# Kevin N. Ortiz Ceballos *Curriculum Vitae*


**CONTACT INFORMATION**

Planetary Habitability Laboratory
University of Puerto Rico at Arecibo
Arecibo, PR 00163

*Cell Phone:* +1-787-446-7551
*E-mail:* kevin.ortiz22@upr.edu


## EDUCATION

**Bachelor of Science in Physics with a second concentration in Philosophy** *In Progress*
University of Puerto Rico Río Piedras Campus, San Juan, Puerto Rico
- Visiting student at Brown University for the academic year of 2017-2018
- Undergraduate Honors Thesis: *Potentially Detectable Radio Emissions from Exoplanetary Systems: A Review.*

**High School Diploma** (with High Honors) 2016
Escuela Secundaria de la Universidad de Puerto Rico (UHS), San Juan, Puerto Rico

## RESEARCH POSITIONS

**Astrophysics Undergraduate Researcher** Jun 2019 to *present*
Banneker Institute, Center for Astrophysics | Harvard & Smithsonian
- Programming dynamical simulations of exoplanetary systems using Python and REBOUND. Working on identifying origin of transit timing variations from simulation results.

**Fellow in Philosophy and Theory of Astrophysics** May 2019 to *present*
Mellon-Mays Undergraduate Fellowship, University of Puerto Rico Río Piedras Campus
- Exploring data-generation in interferometry through epistemological analysis, constructing a corresponding data model, and studying astronomical image-making to inform how we communicate its results.

**Researcher in Radio Astronomy** May 2018 to *present*
Planetary Habitability Laboratory, University of Puerto Rico at Arecibo
- In charge of preparing & submitting observing proposals, running observations, reducing and analyzing data (IDL & Python), and working with the educational component of incorporating students into observations and communicating the PHL's research.

## MISSION DEVELOPMENT EXPERIENCE

**Team Mechanical Engineer & Scientist** Aug 2019 to *present*
RockSat-X Project, University of Puerto Rico Río Piedras Campus
- Working on the Astrogenomics Sequencing at the Karman Line (ASK-L) sounding rocket experiment, from initial design to launch in August 2020. Tasks include designing mechanical and UV decontamination systems.

**Team Scientist & Operations Officer** Jan 2019 to May 2019
L'SPACE Undergraduate Mission Concept Academy, NASA
- Worked on a Preliminary Design Review for the Spectral Electromagnetic Exploration Rover (SEER) Mission Concept. Conducted research & designed the mission experiment & data acquisition.

## AREAS OF INTEREST

*Planetary, Exoplanetary, and Observational Astrophysics*, with a particular focus on radio astronomical studies of solar system bodies and exoplanetary systems; potential radio detections of exoplanets; observational astrobiology and exoplanet characterization; radio interferometry; and multiwavelength observational astrophysics.

*Philosophy and Theory of Science and Astrophysics*, with a particular focus on the epistemology of data generation in observational astrophysics; models of data in radio and optical interferometric methods; image-making in astronomy; as well as an interest for the ethics of astronomy and land.

AWARDED TELESCOPE TIME

**Submillimeter Array** Interferometry School Program (2020):
*Observing 3C 346 with the Submillimeter Array*
Special Program, 2020 School. **Principal Investigator: K. Ortiz Ceballos. Allocated 3 hours.**

**Arecibo Observatory** Director's Discretionary Time Urgent Proposal (2019):
*Observing the 18 cm OH radical line in interstellar comet C/2019 Q4 (Borisov)*
Project A3390. **Principal Investigator: K. Ortiz Ceballos. Allocated 12 hours.**

**Arecibo Observatory** Spring Semester (2019, as Co-Investigator):
*Radio Emissions from Dwarf Stars with Planets IV*
Project A3123. **Principal Investigator: A. Méndez. Allocated 24 hours.**

---

RESEARCH AWARDS

**USRA Distinguished Undergraduate Scholarship** | $5k

**Mellon-Mays Undergraduate Fellowship** | $36k
Awarded to fund philosophy and theory of astrophysics work at the Department of Philosophy.
Hosted at the University of Puerto Rico, Río Piedras Campus, 2019-2021.

