

ANTONIO J. PORRAS-VALVERDE

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EDUCATION

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

Vanderbilt University

Graduate Research Assistant

August 2016 - Present

Nashville, TN

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

National Radio Astronomy Observatory

Undergraduate 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

Undergraduate 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

Undergraduate Research Assistant

May 2012 - August 2012

Toledo, OH

- Analyzed spectral data to understand OH and OH⁺ production in diffuse molecular clouds

AWARDS

Flatiron Institute Center for Computational Astrophysics

August 2021

- Selected to participate in the pre-doctoral fellowship remotely

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

7. **Antonio J. Porras-Valverde**, Andreas Berlind, and Kelly Holley-Bockelmann. What role does stellar mass and halo mass play in determining galaxy quenching for Dark Sage and IllustrisTNG galaxies? *In prep*
6. **Antonio J. Porras-Valverde**, Kelly Holley-Bockelmann, Andreas Berlind. Exploring the Supermassive Black hole - Galaxy spin relation. *In prep*
5. **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
3. **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.
2. **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.
1. **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

University of Western Australia

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”

INVITED TALKS

Kansas University

November 2021

- Space Seminar, “What causes such large stellar mass scatter within the stellar-to-halo mass relation in semianalytic model DARK SAGE?”

Princeton University

October 2021

- Galread Seminar, “Angular momentum and Morphological Sequence of Massive Galaxies through DARK SAGE”

Universidad Nacional Autonoma de Honduras

June 2021

- IV Semana de Astronomía y Astrofísica, “Un breve vistazo a la formación y evolución de galaxias”

Flatiron Institute Center for Astrophysics

May 2021

- Galaxy Evolution Theory group, “Exploring galaxy quenching using the stellar-to-halo mass relation”

The International Centre for Radio Astronomy Research

January 2020

- Seminar, “Stellar-to-Halo mass relation: galaxy quenching vs. morphological transformations”

University of Costa Rica

June 2019

- Physics colloquium: “Disección de la anatomía de una secuencia morfológica masiva de galaxias a través del modelo semianalítico DARK SAGE”

ORGANIZED CONFERENCES

National Radio Astronomy Observatory

October 2020, 2021

- 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.

PROPOSAL REVIEW PANEL

Astrophysics Theory Program

August 2021

- Evaluated proposals and help select the best candidates

- Participated in panel discussions

OBSERVING EXPERIENCE

W.M.Keck Observatory

April 2021

- Two nights remote observing alongside PI Intae Jung using MOSFIRE

LECTURES GIVEN

Academia Nacional de las Ciencias de Costa Rica

May 2019

- La Busqueda de vida en planetas Extrasolares

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

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

TOP VIEWS ASTROBITOS PUBLICATIONS

Explorando la conexion entre las galaxias y sus halos de materia oscura

October 2019

- Over 700 reads.

Cual es la relacion que tienen los agujeros negros con sus galaxias?

August 2019

Las Galaxias en la poca de Reionizacion

January 2020