

# Victor A. Ramirez Delgado

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## EDUCATION

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**Ph.D. Physics, University of Delaware** 2021 – Present

**M.S Physics, University of Delaware** 2021-2023

Thesis: Rayleigh Criterion Applied to Radial Velocity Planet Searches

Advisor: Sarah Dodson-Robinson

**Honors B.S. Physics and Astronomy, University of Delaware** 2017-2021

*Minor in Mathematics*

Undergraduate Thesis: Coherence Method Applied to Radial Velocity Planet Searches

Advisor: Sarah Dodson-Robinson

## RESEARCH POSITIONS

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**University of Delaware**

Unidel Distinguished Fellow 2021 – Present

**Mathematics and Computer Science Division, Argonne National Lab**

Visiting Student 2024-Present

Visiting Student 2021-2022

**University of Delaware, Undergraduate Research Program**

Summer Fellow 2020

## PUBLICATIONS: 2 as first author, 1 as second author, 4 as contributing author

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- Ramirez Delgado, V.**, Caicedo Vivas J., Dodson-Robinson, S., Haley C. (2025). “[The Rayleigh Criterion: Resolution Limits of Astronomical Periodograms](#)”. Under review in PASP.
- Castro Nieva P.A., Dodson-Robinson S., **Ramirez Delgado V.** (2025). “[Validation of Two Earth-mass Planets Orbiting GJ 1002](#)”. Research Notes of the AAS. DOI: 10.3847/2515-5172/adb612.
- Dodson-Robinson, S., **Ramirez Delgado, V.**, Harrel, J., Haley, C. (2022). “[Magnitude-squared Coherence: A Powerful Tool for Disentangling Doppler Planet Discoveries from Stellar Activity](#)”. The Astronomical Journal. DOI: 10.3847/15383881/ac52ed.
- Zhao, L., Fischer, D., Ford, E., Wise, A., et al. (incl. **Ramirez Delgado, V.**) (2022). “[The EXPRES Stellar Signals Project II. State of the Field in Disentangling Photospheric Velocities](#)”. The Astronomical Journal. DOI: 10.3847/15383881/ac5176
- Bortle, A.; Fausey, H.; Ji, J.; Dodson-Robinson, S.; **Ramirez Delgado, V.**; Gizis, J. (2021). “[A Gaussian Process Regression Reveals No Evidence for Planets Orbiting Kapteyn's Star](#)”. The Astronomical Journal. DOI: 10.3847/15383881/abec89
- Ramirez Delgado, V.**, Dodson-Robinson, S. (2020). “[Modeling the Quasiperiodic Radial Variations of  \$\gamma\$  Draconis](#)”. Research Notes of the AAS. DOI: 10.3847/2515-5172/abb6ee

## PRESENTATIONS

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### Invited:

- Talk: “[Separating Stellar Activity from Planet Signals in Radial Velocity Surveys](#)”. Exoplanet Group Meeting. The Ohio State University Department of Astronomy, April 25<sup>th</sup>, 2025.
- Talk: “[Disentangling Radial Velocities Signals in the Frequency Domain](#)”. Gemini North Talks. Hilo, Hawaii. July 30<sup>th</sup>, 2024.

