

# ANTONIO J. PORRAS-VALVERDE

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## EDUCATION

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### **Vanderbilt University**

*Dept. of Physics and Astronomy. Doctor of Philosophy in Astrophysics*

August 2018 - present

*Nashville, TN*

- Advisors: Dr. Andreas Berlind and Kelly Holley-Bockelmann
- Expected to graduate in 2023

### **Fisk University**

*Dept. of Life and Physical Sciences. Master of Arts in Physics*

August 2016 - August 2018

*Nashville, TN*

- Advisors: Dr. Andreas Berlind and Kelly Holley-Bockelmann

### **University of North Carolina**

*Dept. of Mathematics. Bachelor of Arts in Mathematics*

August 2012 - May 2015

*Chapel Hill, NC*

- Member of National Society of Collegiate Scholars

## RESEARCH EXPERIENCE

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### **Vanderbilt University**

*Research Assistant*

August 2016 - Present

*Nashville, TN*

- Use semi-analytic models to understand what drives the morphology of galaxies

### **National Radio Astronomy Observatory**

*Research assistant*

Summer 2015 and 2016

- Summer 2015: Performed radio imaging using data from the Very Long Baseline Array (VLBA) to find evidence of binary black holes
- Summer 2016: Investigated galaxy NGC 6240 to understand extreme star forming environments in space

### **University of North Carolina, Chapel Hill**

*Research assistant*

August 2013 - May 2015

*Chapel Hill, NC*

- Developed fluid dynamical simulations to investigate the role of flexibility in jellyfish propulsion

### **University of Toledo**

*Research assistant*

May 2012 - August 2012

*Toledo, OH*

- Analyzed spectral data to understand OH and OH<sup>+</sup> production in diffuse molecular clouds

## AWARDS

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### **National Science Foundation**

December 2020

- Nominated for the Presidential Awards for Excellence in Mathematics and Science Teaching by Dr. Anthony Beasley, Director of the National Radio Astronomy Observatory [non-awardee at this moment]

### **American Physical Society**

August 2018

- Travel award for Excellence in Graduate Research

## Vanderbilt University

- Summer 2019: Graduate Student Travel award
- Summer 2018: McMinn Summer Research Award

## National Science Foundation Graduate Research Fellowship Program

April 2016

- Honorable Mention

## National Science Foundation REU Fellowships

- National Radio Astronomy Observatory - Charlottesville, VA - Summer 2016
- National Radio Astronomy Observatory - Socorro, NM - Summer 2015
- University of North Carolina - Chapel Hill, NC - Summer 2014
- University of Toledo - Toledo, OH - Summer 2012

## ACADEMIC PUBLICATIONS

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1. **Antonio J. Porras-Valverde**, Kelly Holley-Bockelmann, Andreas Berlind. Exploring the Supermassive Black hole - spin relation. *In prep*
2. **Antonio J. Porras-Valverde**, Andreas Berlind, and Kelly Holley-Bockelmann. Morphology and Color comparison in the Stellar-to-Halo Mass relation. *In prep*
3. **Antonio J. Porras-Valverde**, Kelly Holley-Bockelmann, Andreas Berlind, and Adam Stevens. Angular momentum and Morphological Sequence of Massive Galaxies through DARK SAGE. *Submitted to ApJ*
4. Alexander P. Hoover, **Antonio J. Porras**, and Laura A. Miller. Pump or coast: The role of resonance and passive energy recapture in medusan swimming performance. 2019. Journal of Fluid Mechanics, 863, 1031-1061. doi:10.1017/jfm.2018.1007
5. **Antonio J. Porras**, Aaron Evans, Loreto Barcos-Muoz, Sean Linden. High Resolution 33 GHz Observations of Embedded Star Formation in NGC 6240. 2017. American Astronomical Society Meeting 229.
6. **Antonio J. Porras**, Sarah Burke-Spolaor, et al. CSS Object Found in Galaxy Merger 1015+364 at 2.3 and 8.5 Hz. 2016. American Astronomical Society Meeting 227.
7. **A. J. Porras**, S. R. Federman, D. E. Welty, and A. M. Ritchey. OH+ in Diffuse Molecular Clouds. 2014. ApJ, 781, L8. doi:10.1088/2041-8205/781/1/L8

## TOP VIEWS ASTROBITOS PUBLICATIONS

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|--|--------------|
| <b>Explorando la conexión entre las galaxias y sus halos de materia oscura</b> | October 2019 |
| · Over 700 reads.  |              |
| <b>Cual es la relacion que tienen los agujeros negros con sus galaxias?</b>    | August 2019  |
| <b>Las Galaxias en la poca de Reionización</b>                                 | January 2020 |

## SELECTED CONFERENCES

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|---|---------------|
| <b>University of Western Australia</b>  | February 2020 |
| · European Southern Observatory 2nd ESO-Australia. The build-up of galaxies through multiple tracers and facilities. Talk, "Morphology and Color comparison in the Stellar-to-Halo mass relation" |               |

**University of California at Santa Cruz**

August 2019

- 2019 Santa Cruz Galaxy Workshop. Poster, “Exploring the angular momentum connection to galaxy morphology in the SAM DARK SAGE”

**Universitat Wien**

August 2018

- 30th International Astronomical Union General Assembly. Poster, “Role of Halo Spin and Environment in Shaping Galaxy Morphology”

**American Astronomical Society**

- 235th Meeting in January 2020, Honolulu, HI. Talk, “Central American - Caribbean Bridge in Astrophysics” and poster, “Stellar-to-halo mass relation: comparing galaxy quenching and morphological transformations using cosmological simulations.”
- 233th Meeting in January 2019, Seattle, WA. Talk, “Dissecting the Anatomy of Bulge and Disk Dominated Galaxies through DARK SAGE.”
- 229th Meeting in January 2017. Poster, “High Resolution 33 GHz Observations of Embedded Star Formation in NGC 6240”
- 227th Meeting in January 2016. Poster, “Observing Recently Merged Galaxy 1015+364 at 2.3 and 8.5 GHz”

**ORGANIZED CONFERENCES**

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**National Radio Astronomy Observatory**

October 2020

- Organizing co-chair of the NACTOBER, a month long virtual conference, as part of the National Astronomy Consortium program.

**Astrofisica Centroamericana y del Caribe**

December 2020

- Organizing member of the 2020 Alpha-Cen General Assembly Virtual meeting.

**LECTURES GIVEN**

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**Dyer Observatory - Meet the Astronomer**

- May 2018: Why is the Milky Way the Way it is?
- April 2019: The Quest for Life on Extrasolar Planets

**PROFESSIONAL DEVELOPMENT**

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**Astrobitos Collaboration**

December 2018 - present

- Author: Summarize scientific astronomy manuscripts for undergraduate-level students.

**Astrofisica en Centroamerica y el Caribe Collaboration**

May 2017 - present

- Founding member and member of the executive committee of the international nonprofit organization that looks for astrophysics representation in the region.
- Contributed to the statutes for the formation of the collaboration

**National Astronomy Consortium (NAC) CORE Team**

August 2018 - present

- Organize informative webinars for current and alum NAC students

**Central American-Caribbean Bridge in Astrophysics**

June 2016 - present

- Co-lead of the program. Mentor Undergraduates: hold monthly web workshops for undergraduate students from the region. Organize remote-REU internship twice a year

**Vanderbilt University**

August 2019 - present

- Website administrator for the Vanderbilt Astronomy group
- Host weekly departmental astronomy journal hour-long meetings