CURRICULUM VITAE

Dominic Oddo

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EDUCATION

University of New Mexico, Albuquerque, NM **Aug. 2020 – present**
Pursuing a PhD in Physics w/ concentration in Astrophysics
Cumulative GPA: 4.043

Case Western Reserve University, Cleveland, OH **Aug. 2016 - May 2020**
Graduated with B.S. in Physics and Secondary major in Astronomy
Cumulative GPA: 3.41

OBJECTIVE

I am currently earning a PhD in Physics with Concentration in Astrophysics at the University of New Mexico in Albuquerque, New Mexico.

PAST RESEARCH EXPERIENCE

Case Western Reserve University – Research Assistant (Fall 2019 – Spring 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

***Case Western Reserve University* – Research Assistant (Apr. 2019 – Aug. 2020)**
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

CURRENT RESEARCH

University of New Mexico – Research Assistant (Fall 2020 – 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.

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

- Fitting 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
- Estimated precise planet radii bordering radius gap

PUBLICATIONS/TALKS

Research-contributed talk: AAS Meeting 242: Albuquerque, NM, Jun. 2023
D. Oddo*, D. Dragomir (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."

First-author publication: D. Oddo*, D. Dragomir, A. Brandeker, et al. (2022). "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): M. R. Zapatero Osorio, S. Wang, **D. Oddo,** et al. (2022). "A sub-Neptune orbiting a slow-rotating K0V dwarf star."

Poster Presentation: AAS 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." https://submissions.mirasmart.com/ExoplanetsIV/itinerary/PresentationDetail.aspx?evdid=230

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

Oral Presentation: TESS Science Conference II, Virtual, Aug. 2021
Oddo, D., Dragomir, D., Harris, M., Crouzet, N. (2021). "Characterizing small planet candidates from TESS with CHEOPS observations."

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

Poster: AAS Meeting 233, Seattle, WA, Jan. 2019
Oddo, D. "Simulating the earth-like exoplanet yield of the NASA LUVOIR 'A' architecture direct-imaging mission."

Oral Presentation: RIT Undergraduate Research Symposium, Rochester, NY, July 2019
Oddo, D., Figer, D. "Simulating the earth-like exoplanet yield of the NASA LUVOIR 'A' architecture direct-imaging mission."

AWARDS

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, *Pasandena, 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
Physics and Astronomy Club, member, 2017 – 2020

American Astronomical Society, member
Attended AAS meeting 233 in January 2019 + AAS meeting 242 in June 2023

American Physical Society, member

INVOLVEMENT AND LEADERSHIP ACTIVITIES

University of New Mexico, *Albuquerque, NM*

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	***Software***	***Coding Languages***
Analog + digital electronics	Mathematica	Python - Strong
Experience w/ cryogenics	Origin	Matlab - Proficient
2D Hall Effect/muon decay	GitHub	Java – Competent