**Louis Stokes Alliance for Minority Participation Award** | $2.5k
Awarded to fund radio astronomy work at the Planetary Habitability Laboratory.
Hosted at the University of Puerto Rico at Arecibo, 2019-2020.

**Puerto Rico Space Grant Consortium NASA Fellowship** | $10k
Awarded to fund radio astronomy work at the Planetary Habitability Laboratory.
Hosted at the University of Puerto Rico at Arecibo, 2018-2019.

---

OTHER AWARDS

First Billion Years: Habitability Conference Travel Award | $2.5k, funded by USRA
50th Lunar and Planetary Science Conference Travel Award | $2.5k, funded by PRSGC
United Nations Academic Impact Millennium Fellowship
Honor Studies Program, University of Puerto Rico Río Piedras Campus
Dean's List, University of Puerto Rico Río Piedras Campus

---

TECHNICAL SKILLS

**Astronomy:** Radio telescope operation and observation planning, on-site and remotely; astronomical spectroscopy and single-dish and interferometric radio astronomical data reduction.
**Programming & Analysis:** Python, IDL, shell scripting. DS9, Astropy, MIR, CASA.
**Other Software:** Autodesk Inventor, JMARS, LaTeX, Adobe Photoshop, Premiere & Lightroom
**OS:** macOS, Unix, Linux, Windows

---

PROFESSIONAL DEVELOPMENT

**Submillimeter Array 2020 Interferometry School** Jan 2020
Submillimeter Array, Smithsonian Astrophyisical Observatory and Academia Sinica IAA
- Learned how to plan and write observation scripts for the Submillimeter Array, calibrate and reduce interferometric data using MIR and IDL, and image and analyze data using CASA.

**NASA Proposal Writing and Evaluation Experience** Aug 2019 to Dec 2019
Lucy Student Pipeline Accelerator and Competency Enabler (L'SPACE), NASA
- Learned how to effectively write concept proposals that turns innovative ideas into reality. Gained experience in the process of writing, reviewing, and scoring proposals through the lens of a NASA reviewer.

---

SCIENCE POLICY OUTREACH

**Science Policy Ambassador** for the Puerto Rico Science Policy Action Network (PR-SPAN)
- As Ambassador of PR-SPAN, in charge of informing the development and implementation of federal, state and local policies based on scientific evidence. Specific tasks include editing of PR-SPAN newsletter and materials, assistance in event organizing, and advocating directly to federal and state legislatures and policymakers.

## EDUCATION & OUTREACH

- Vicepresident of the Circle of University Astrobiology, UPRRP. Fall 2019.
- Helped bring over 40 students and community members to take part in on-site observations at the Arecibo Observatory. 2019.
- Algebra tutor for 9th graders at Hope High School in Providence, RI as part of the STEMS Program at Brown University. Spring 2018.
- Co-founded and co-directed Multi-faith Organizing for College Hill Activism (MOCHA) at Brown University. Spring 2018.
- Calculus I, II & III voluntary tutor at the Faculty of Natural Sciences, UPRRP. 2017.

## INVITED TALKS

**Observing the First Interstellar Comet 2I/Borisov from the Arecibo Observatory**

- Seminar Series, Arecibo Observatory. Arecibo, Puerto Rico, 2020

**The Search and Study of Habitable Worlds**

- Planetary Sciences Seminar Series, UCF. Orlando, Florida, 2020

## CONFERENCE ABSTRACTS

*Oral session indicated by* *

[6] 2020. **Ortiz Ceballos, K.N.**, Howell, E.S., Méndez, A., Fernandez, Y.R., Lovell, A.J., et al., Observing Interstellar Comet 2I/Borisov for Radio OH Lines with the Arecibo Observatory. LPSC LI, Abstract #3078.

[5] 2020. **Ortiz Ceballos, K.N.***, Pérez, J., Rediscovering the First Astronomical Observatory of Puerto Rico. 235th Meeting of the American Astronomical Society, Abstract #139.05.