## **Contributed:**

1. Poster: “Describing the Stellar Activity of the Binary System of Sun-like Stars HD 9941-HD 99492”. Know Thy Star Know Thy Planet Conference. California Institute of Technology. February 3<sup>rd</sup>-7<sup>th</sup>, 2025.
2. Talk: “Analyzing the Stellar Activity of the Binary System of Sun-like Stars HD 99491-HD 99492”. 245th Meeting of the AAS. National Harbor, Maryland. January 15<sup>th</sup>, 2025.
3. Poster: “Describing the Stellar Activity of the Binary System 83 Leo”. SEEC Symposium. NASA Goddard Space Flight Center. April 15<sup>th</sup>-19<sup>th</sup>, 2024.
4. Virtual Talk: “Recreating the 10% Incidence of Magnetic Massive Stars through Population Synthesis and Observational Constraints”. Magnetic Fields from Clouds to Stars, National Astronomical Observatory of Japan. March 29<sup>th</sup>, 2024.
5. Talk: “Describing the Radial Velocities of the 83 Leonis System”. Annual Meeting of the APS Mid-Atlantic Section, University of Delaware. November 3<sup>rd</sup>-5<sup>th</sup>, 2023.
6. Poster: “Exploring the Presence of a new 95-days Signal in the RVs of HD 99492”. Emerging Researchers in Exoplanet Sciences, Yale University. June 19-20<sup>th</sup>, 2023.
7. Poster: “Rayleigh Criterion Applied to Astronomical Time Series”. Extreme Precision Radial Velocity V, Santa Barbara, CA. March 26-30<sup>th</sup>, 2023.
8. Talk: “Exploring the Initial B-Field Function of massive stars by simulating magnetic detectability of in star clusters”. Annual Meeting of the APS Mid-Atlantic Section, Penn State University. December 3<sup>th</sup>, 2022.
9. Talk: “Correcting stellar activity from radial velocity measurements using frequency domain linear regression in exoplanet searches”. Annual Meeting of the APS Mid-Atlantic Section, Rutgers University. December 4<sup>th</sup>, 2021.
10. Virtual Talk: “Disentangling stellar variability from radial velocities using the coherence method”. Emerging Researchers in Exoplanet Science Symposium. May 24<sup>th</sup>, 2021.
11. Virtual Talk: “Analyzing and developing a model for the Radial Velocity data of  $\gamma$  Draconis’ Star”. 236th Meeting of the AAS. June 1<sup>st</sup>, 2020.
12. Virtual Talk: “Correcting stellar variability from radial velocity measurements using coherence methods: examples from the EXPRES Stellar Signals Project”. Chesapeake Bay Area Exoplanet (CHEXO) Meeting. December 11<sup>th</sup>, 2020.

## **MENTORSHIP**

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### **University of Delaware Undergraduate Research Program 2025:**

Students: Oscar A. Flores Gaitán (Universidad del Valle de Guatemala) & Marcela Echevarri Gallego (Universidad de Medellin)

Project Title: Reanalyzing Barnard’s star 4 Planetary System

### **University of Delaware Undergraduate Research Program 2024:**

Student: Paula Andrea Castro Nieva (Universidad de Cali)

Project Title: Validation of Two Earth-mass Planets Orbiting GJ 1002

Student: Dajah Drummond (University of Delaware)

Project: Analyzing the Critical Magnetic Field and Detection Thresholds for MESA Models

### **University of Delaware Undergraduate Research Program 2022:**

Student: Joan Sebastián Caicedo Vivas (Universidad de Cali)

Project Title: The Rayleigh Criterion: Resolution Limits of Astronomical Periodograms

## **AWARDS & HONORS**

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1. Unidel Distinguished Graduate Scholars Award, University of Delaware Graduate College, 2021.
2. Hancock Award for Best Undergraduate Research, University of Delaware Department of Physics and Astronomy, 2021.
3. Immigrant Heritage Week Award, Accompany Capital, 2021.
4. Merit Scholarship, University of Delaware Honors College, 2017– 2021.

## TEACHING & OUTREACH

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### Teaching Assistant, University of Delaware

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|---|-----------------------------|
| 1. PHYS 207: Calculus Based Fundamentals of Physics I | Spring 2021, Fall 2019-2020 |
| 2. PHYS 202: Algebra Based Introductory Physics II    | Winter 2021                 |
| 3. PHYS 201: Algebra Based Introductory Physics       | Summer 2019                 |

### Department of Physics and Astronomy Committee for Diversity, Equity, and Inclusion

Committee Member	July 2020 – May 2021
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### Interview on Gamma Draconis

“Stellar work: Studying the "wobble" of the red giant Gamma Draconis”. UDaily. October 30<sup>th</sup>, 2020.

## WORKSHOPS

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| 1. Sagan Summer Workshop: Exoplanet Science in the Gaia era | July 2025   |
| 2. Sagan Summer Workshop: Exoplanet Science in the Gaia era | July 2022   |
| 3. MESA Summer School 2022                                  | August 2022 |