

Alejandra Rosselli-Calderon

PERSONAL INFORMATION

Email: alejandra_rosselli@brown.edu

Address: Department of Physics, 182 Hope Street, Providence, RI 02912

Phone number: +1 (774) 329-4829

EDUCATION

Doctor of Philosophy in Physics *Expected May 2025*

Brown University, *Providence, RI*

Sheridan Teaching Seminar - Reflective Teaching Certification

Bachelor of Arts in Physics *May 2020*

Clark University, *Worcester, MA*

Highest Honors in *Physics*

Minors in *Mathematics* and *Data Science*

Summa Cum Laude (GPA: 4.0)

College Preparatory Curriculum *June 2016*

Colegio Los Nogales, *Bogota, Colombia*

Fine Arts Concentration Program

AP Scholar with Distinction

Valedictorian

HONORS & AWARDS

Award of Excellence as a Graduate Teaching Assistant *Spring 2021*

Phi Beta Kappa National Honor Society *Spring 2020*

Dean's List - First Honors (Every semester) *Fall 2016 – Spring 2020*

Awarded to students that are registered in at least three classes, with no grade lower than a B- and with a GPA over 3.8 at each given semester.

Albert C. Erickson '30 Academic Award *Fall 2019*

Awarded annually to one senior at Clark University “who has done outstanding work in Physics and Mathematics, and who shows unusual promise in these fields.”

Gryphon and Pleiades Honor Society *Fall 2019 – Spring 2020*

Senior leadership and service honor society which includes 12 outstanding Clark University seniors who exemplify the motto “Scholarship, Leadership, and Citizenship.”

Bruce and Shari Weiller Summer Research Award *Summer 2019*

University Physics Competition: Bronze Medal *Fall 2018*

International contest for teams of students to spend 48 hours analyzing an applied scenario using principles of physics and writing a formal paper describing their work.

Albert C. Erickson '30 Summer Research Award *Summer 2018*

Clark University Global Scholars Program *Fall 2016 – Spring 2020*

International scholarship for applicants who “demonstrated potential to provide leadership in their community and the world and who are committed to making a difference.”

RESEARCH EXPERIENCE

Graduate Research Assistant, University of California, Santa Cruz, CA

Astrophysics, Dr. Ramirez-Ruiz's Lab

Spring 2021 – Fall 2021

NOTE: WRITE ABOUT RESEARCH

Undergraduate Research Assistant, Clark University, Worcester, MA

Biophysics, Dr. Petroff's Lab

Fall 2017 – Spring 2020

Built Arduino microprocessor systems for data collection and analysis; established protocols for collection and sampling of live bacteria samples; developed software for video processing and analysis using Matlab and Simulink Toolboxes; implemented PDMS synthesis techniques and plasma cleaning for microfluidics; conducted analysis of motion dynamics and collective arrangement of biological systems

TEACHING EXPERIENCE

Graduate Teaching Assistant, Brown University, Providence, RI

Physics Department

Fall 2020 – Present

Organized two weekly introductory physics lab sessions; taught five different labs focusing on Newtonian mechanics; led two weekly conference sections on electricity and magnetism; oversaw weekly office hours; graded over 100 lab reports and exams

Undergraduate Teaching Assistant, Clark University, Worcester, MA

Physics Department

Fall 2017 – Spring 2020

Coordinated and supervised daily night observations for astronomy; organized two weekly labs for introductory physics; cowrote and designed lab guides and protocols; evaluated student lab reports

Mathematics Department

Fall 2017 – Spring 2020

Led weekly office hours in Calculus, Honors Calculus and Linear Algebra; coordinated individual and group study sessions; assisted faculty in evaluating student homework and tests

Computer Science Department

Spring 2018 – Spring 2019

Conducted a minimum of 2 weekly lab sessions; led office hours in Intro to Computer Science (Python and Java) and Data Structures (Java)

EXTRA CURRICULARS

New Scientist Collective, Brown University

Fall 2020 – Present

Graduate Student Mentor

Provided peer mentoring, academic support, and professional development to students from groups traditionally underrepresented in STEM. Organized biweekly study sessions and discussions about race, gender, and cultural background in academia and industry.

