

# Caitlin A. Johnson

Santa Cruz Institute for Particle Physics  
University of California, Santa Cruz

Email: caajohns@ucsc.edu  
Phone: (612) 245 0317

## Education

2012–2018, Expected    Ph.D., Physics, University of California, Santa Cruz  
Thesis Advisor: Professor David A. Williams

2012–2014                M.Sc., Physics, University of California, Santa Cruz

2007–2012                B.Sc., Astrophysics, University of Minnesota, Twin Cities

2007–2011                B.Sc., Physics, University of Minnesota, Twin Cities

## Professional Experience

2012–present            Graduate Student Researcher, UCSC

Sept. - Dec. 2016        Visiting Student, Whipple Observatory

2011-2012                Undergraduate Researcher, UMN

## Selected Honors and Awards

2017    President’s Dissertation–Year Fellowship, UCSC

2016    UCSC Physics Department Travel Grant

2015    American Astronomical Society International Travel Grant

2014    Outstanding Student Presentation at the International School of Cosmic Ray Astrophysics

2014    American Astronomical Society International Travel Grant

## Corresponding Author Publications

- “Long Term Gamma-Ray Observations of 3C 66A”, *in preparation to be submitted to ApJ*
- Abeysekara, A. U., et al, 2016, MNRAS, **459**, 3.  
“Upper Limits from Five Years of Blazar Observations with the VERITAS Cherenkov Telescopes”
- Aliu, E., et al, 2015, ApJ, **800**, 61.  
“Gamma-Rays from the Quasar PKS 1441+25: Story of an Escape”

## Academic Presentations

October 2017    **Invited Seminar** at California State University, East Bay  
“Insights from Astronomical Spectroscopy”

April 2016        **Poster** at the 2016 UCSC Graduate Research Symposium  
“Searching for Signatures of New Physics ”

January 2016    **Talk** at the 227th Meeting of the American Astronomical Society  
“PKS 1441+25: Insights from a New Gamma-ray Quasar”

- November, 2015 **Talk** at the 6th International Fermi Symposium  
 “PKS 1441+25: Insights from a New Gamma-ray Quasar”
- October 2015 **Talk** in the UCSC Tea Talk Series  
 “Gamma rays from PKS 1441+25: Story of an Escape”
- April 2015 **Poster** at “Relativistic Jets: Creation, Dynamics, and Internal Physics”  
 “Long Term Observations of 3C66A”
- March 2015 **Invited Talk** at the SLAC Gamma-ray Blazar Workshop  
 “Optical Spectroscopy of VHE and VHE Candidate Blazars”
- December 2014 **Poster** at the Institute for Nuclear and Particle Astrophysics & Cosmology Meeting  
 “Long Term Observations of 3C66A”
- July 2014 **Talk** at the International School of Cosmic Ray Astrophysics  
 “The Very High Energy Emission from Blazar 3C66A”
- August 2013 **Talk** at the Meeting of the APS Division of Particles and Fields  
 “A Silicon Photomultiplier Camera for Use in the Cherenkov Telescope Array”
- April 2013 **Poster** at the Institute for Nuclear and Particle Astrophysics & Cosmology Meeting  
 “SiPM Characterization for the Cherenkov Telescope Array”

### **Workshops Attended**

- February 2017 UCSC Climate Science & Policy Conference 2017
- December 2016 Thirty Meter Telescope Workshop for Future Leaders
- July 2014 International School of Cosmic Ray Astrophysics  
*Awarded Outstanding Student Presentation*
- October 2013 Mary Lea & C. Donald Shane Observational Astronomy Workshop
- May 2012 NASA *Fermi* Summer School

### **Professional Service**

- Aug. 2015 - July 2016 Elected member of the VERITAS Time Allocation Committee
- Sept. 2012 - Present Full VERITAS Collaboration Member

### **Primary Instructor**

- Fall 2017 PHYS 2701, Intro. Physics: Force, Mass and Motion CSU, East Bay
- Summer 2017 PHYS 2703, Intro. Physics: Light and Modern Physics CSU, East Bay

### **Teaching & Mentoring**

- Summer, 2017 Mentored undergraduate, Nicolas Vazquez, in an REU UCSC

*Publication in prep.*

Summer, 2017	Science Internship Program Mentor	UCSC
Spring, 2017	Physics 134, Advanced Physics Lab	UCSC
Jan. - June, 2017	Project Mentor for Ay 9, “Introduction to Research,”	UCSC
Jan. - Sept. 2017	ISEE Professional Development Program Participant	UCSC

*Design Team Leader*

Winter, 2017	Physics 6A, Introduction to Classical Mechanics	UCSC
December, 2016	Instructor at TMT Workshop for Future Leaders	Hilo, HI
June, 2016	Akamai Workforce Initiative Prep Course Instructor	Hilo, HI
March - June, 2016	ISEE Professional Development Program Participant	UCSC
Spring 2013	Physics 6A, Introduction to Classical Mechanics	UCSC
2011, 2012	Ast 1001, Exploring the Universe	UMN

## **Outreach & Science Communication Experience**

Fall 2016	VERITAS & Whipple Observatory Tour Guide
April 2015 - June 2016	UCSC Tea Talks, Co-Organizer & Co-Founder
Jan. - Nov 2015	Scientific Slug, writer & blog manager
January 2015	APS Conference for Undergraduate Women in Physics, Local Organizer
Aug. 2014 - Present	UCSC Women in Physics & Astronomy, Member & Outreach Co-chair
Sept. 2012 - Jan. 2014	UCSC Women in Science & Engineering, Graduate Student Member

