXiv e-prints*, arXiv:2508.13941, arXiv:2508.13941. DOI: 10.48550/arXiv.2508.13941. arXiv: 2508.13941 [astro-ph.SR].

Nies, Molly et al. (Nov. 2024). "HD 21520 b: a warm sub-Neptune transiting a bright G dwarf". In: *MNRAS* 534.4, pp. 3744–3760. DOI: 10.1093/mnras/stae2079. arXiv: 2406.09595 [astro-ph.EP].

Oddo, Dominic, Diana Dragomir, Alexis Brandeker, et al. (Mar. 2023). "Characterization of a Set of Small Planets with TESS and CHEOPS and an Analysis of Photometric Performance". In: *AJ* 165.3, 134, p. 134. DOI: 10.3847/1538-3881/acb4e3. arXiv: 2301.08162 [astro-ph.EP].

Barragán, O. et al. (Aug. 2022). "The young HD 73583 (TOI-560) planetary system: two 10-$M_\oplus$ mini-Neptunes transiting a 500-Myr-old, bright, and active K dwarf". In: *MNRAS* 514.2, pp. 1606–1627. DOI: 10.1093/mnras/stac638. arXiv: 2110.13069 [astro-ph.EP].

Monreal, Benjamin et al. (Sept. 2019). "WAET: low-cost ground based telescopes for accelerated exoplanet direct imaging". In: *Bulletin of the American Astronomical Society*. Vol. 51, 76, p. 76. DOI: 10.48550/arXiv.1907.04897. arXiv: 1907.04897 [astro-ph.IM].

Selected Scientific Presentations

Contributed talk	From Transits to Trends Workshop, Albuquerque, NM	Aug. 2025
Contributed talk	Binary stars in the space era, Keele, UK	Jul. 2025
Invited talk	Warwick University Astronomy Seminar, Warwick, UK	Jun. 2025
Poster	Know Thy Stars II, Pasadena, CA	Feb. 2025
Contributed talk	CBPs across the HR diagram Workshop, Firenze, IT	Jan. 2025
Poster	TESS Science Conference III, Cambridge, MA	Aug. 2024

Poster	Exoplanets V Conference, Leiden, NL	Jun. 2024
Invited outreach talk	The ABQ Astronomical Society, Albuquerque, NM	Feb. 2024
Contributed talk	AAS 243 Winter Meeting, New Orleans, LA	Jan. 2024
Invited ECR talk	EXOPAG 29, New Orleans, LA	Jan. 2024
Invited talk	Boston University Center for Space Physics, Boston, MA	Mar. 2023
Invited talk	TESS Seminar, MIT, Cambridge, MA	Mar. 2023
Contributed talk	TESS Science Conference II (virtual)	Aug. 2021
Poster	AAS 233 Winter Meeting, Seattle, WA	Jan. 2019

Professional Activities

Local Organizing Committee - Transits to Trends Workshop Albuquerque, NM, 2025

- **Participant**: *chaired session, sat on panel, presented research
- **LOC**: Contributed to workshop website, abstract booklet, designed badges, ran technical support

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

- Workshop detailing the effective use of Gaia data in exoplanet science.
- Learned essential skills in astrometric data analysis.

AAS Astronomy Ambassador Program, AAS 239th Meeting Salt Lake City, UT (virtual), Jan. 2022

- Workshop for early-career astronomers interested in public engagement.
- Learned effective outreach strategies and discussed with colleagues.

TESS Planet Candidate Vetting TESS Science Office (virtual)

- Examining light curves from TESS data pipeline outputs to determine outcome

Women in Physics and Astronomy Club, executive member Case Western Reserve University, Cleveland, OH, 2018 – 2020

Involvement and Leadership

University of New Mexico

United Graduate Workers of UNM

- Organized colleagues for union recognition and first contract Fall 2020 — Fall 2022
- Organized colleagues towards the largest wage increase for GAs, TAs, and RAs at UNM in decades and other benefits, including essential International Worker Rights article
- Elected leadership roles
  - Chief Steward, College of Arts & Sciences Fall 2021 – Spring 2023
  - * Co-lead negotiator during contract bargaining Spring 2024
  - Director of Organizing September 2024 — September 2025
  - Chief Steward, College of Arts & Sciences September 2025 — present

Physics & Astronomy 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
- UNM GPSA Council 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

Case Western Reserve University

Residence Life, residential assistant 2017-2020

Fostered development of floors of 35 first-year students for three consecutive years; Promoted resident well-being through community-building strategies; Organized and promoted floor-specific programming to engage with Cleveland community

CWRU Feminist Collective, secretary 2018 – 2020

Advocated for gender equity and inclusion; Organized and promoted events on campus; Recorded general body meeting minutes

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

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

External Organizations

Know Your Neighbors CWRU, co-founder 2019 — 2021

- 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