Graduate Women in Physics, Brown University

Fall 2020 – Present

Executive Board Member, Secretary

Logistic organizer for the club; scheduled zoom meetings among club members; assisted in grant writing for department and APS grants; managed email lists and social media; led panels on navigating male-predominant field; served as graduate student representative

Women's Rowing Team, Clark University

Fall 2019 – Spring 2020

NEWMAC Athlete of the Week

May 2020

2020 NEWMAC Rowing Academic All-Conference Student Athlete

April 2020

Society of Physics Students, Clark University

Fall 2018 – Spring 2020

Executive Board Member, Co-President

Mentored first year students entering the field of physics; facilitated biweekly student department meetings; organized outreach program representation such as the Cambridge Science Fest, Latino STEM Alliance Science Fest, and the Girls Inc. Summer Eureka Program.

Women in STEM, Clark University

Spring 2017 – Spring 2020

Executive Board Member, Secretary

Increased awareness of gender underrepresentation in the sciences; coordinated on campus testimonial event; moderated faculty-student conversations about inclusivity in STEM; advocated for additional implicit biases training for faculty and graduate students.

Latin American Student Organization, Clark University Fall 2016 – Spring 2020
Executive Board Member, President

Organized monthly events with over 200 attendees; managed budget of over \$3000 and grant applications of over \$1000; assisted in the acclimatization of Latin American students; represented Latin American students in university diversity committees.

OUTREACH

CUWiP Planning Committee Spring 2021-Present

Member of the organizing committee; design panels and discussions following APS diversity and inclusion guidelines; schedule and lead workshops; coordinate faculty and alumni visits; organize grad school and career fair

ComSciCon en Español Participant Spring 2021

Participated in the first edition of the Spanish version of ComSciCon, a group of workshops for graduate students to advance communication skills and promote diversity initiatives in the sciences

SPLASH Program Spring 2018 & Fall 2019

Program lead by Clark University volunteers to supply freedom of classes outside the K-12 curriculum to local students. Served as co-instructor and class leader for two classes, one on black hole and imaging geared and one on stars and galaxies

Latino STEM Alliance Spring 2019

Participated in this alliance's annual Robotics Competition and Family Science Festival; designed and presented physics demos in English and Spanish

Cambridge Science Festival Spring 2019

Organized the volunteer-ran stand at the Cambridge Science Festival, setup physics demos and wrote informative cards to explain the phenomena behind them

Girls Inc. Summer Eureka Program Summer 2018 & 2019

Volunteer lab leader for Eureka! STEM program that engages and empowers 8th-12th grade girls as they develop confidence, leadership and academic opportunities in STEM fields. Planned and executed four lab sessions on the physics of waves, light and optics.

PERSONAL SKILLS

Languages Spanish (native), English (proficient), Portuguese (intermediate), French (basic)

Programming Skills Java, Matlab, Python, Jupyter, Pandas, Keras, Simulink, LATEX

Software FLASH, MESA, Microsoft Suite, Adobe Creative Cloud Suite

Technical Skills Grant Writing, Project and Budget Proposals

POSTER PRESENTATIONS

Rosselli-Calderon A, Petroff AP, Roque B. *Multicellular magnetotactic bacteria under an applied magnetic field form active crystals.* Presented at: APS March Meeting 2020. March 2–6, 2020; Denver, CO.

Rosselli-Calderon A, Mitchell C, Petroff AP, Roque B. *Compressing a swarm of multicellular magnetotactic bacteria with an applied magnetic field.* Presented at: APS March Meeting 2019. March 4–8, 2019; Boston, MA.

Rosselli-Calderon A, Mitchell C, Petroff AP, Roque B. *Compressing a swarm of multicellular magnetotactic bacteria against a wall with an external magnetic field*. Presented at: Conference for Undergraduate Women in Physics 2019: University of Massachusetts. January 18 - 20, 2019; Amherst, MA.

Rosselli-Calderon A, Mitchell C, Petroff AP, Roque B. *Distribution of multicellular magnetotactic bacteria against a flat wall*. Presented at: Clark University Fall Fest 2018. October 26, 2018; Worcester, MA.