

# ANTONIO J. PORRAS-VALVERDE

1000 17th Ave N  $\diamond$  Nashville, TN 37208  $\diamond$  615-329-8500  
antonio.j.porras@vanderbilt.edu  $\diamond$  <https://aporrasval.github.io/>

## 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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### **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

- 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

## 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

## SELECTED CONFERENCES

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### Shanghai Jiao Tong University

November 2019

- Shanghai Assembly on Cosmology and Galaxy Formation. Poster, "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

- 233th Meeting in January 2019. 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”

## OUTREACH

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### **Astrobitos Collaboration**

December 2018 - present

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

### **Central America and Caribbean Collaboration**

May 2017 - present

- Coordinate collaborations between Central American-Caribbean universities and U.S. institutions to develop research opportunities in astronomy
- 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

### **Costa Rica - U.S. Bridge Project**

June 2016 - present

- Mentor Undergraduates: hold monthly web workshops for undergraduate students from Centroamerica to expand information about astronomy, research opportunities, professional development, and programming.

### **Vanderbilt University**

August 2019 - present

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