

Curriculum Vitae

José Luis Ramírez Colón

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EDUCATION

- Expected June 2021* **University of Puerto Rico (UPR), Río Piedras Campus**, San Juan, Puerto Rico
Bachelor of Science in Cellular and Molecular Biology
Dean's List (2017 to *present*)
- 2017 **Escuela Secundaria Especializada en Ciencias, Matemáticas y Tecnología**, Caguas, Puerto Rico
High School Diploma (with High Honors)

RESEARCH EXPERIENCE

- August 2020-
Present **Undergraduate Student Researcher**
[*Planetary Habitability Laboratory*](#), UPR, Arecibo Campus
- Evaluated the evolution of Earth's global habitability during the Phanerozoic Eon using two indicators: the Relative Vegetation Density index and the Standard Primary Habitability multiparameter.
 - Supervisor: Abel Mendez
- Dec 2017-
Present **Undergraduate Student Researcher**
[*Water Reclamation & Multifunctional Materials Laboratory*](#), UPR, Río Piedras Campus
- Developed electrospun microfibers for the recovery of polyphenolic compounds in wetlands.
 - Supervisor: Dr. Eduardo Nicolau
- June 2019-
Aug 2019 **Research Associate in Astrobiology**
[*Astrobiology Analytical Laboratory*](#), NASA Goddard Space Flight Center
- Developed a method for the analysis and quantification of aliphatic amides in carbonaceous chondrites using Gas-Chromatography-Mass Spectrometry.
 - Supervisor: Dr. José Aponte
- Dec 2016-
Jan 2017 **Research Intern**
[*Physics and Electronics Laboratory*](#), UPR, Humacao Campus
- Fabricated *Crescentia kujete's* shell activated carbon to filter copper from water environments.
 - Designed a filter, using 3D printing, to evaluate the activated carbon efficiency.
 - Supervisor: Dr. Idalia Ramos

MISSION DEVELOPMENT EXPERIENCE

- August 2020-
Present **Team Leader**
[*University of Puerto Rico Team*](#), RockSat-X Program
- Participated in the design and construction of a payload that will collect microparticle samples at the Karman Line for post-flight analysis in Astrogenomics research.
 - Supervisor: Oscar Resto

AREAS OF INTEREST

Limits of Organic Life in Planetary Systems, with a particular focus on the development of *in-situ* life detection instruments in water worlds.

Adaptation of life to extreme environments, with a particular interest on molecular mechanisms of adaptation of extremophiles inhabiting on deep sea hydrothermal vents and sub-surface caves on Earth.

Applied Space Microbiology, with a particular focus on developing microbial-based life-support systems for future planetary missions.

MANUSCRIPTS & PUBLICATIONS

Environmental Nanotechnology: One manuscript currently in preparation to be submitted to ACS Journals.

- [1] 2020. **Ramírez-Colón, J.L.**, Santiago-Maldonado, X., Laboy-López, S., Mendez, P.O., Ríos-Delgado A.M., Hernandez, E.M., Nicolau, E., [Porous Electrospun Fiber Mats for the Recovery of Phenolic Compounds from the Cucharillas Marsh in Puerto Rico: A Sustainability Model](#). In preparation, submission expected December 2020.

Astrobiology: One manuscript currently in preparation to be submitted to Astrobiology.

- [1] 2020. Mendez, A., Torres-Santiago, N., Novoa-Pérez, K.M, **Ramírez-Colón, J.L.**, Cruz-Vega, E.J., Delgado-Vega, K.N., [The Evolution of the Global Terrestrial Habitability during the Phanerozoic](#). In preparation, submission expected December 2020.

CONFERENCE ABSTRACTS

Virtual poster presentation indicated by * and Oral presentation by †. Abstract accessible with link.

