

ARCELIA HERMOSILLO RUIZ

PERSONAL DATA

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EDUCATION

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

RESEARCH EXPERIENCE

June 2016 - Undergraduate Researcher
UC BERKELEY ASTROPHYSICS
Thermalization Effects In Late-Time Type Ia Supernova Light Curves
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.
SACNAS Poster Presentation Award Winner

Summer 2018 Department of Energy-Istituto Nazionale di Fisica Nucleare Summer Exchange Program
INFN - PADOVA; PADOVA, ITALY
b-Jet and c-Jet Identification at LHCb Using Deep Learning Techniques
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.

Summer 2017 Banneker & Aztlán Summer Institute
HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS
Identifying M Dwarfs and their Stellar Companions
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.
SACNAS Poster Presentation Award Winner & NSF CAMP Symposium Honorable Mention Winner

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

Publications	A. H. R., J. Barnes, D. Kasen. 2018. <i>Thermalization Effects In Late-Time Type Ia Supernova Light Curves</i> , in prep. to be submitted to ApJ
Posters	<p>A. H. R., J. Barnes, D. Kasen. <i>Thermalization Effects In Late-Time Type Ia Supernova Light Curves</i>. Presented at 2016 SACNAS Conference and again at Director's Review of the Nuclear Science Division at Lawrence Berkeley National Lab in October 2016</p> <p>A.H.R., J. Winters, et. al. <i>Identifying M Dwarfs and their Stellar Companions</i>. Presented at 2017 SACNAS Conference and again at 2018 NSF CAMP Symposium</p> <p>A.H.R., D. Lucchesi, et. al. <i>b-Jet and c-Jet Identification at LHCb Using Deep Learning Techniques</i>. Presented at SACNAS 2018 Conference.</p>
Talks	A.H.R., J. Winters, et. al. <i>Identifying M Dwarfs and their Stellar Companions</i> . Gave a 10 minute talk at the Harvard-Smithsonian Center for Astrophysics for the end of summer review

WORK EXPERIENCE

May 2016 -	<p>Planetarium Presenter at LAWRENCE HALL OF SCIENCE, Berkeley</p> <p>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</p>
SUMMER 2015	<p>Instructor at DAVINCI CAMP SUMMER INSTITUTE, Berkeley</p> <p>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</p>

CAMPUS LEADERSHIP

2014 -	<p>HISPANIC ENGINEERS AND SCIENTISTS, UC Berkeley</p> <p>Positions held: Secretary (2 years) and President (1 year)</p> <p>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.</p>
2015 - 2017	<p>RAICES CENTER, UC Berkeley</p> <p>Position Held: Co-Lead for Spring Break Higher Education Outreach</p> <p>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.</p>

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