

ARCELIA HERMOSILLO RUIZ

PERSONAL DATA

ADDRESS: 2424 Haste St Apt C30 Berkeley, CA 94704
EMAIL: ahermosillo@berkeley.edu

EDUCATION

2014 - 2018 **The University of California, Berkeley**
DEC. 2018 Bachelor of Arts Physics; Bachelor of Arts Astrophysics
GPA: 3.52

RESEARCH EXPERIENCE

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| <i>June 2016 -</i> | <p>Undergraduate Researcher
UC BERKELEY ASTROPHYSICS
<i>Thermalization Effects In Late-Time Type Ia Supernova Light Curves</i>
Advisors: Prof. Daniel Kasen, Dr. Jennifer Barnes
We explored the discrepancy of "twin" Supernovae (SNe) lightcurves several hundred days after explosion. I studied this discrepancy by simulating how radioactive decay produces heat in the ejecta. I paid particular attention to how magnetic fields impact heating and explored how radioactive isotopes other than Nickel-56.
<i>SACNAS Poster Presentation Award Winner</i></p> |
| <i>Summer 2018</i> | <p>Department of Energy-Istituto Nazionale di Fisica Nucleare Summer Exchange Program
INFN - PADOVA; PADOVA, ITALY
<i>b-Jet and c-Jet Identification at LHCb Using Deep Learning Techniques</i>
Advisors: Prof. Donatella Lucchesi, Dr. Lorenzo Sestini, Dr. Alessio Gianelle
I improved a deep learning algorithm identifying subatomic particles from the Large Hadron Collider beauty (LHCb) experiment at CERN. I accomplished this by analyzing newly simulated data with recent LHCb conditions and assessing which observables and configurations would improve the performance of the algorithm.</p> |
| <i>Summer 2017</i> | <p>Banneker & Aztlán Summer Institute
HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS
<i>Identifying M Dwarfs and their Stellar Companions</i>
Advisor: Dr. Jennifer Winters
I studied the environment of low mass M dwarf stars to assess the number of close-orbit stellar companions. I developed an efficient method to analyze 800 images of stars and used this to characterize binary systems based on distance and color. Using this dynamic method, I discovered 10 new binary candidates, providing important constraints for M dwarf exoplanet research.
<i>SACNAS Poster Presentation Award Winner & NSF CAMP Symposium Honorable Mention Winner</i></p> |

AWARDS AND HONORS

2017-now	Bergeron Women in STEM Leadership Scholarship
2017-now	NSF CAMP Scholar
2014-now	S-STEM Scholar
2018	Honorable Mention, NSF CAMP Symposium
2016,2017	Undergraduate Poster Presentation Award, SACNAS Conference
2014-2016	Hispanic Scholarship Fund Recipient

POSTER, PRESENTATIONS, PUBLICATIONS

Thermalization Effects In Late-Time Type Ia Supernova Light Curves, **Poster**

Presented at SACNAS 2016 Conference and Director's Review of the Nuclear Science Division at Lawrence Berkeley National Lab. **Poster Presentation Award winner**

Thermalization Effects In Late-Time Type Ia Supernova Light Curves, **Paper**

Hermosillo Ruiz, Arcelia; Barnes, Jennifer; Kasen, Daniel. (*in Prep*)

Identifying M Dwarfs and their Stellar Companions, **Poster and Talk**

Presented at SACNAS 2017 Conference and NSF CAMP 2018 Symposium. **Poster Presentation Award winner and Honorable Mention.** Gave a 10 minute talk at Harvard Center for Astrophysics, linked [here](#).

b-Jet and c-Jet Identification at LHCb Using Deep Learning Techniques, **Poster**

Presented at SACNAS 2018 Conference.

WORK EXPERIENCE

May 2016 -	Planetarium Presenter at LAWRENCE HALL OF SCIENCE, Berkeley I engage university guests and students in constellation, eclipse, universe, and NASA space mission shows. I teach the public how to navigate a star map, how astronomers find exoplanets, and more
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SUMMER 2015	Instructor at DAVINCI CAMP SUMMER INSTITUTE, Berkeley I developed and taught physics and math curricula to 22 Latino middle school and high school students. I worked with students for 10 hours a day and refined their problem solving and arithmetic skills and understanding of poetry, World War I technology, and literature
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CAMPUS LEADERSHIP

2014 -	HISPANIC ENGINEERS AND SCIENTISTS, UC Berkeley Positions held: Secretary (2 years) and President (1 year) Played an active role in increasing our membership by 7 times. I mentor and support physics and astrophysics students by providing information on courses, resources, and study skills. I led meetings with corporate representatives and faculty to discuss how they can help first generation Latinx students succeed in Berkeley. I oversaw and participated in k-12 outreach events.
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2015 - 2017	RAICES CENTER, UC Berkeley Position Held: Co-Lead for Spring Break Higher Education Outreach We contacted staff members from 20 high schools to participate in our outreach efforts by allowing us to visit their classrooms and present. I visited 10 high schools in 4 days and engaged 1200 students in conversations about demystifying higher education and preparing applications for universities.
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COMPUTER SKILLS

Programming Language:	C++ & PYTHON
Software & Tools:	MATLAB, Mathematica, LabView, GitHub, ROOT, L ^A T _E X

INTERESTS AND ACTIVITIES

Supernovae, Stars, Galaxies; simulations, data analysis, machine learning

Dancing, Soccer, Traveling, Photography