

Dennis H. Calderon

PHYSICS · B.S.

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"Do what you say you are going to do."

Summary

Current student at Cal State East Bay expecting a B.S. in Physics in May 2019. Interested in pursuing a PhD in Astrophysics and Astronomy with an experimental or observational focus. Very interested in either Particle Astrophysics, High-Energy Astrophysics, Active Galactic Nuclei, Extragalactic Astronomy, and Computational Astrophysics.

Education

California State University East Bay

Hayward, CA

B.S. IN PHYSICS

Expected Spring 2019

- *Relevant Coursework* Analytical Mechanics, Quantum Mechanics, Particle Physics, Solid State, Computational Physics, Electronics, Experimental Physics, Selected Topics (Dark Matter), Selected Topics (Nonlinear Mechanics and Chaos, Collision Theory, Special Relativity), Modern Physics, Discrete Mathematics, Differential Equations, Linear Algebra

Experience

RESEARCH

Gamma-Ray Astronomy Research Group

CSUEB

RESEARCH ASSISTANT

2018 - present

- Worked with Dr. Amy Furniss analyzing gamma ray sources, primarily focusing on gamma-ray galactic sources as part of the **Very Energetic Radiation Imaging Telescope Array System (VERITAS)** collaboration.
- Joined Dr. Furniss on her observation run at VERITAS in Arizona for 3 nights.
- Wrote simple analysis pipelines in Python along with other scripts that aid in facilitating the process.

Cool Stars Research Group

UCSD

RESEARCH ASSISTANT

Summer 2018

- Worked with Dr. Christopher Theissen creating a catalog of low-mass stars, stars that are less than half the mass of our sun, in the southern hemisphere.
- Used Python and ADQL to query a list of known late-type stars, stars with surface temperatures cooler than our sun, from the Sloan Digital Sky Survey (SDSS), Wide-field Infrared Survey Explorer All-Sky Survey (WISE), The Two Micron All Sky Survey (2MASS), and cross matched that with data taken from the SkyMapper Southern Sky Survey.
- Processed the data from the list of known late-type stars to look for characteristics for classification and use them to find new low-mass stars in the SkyMapper data release.

Ultrafast Nanomaterials Lab

CSUEB

RESEARCH ASSISTANT

Fall 2017

- Worked with Dr. Ryan Smith to investigate light-matter interactions in nanoscale-structured samples grown by collaborators in South Korea.
- Created a program in LabView that interfaces with hardware of a dual axis galvo scanner system to perform a raster scan.

Honors & Awards

- 2018 **Cal-Bridge Scholar**, Cal-Bridge North Cohort 5
- 2018 **Sally Casanova Scholar**, CSU Pre-Doctoral Program Recipient
- 2018 **Physics Student of the Year Scholarship**, Unanimously nominated by the Physics Department
- 2018 **CSR Travel Grant**, Grant awarded for travel to APS April Meeting in Columbus, OH
- 2017-2018 **LSAMP Scholar**, Louis Stokes Alliances for Minority Participation
- 2017-2018 **CSR Scholar**, Center for Student Research at CSUEB
- 2018 **CAMPARE Program**, Program designed to increase minority representation in physics research
- 2018 **Nominated**, Associate Zone Councilor

CSUEB

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SPS Zone 18

Outreach & Other Efforts

SPS Chapter President

CSUEB

PRESIDENT OF THE SOCIETY OF PHYSICS STUDENTS CHAPTER AT CSUEB

Sep 2017 - present

- Revived the club and substantially increased membership while maintaining regular active members.
- Implemented an outreach program where club members visit middle and high school classrooms and give an interactive physics presentation to show students the joy of studying physics.
- Implemented a tutoring program in the SPS club room where students of the general physics series can receive help.
- Volunteered at the local *Science in the Park* event and showcased physics demonstrations to members of the community.
- Head of the committee organizing the SPS Zone 18 Meeting where SPS chapters throughout California can present their research, network with other chapters, and engage undergraduate workshops.

Student Member of Academic Access, Enhancement and Excellence (A2E2) Committee

CSUEB

PHYSICS DEPARTMENT STUDENT REPRESENTATIVE

December 2017

- Nominated by the Department of Physics Chair, Dr. Erik Helgren.
- Determined funding priority for departments in the College of Sciences at CSUEB along with rest of committee.

Center for Student Research (CSR)

CSUEB

CSR ADVISORY COMMITTEE STUDENT MEMBER

December 2017

- Represented student perspective in discussion of the direction and improvements of the CSR program.

Skills

Programming Python, LabView, Mathematica, MATLAB, ADQL, SQL, LaTeX

Conferences & Workshops

Jan. 2019 **AAS 233rd Meeting**, *Searching for New Ultracool Dwarfs in Southern Skies*

Seattle, WA

Sep. 2018 **Cal-Bridge, CAMPARE, CHAMP Research Symposium**, *Finding New Cool Stars in the Southern Skies*

Pomona, CA

Aug. 2018 **UCSD Student Summer Research Conference**, *Finding New Cool Stars in the Southern Skies*

San Diego, CA

April 2018 **APS April Meeting**, Attended

Columbus, OH

April 2018 **California Diversity Forum**, Attended

Stockton, CA

Nov. 2017 **APS Far West**, Attended

Merced, CA