- [6] 2020. **Ramírez Colón, J.L.***, Aponte, J.C., Elsila, J.E., Dworkin, J.P., Silylation Protocol for the Analysis of Meteoritic Amides. American Geophysical Union Fall Meeting, Abstract #661596.
- [5] 2020. **Ramírez Colón, J.L.***, Santiago-Maldonado, X., Laboy-López, S., Mendez, P.O., Ríos-Delgado A.M., Hernandez, E.M., Nicolau, E., Porous Electrospun Fiber Mats for the Recovery of Polyphenolic Compounds in Water. SACNAS Conference, Abstract #65220.
- [4] 2020. **Ramírez Colón, J.L.***, Aponte, J.C., Elsila, J.E., Dworkin, J.P., [Towards and Effective Method for the Analysis of Meteoritic Amides](#). Europlanet Science Congress, Abstract #EPSC2020-150.
- [3] 2020. **Ramírez Colón, J.L.**†, Hines, T.A., Lasalde, J.A., Herrera, J., Nicolau, E., [Development of electrospun microfibers for the recovery of polyphenolic compounds: A sustainability model](#). Emerging Researchers National (ERN) Conference in STEM Annual Meeting, Abstract #50.
- [2] 2019. **Ramírez Colón, J.L.**†, Hines, T.A., Lasalde, J.A., Herrera, J., Nicolau, E., Development of Cellulose DiBlock Copolymer Electrospun Films for the Selective Adsorption of Emerging Organic Contaminants in Aqueous Solutions. 38th Puerto Rico Interdisciplinary Scientific Meeting 53rd ACS Junior Technical Meeting.
- [1] 2019. **Ramírez Colón, J.L.**, Hines, T.A., Lasalde, J.A., Herrera, J., Nicolau, E., Development of pH Responsive Cellulose Nanofibers for the Selective Adsorption of Emerging Organic Contaminants in Water. ACS Orlando Annual Meeting, Abstract #3110086.

TECHNICAL SKILLS AND EXPERIENCE

- **Chemistry and Material Sciences research laboratory experience:**
 - Experience with Fourier-Transmission Infrared Spectroscopy, Ultraviolet-Visible Spectroscopy, Scanning Electron Microscopy, Energy Dispersive X-ray Spectroscopy, and Gas-Chromatography Mass Spectrometry.
- **Cellular and Molecular Biology laboratory experience:**
 - Skilled with cellular biology techniques including Cell culture, RNA and DNA Extraction, Electrophoresis, Real-Time PCR, Methylation-specific PCR, Enzyme-linked immunosorbent assay.
 - Experience working with necessary equipment for such techniques including vortex, hemocytometer, and optical microscope.
 - Basic experience with VoTRAX and MinION technologies.
- **Microbiology laboratory experience:**
 - Skilled with microbiology techniques including: Pure bacterial culture (streak plate, pour plate), Bacterial Staining (simple smear, gram, negative, Schaeffer-Fulton-Dorner, and Ziehl-Neelsen), Api Staph and Api20E systems, Disk diffusion test (Kirby-Bauer method), Strep ID system, Colilert and membrane filtration, Molds and Yeasts Inoculation and Agglutination test.
- **Programming & Analysis:**
 - Experience using RStudio for statistical analysis including Shapiro-Wilk test, Chi-squared test, Linear regressions and Pearson correlation coefficient tests. Experience programming in C++ for Algorithms and Computer Programming course.
 - **RStudio:** Intermediate.
 - **C++:** Beginner
- **Other skills:** Open Water Diver License.

RESEARCH AWARDS & FELLOWSHIPS

- 2020 **CREST-Center for Innovation, Research, and Education in Environmental Nanotechnology (CIRE²N) Undergraduate Fellowship**
- Awarded to fund materials science work at the WARM² Laboratory.
 - Hosted at the University of Puerto Rico, Río Piedras Campus, 2018-2020.
- Second Place in Undergraduate Oral Presentations, Chemistry and Chemical Sciences Category**
AAAS Emerging Researchers National Conference in STEM. Washington D.C., United States, February 8-10, 2020.
- 2018 **Second Place in Poster Presentations**
5th ASBMB Annual Research Symposium. University of Puerto Rico, Río Piedras Campus, December 5th, 2018.
- 2017 **Second Prize for International Participants in the Environmental Science and Engineering Category**
32th China Adolescents Science and Technology Innovation Contest. Hangzhou, China, August 14-19, 2017.
- 4th Grand Award in the Environmental Engineering Category**
INTEL International Science and Engineering Fair. Los Angeles, California, United States, May 14-19, 2017.
- Albert Einstein Medal (Highest Score in Regional Science Fair)**
Puerto Rico Metropolitan Science Fair 2017. San Juan, Puerto Rico, March 5, 2017.
- First Place in the Environmental Engineering and Management Category**
Puerto Rico Metropolitan Science Fair 2017. San Juan, Puerto Rico, March 5, 2017.
- First Place of the EcoExploratorio: Museo de Ciencias de Puerto Rico Award**
Puerto Rico Metropolitan Science Fair 2017. San Juan, Puerto Rico, March 5, 2017.

First Place of the Interamerican Association Sanitary and Environmental Engineering Award

Puerto Rico Metropolitan Science Fair 2017. San Juan, Puerto Rico, March 5, 2017.