## **Contributing Author Publications**

- “Photosensor Characterization for the Cherenkov Telescope Array: Silicon Photomultiplier versus Multi-Anode Photomultiplier Tube” Bouvier, A., et al, 2013, SPIE Optics+Photonics Proceedings, **8852**, id. 88520K.
- “Three-Year Multi-Wavelength Study Of The Very-High-Energy Gamma-ray Blazar 1ES 0229+200” Aliu, E., et al, 2014, ApJ, **782**, 13.
- “Deep Broadband Observations of the Distant Gamma-ray Blazar PKS 1424+240” Archambault, S., et al, 2014, ApJL, **785**, L16.
- “VERITAS Observations of the BL Lac Object PG 1553+113” Aliu, E., et al, 2015, ApJ, **799**, 7.
- “Constraints on Very High Emission from GRB 130427A” Aliu, E., et al, 2015, ApJ, **795L**, 3A.
- “Very High Energy Observations of the Galactic Center Region by VERITAS in 2010-2012” Archer, A., et al, 2015, ApJ, **790**, 149.
- “A Search for Pulsations From Geminga Above 100 GeV with VERITAS” Abeysekera, A. U., et al, 2015, ApJ, **815**, L22.

- “VERITAS and Multiwavelength Observations of the BL Lacertae Object 1ES 1741+196” Archambault, S., et al, 2016, AJ, **151**, 6.
- “Exceptionally Bright TeV Flares from the Binary LS I +61° 303” Archambault, S., et al, 2016, ApJL, **817**, L7.
- “A Search for Brief Optical Flashes Associated with the SETI Target KIC 8462852” Abeysekera, A. U., et al, 2016, ApJL, **818**, L2.
- “Multiwavelength Study of Quiescent States of Mrk 421 with Unprecedented Hard X-Ray Coverage Provided by NuSTAR in 2013” Balokovic, M., et al, 2016, ApJ, **819**, 156.
- “Very-high-energy Observations of the Binaries V 404 Cyg and 4U 0115+634 During Giant X-ray Outbursts” Archer, A., et al, 2016, ApJ, **831**, 1.
- “TeV Gamma-ray Observations of The Galactic Center Ridge By VERITAS” Archer, A., et al, 2016, ApJ, **821**, 129.
- “Discovery of Very High Energy Gamma Rays from 1ES 1440+122” Archambault, S., et al, 2016, MNRAS, **461**, 202.
- “A Search for Very High-Energy Gamma Rays from the Missing Link Binary Pulsar J1023+0038 with VERITAS” Aliu, E., et al, 2016, ApJ, **831**, 193.
- “Very High-Energy Gamma-Ray Follow-Up Program Using Neutrino Triggers from IceCube.” Aartsen, M., et al, 2016, JINST, **11**, 11009.
- “Spectral Hysteresis and Energy-Dependent Time Lags from the X-ray TeV Gamma-Ray Observations of Mrk 421.” Abeysekera, A. U., et al, 2016, ApJ, **834**, 2.
- “Search for Magnetically Broadened Cascade Emission from Blazars with VERITAS” Archambault, S., et al, 2017, ApJ, **835**, 288.
- “Gamma-Ray Observations of Tycho’s Supernova Remnant with VERITAS and Fermi” Archambault, S., et al, 2017, ApJ, **836**, 23.
- “A Luminous and Isolated Gamma-Ray Flare from the Blazar B2 1215+30” Abeysekera, A. U., et al, 2017, ApJ, **836**, 205.
- “Gamma-ray Observations Under Bright Moonlight with VERITAS” Archambault, S., et al, 2017, Astroparticle Physics, **91**, 34.
- “Space Telescope and Optical Reverberation Mapping Project. V. Optical Spectroscopic Campaign and Emission-line Analysis for NGC 5548” Pei, L., et al, 2017, ApJ, **837**, 131.
- “Dark Matter Constraints from a Joint Analysis of Dwarf Spheroidal Galaxy Observations with VERITAS” Archambault, S., et al, 2017, PRD, **95**, 082001.
- “Multiwavelength follow-up of a rare IceCube neutrino multiplet” Aartsen, M. G., et al, 2017, Accepted for publication in A&A.
- “Discovery of very-high-energy emission from RGB J2243+203 and derivation of its redshift upper limit” Abeysekera, A. U., 2017, Accepted for publication in ApJ.
- “Multiwavelength observations of the blazar BL Lacertae: a new fast TeV gamma-ray flare” Abeysekera, A. U., 2017, Submitted for publication in ApJ.

- “HESS J1943+213: An Extreme Blazar Shining Through the Galactic Plane” Archer, A., 2017, Submitted for publication in ApJ.

## Observing Experience

- >40 nights      VERITAS (Fred Lawrence Whipple Observatory)  
                          *Observing shift leader (“czar”) for >20 of the nights*
- >30 nights      3-m Shane Telescope, Kast Spectrograph (Lick Observatory)
- 1 night            Keck II, Echellette Spectrograph and Imager (W. M. Keck Observatory)

## Observing Proposals

- 2016A - 2017A    PI: “Optical Spectroscopy of VHE Blazars”  
                          Lick Observatory, Kast Spectrograph on the 3-m Shane Telescope
- 2014A - 2015B    PI “Determining Redshifts of Gamma-ray Blazars for Studies of the EBL”  
                          Lick Observatory, Kast Spectrograph on the 3-m Shane Telescope
- 2014B             Co-I, “Hunting Higher z Blazars for Studies of the Extragalactic Background Light”  
                          W. M. Keck Observatory, ESI
- 2013 - 2017      Co-I of multiple proposals for VHE observations of blazars  
                          VERITAS