[4] 2020. **Ortiz Ceballos, K.N.**, Quinn, S., Hadden, S., Yahalomi, D., Montet, B., N-body simulations of a warm Jupiter near resonance with a sub-Neptune. 235th Meeting of the American Astronomical Society, Abstract #174.26.

[3] 2020. Yahalomi, D.A., et al. including **Ortiz Ceballos, K.N.**, Discovery of a Warm Jupiter near Resonance with an Exterior sub-Neptune. 235th Meeting of the American Astronomical Society, Abstract #174.23.

[2] 2019. **Ortiz Ceballos, K.N.**, Méndez, A., Zuluaga, J., Heller, R., Alexander, D., Pacini, A., Arecibo REDS: The Stellar Activity of Stars with Potentially Habitable Planets. The First Billion Years: Habitability, Abstract #1038.

[1] 2019. **Ortiz Ceballos, K.N.**, Méndez, A., Zuluaga, J., Heller, R., Alexander, D., Pacini, A., Arecibo REDS: The Stellar Activity of Stars with Potentially Habitable Planets. LPSC L, Abstract #3161.

## OTHER TALKS & PRESENTATIONS

- *"Observations of the First Interstellar Comet 2I/Borisov from the Arecibo Observatory"*

Contributed Talk. XVIII Physics & Chemistry Forum, UPR Arecibo, Puerto Rico, 2019

- *"Models of Data in Radio Astronomy"*

Contributed Talk. 5th World Day of Philosophy, UPRRP. San Juan, Puerto Rico, 2019

- *"What's In a Picture of a Shadow? Looking at a Black Hole"*

Contributed Talk. MMUF Southeastern Regional Conference. Houston, Texas, 2019

- *"What's In a Picture of a Shadow? Looking at a Black Hole"*

Special Session Talk. 12th Knowledge Cities World Summit. Florianópolis, Brasil, 2019

- *"Trojan Asteroids Near the Orbit of Jupiter"*

Invited Outreach Talk. Puerto Rico Astronomy Society. San Juan, Puerto Rico, 2019

- *"Arecibo Radio Emissions from Dwarf Stars with Potentially Habitable Planets"*

Research Oral Presentation. 53rd JTM / 38th PRISM Meeting, Mayagüez, Puerto Rico, 2019

- *"Arecibo REDS: Radio Emissions from Red Dwarf Stars with Planets"*

Contributed Talk. XVII Physics & Chemistry Forum, UPR Arecibo, Puerto Rico, 2018

- *"String Theory: Towards a New Paradigm Beyond Falsifiability?"*

Symposium Talk. 1st Philosophy Symposium, PCUPR, Ponce, Puerto Rico, 2018

| | | |
|---|---|---|
| UNIVERSITY SERVICE | Alt. Representative to the Board of Graduate Studies and Research | Sep 2019 to *present* |
| | Academic Senator for the Faculty of Natural Sciences, UPRRP | Sep 2018 to Sep 2019 |
| | Spokesperson for the Senate Student Caucus | Apr 2019 to Sep 2019 |
| | Representative, Natural Sciences Student Council, UPRRP | Sep 2018 to Sep 2019 |
| | President, Academic Issues and Orientation Committee | |
| | Member, Law and Regulation Committee | |
| | Representative, General Student Council, UPRRP | Sep 2018 to Sep 2019 |
| | Member, Gender & Equity Issues Committee | |
| | UPRRP Rep. to the National Student Confederation of Puerto Rico | Sep 2018 to Apr 2019 |

| | |
|---|---|
| PROFESSIONAL MEMBERSHIPS | American Astronomical Society \| Undergraduate Member |
| | Puerto Rico Astronomy Society \| Student Member |
| | Society of Physics Students \| National Member |
| | UPRRP Philosophy Students Association |

| | |
|---|---|
| BIOGRAPHICAL INFORMATION | **Citizenship:** United States of America |
| | **Languages:** Fluent in English and Spanish. Experienced as Spanish-English interpreter. |