U.S. Air Force Certificate of Achievement for outstanding Science and Engineering Fair Project

Puerto Rico Metropolitan Science Fair 2017. San Juan, Puerto Rico, March 5, 2017.

Regional U.S. Stockholm Junior Water Prize Award

Puerto Rico Metropolitan Science Fair 2016 & 2017. San Juan, Puerto Rico, March 5, 2017 & February 20, 2016.

2016 **Community Impact Finalists; Top 5 in North America**

Google Science Fair 2016.

First Place in the Environmental Science Category

Puerto Rico Metropolitan Science Fair 2016. San Juan, Puerto Rico, February 20, 2016.

RICOH Sustainable Development Award

Puerto Rico Metropolitan Science Fair 2016. San Juan, Puerto Rico, February 20, 2016.

American Meteorological Association Award for ability and creativity in an atmospheric science exhibit

Puerto Rico Metropolitan Science Fair 2016. San Juan, Puerto Rico, February 20, 2016.

Third Place of the Interamerican Association Sanitary and Environmental Engineering Award

Puerto Rico Metropolitan Science Fair 2016. San Juan, Puerto Rico, February 20, 2016.

Office of Naval Research's Naval Science Award of the United States Navy and Marine Corps

Puerto Rico Metropolitan Science Fair 2016. San Juan, Puerto Rico, February 20, 2016.

OTHER AWARDS

- Dean's List, University of Puerto Rico Río Piedras Campus (2017 to *present*)
- Award for Excellence in Investigation in High School Graduation (2017)
- American Citizenship Award in High School Graduation (2017)
- Puerto Rico Professional College of Engineers and Land Surveyors Award (2017)
- Outstanding Participation and Service Award during the Puerto Rico Local Section National Chemistry Week Celebration (2016)

TRAVEL AWARDS

- Emerging Researchers National (ERN) Conference in STEM 2020 Travel Award

EDUCATION, OUTREACH & SERVICE

Aug 2018-
Present

American Society for Biochemistry and Molecular Biology Chapter

University of Puerto Rico, Río Piedras Campus

- Collaborated in organizing the virtual 7th Annual ASBMB Research Symposium.
- Conducted outreach activities for elementary intermediate and high school students related to biosciences careers.
- Organized a chapter's journal club and workshops for writing CV, resumes and personal statements.

Aug 2020-
Present

Cell Biology Tutor

University of Puerto Rico, Río Piedras Campus

- Aug 2019-
Mar 2020 **University's Astrobiology Circle**
University of Puerto Rico, Río Piedras Campus
- Participated in the First Puerto Rican Space Exploration Festival.
 - Participated in the International Astronomical Union 100 NameExoWorlds global campaign.
 - Worked on a Student Guide to Astrobiology posted on Reddit, r/astrobiology.
 - Conducted activities on micrometeorite collection and analysis.
- Jun 2018-
Present **CIRE²N Outreach Program**
University of Puerto Rico, Río Piedras Campus
- As a fellow of this program since 2018, I have been working along organizations Caras con Causa and the Río Piedras Urban, Community and Business Action Center, in outreach activities for elementary school students and the community based on nanotechnology and science.
- Jun 2016-
Apr 2019 **EcoExploratorio: Museo de Ciencias de Puerto Rico**
San Juan, Puerto Rico
- I have had the opportunity to volunteer in many of their activities since 2016, including Planeta Digital, an annual science fair that shares science to the community.
- 2015-2018 **San Juan Bay Estuary Program**
- I have volunteered doing beach cleanups, cigarette butt cleanups, promoting recycling initiatives, and participating through their virtual seminars and conferences.

LEADERSHIP & UNIVERSITY SERVICE

- Aug 2018-
May 2019 **Natural Sciences Faculty Student Council, Director of Media and Public Relations**
University of Puerto Rico, Río Piedras campus
- Social Media Manager (Instagram, Twitter and Facebook) and Webpage developer.
- Jan 2018-
May 2018 **Natural Sciences Faculty Student Council, Freshman Representative**
University of Puerto Rico, Río Piedras campus
- In charge of freshman counseling throughout the course selection process.

PROGRAM FINAL PRESENTATIONS

- **Method for the Analysis of Aliphatic Amides**, Undergraduate Research Associates in Astrobiology. Goddard Space Flight Center, Greenbelt, MD. Aug 9th, 2019.

PROFESSIONAL MEMBERSHIPS

- American Society for Biochemistry and Molecular Biology | Undergraduate Member
- The National Society of Collegiate Scholars | National Member

BIOGRAPHICAL INFORMATION

Citizenship: United States of America

Languages: Fluent in English and Spanish. Experienced as Spanish-English interpreter.