

# VICTOR CALDERON

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## EDUCATION

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### Vanderbilt University

Ph.D. Candidate in Physics with focus in Astronomy  
Adviser: [Andreas Berlind](#)

*June 2013 - Present*

*GPA 3.74 / 4.00*

### Florida Institute of Technology

B.Sc. in Astronomy & Astrophysics  
B.Sc. in Physics  
B.Sc. in Mathematical Sciences

*August 2009 - May 2013*

*Magna Cum Laude, GPA 3.75 / 4.00*

## RESEARCH EXPERIENCE

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### Vanderbilt University

*Graduate Student Researcher under [Andreas Berlind](#)*

*June 2013 - Present*

*Nashville, TN*

- Construct algorithms that analyze astronomical data in order to better constrain the current models for the *galaxy-halo* connection
- Create synthetic catalogues that simulate the observed Universe in order to statistically constrain current models on galaxy formation and evolution.

### Florida Institute of Technology

*Undergraduate Researcher under [Prof. Hakeem Oluseyi](#)*

*August 2012 - August 2013*

*Melbourne, FL*

- Development of astronomical templates relating observations of RR-Lyrae stars to physical parameters such as iron abundance, luminosity, and chemical composition of these stars.
- Use of Discrete Fourier Transforms (DFTs) and Principal Component Analysis (PCA) methods to get a better understanding of the physical properties of RR-Lyrae stars.

### Massachusetts Institute of Technology

*MSRP Summer Research Intern under [Prof. Paulo Lozano](#)*

*June 2012 - August 2012*

*Cambridge, MA*

- Design and fabrication of an electrospray system capable of producing sub-micron glass droplets, ultimately enabling the manufacturing of high-power nano-structured emitters on planar surfaces.
- Development of mathematical models and algorithms to depict the physical characteristics of borosilicate glass, such as viscosity, volumetric flux, and thermal expansion, among other.

### Florida Institute of Technology

*Undergraduate Researcher under [Prof. Matt Wood](#)*

*January 2012 - May 2012*

*Melbourne, FL*

- Study of cataclysmic variable stars in binary systems by detection of dwarf-nova outbursts and super-outbursts from these systems.
- Use of Discrete Fourier Transform (DFT) methods in the analysis of short-cadence light curves.

### Florida Institute of Technology

*Undergraduate Researcher under [Prof. Daniel Batcheldor](#)*

*August 2011 - May 2013*

*Melbourne, FL*

- Reverberation mapping of dusty tori in active galactic nuclei (AGN) with the purpose of furthering the current theoretical models of black holes by conducting global monitoring of Type 1 AGNs objects.
- Photometric observations of AGNs using observatories in Tucson, Arizona and Cerro Tololo, Chile.

- Measurements of the “light echo” as dusty tori respond to variations in the optical/ultraviolet continuum.

## PUBLICATIONS: REFEREED, 1ST AND N-TH AUTHOR

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1. “[Small- and large-scale galactic conformity in SDSS DR7](#)”  
**Calderon, Victor F.**; Berlind, Andreas A.; Sinha, Manodeep, [2018 MNRAS 480, 20312045](#)
2. “[The RESOLVE Survey Atomic Gas Census and Environmental Influences on Galaxy Gas Reservoirs](#)”  
Stark, D. V., Kannappan, S. J., Eckert, K. D., et al. 2016, ApJ, 832, 126

## PUBLICATIONS: IN PROGRESS

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- “Prediction of Cluster and Group masses in SDSS DR7 via a machine learning approach”  
**Calderon, V. F.**, Berlind, A. (*in prep.*)
- “Probing the Stellar Content of Galaxy Groups with Value-Added Group Catalogues in the SDSS”  
**Calderon, V. F.**, Berlind, A., Sinha, M., McBride, C., Scoccimaro, R. (*in prep.*)

## TECHNICAL STRENGTHS & SKILLS

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<b>Computer Languages</b>	Python, L <sup>A</sup> T <sub>E</sub> X, C, Bash, Matlab, IRAF, SolidWorkds, R Statistical computing, Microsoft Office
<b>Operating Systems</b>	Unix/Linux, Windows, Mac OS
<b>Languages</b>	Fluent in: Spanish (native), English, German (Sprachdiplom C1 certified)

## PRESENTATIONS & WORKSHOPS

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<a href="#">Big Data Analysis in Astronomy</a> - <i>La Laguna, Tenerife, Spain</i>	2018
<a href="#">.Astronomy X</a> - <i>Baltimore, MD</i>	2018
<a href="#">Sugar Rush 2008</a> Talk - <i>Shanghai, China</i>	2018
Vanderbilt Data Science Symposium - Talk and Poster - <i>Nashville, TN</i>	2018
Quantifying and Understanding the GalaxyHalo Connection Talk & Poster - <i>Santa Barbara, CA</i>	2017
SnowPAC 2016 Galaxy-Halo Connection Talk - <i>Salt Lake City, UT</i>	2016
AAS 227 <sup>th</sup> Winter Meeting - <i>Kissimmee, FL</i>	2016
Inclusive Astronomy 2015 - <i>Nashville, TN</i>	2015
AAS 225 <sup>th</sup> Winter Meeting - <i>Seattle, WA</i>	2015
School on Dark Energy and Galaxy Redshift Surveys - <i>Corfu, Greece</i>	2014
Summer School in Statistics for Astronomers X at Penn. State University - <i>State College, PA</i>	2014
SciCoder Workshop 2013 at New York University - <i>New York City, NY</i>	2013
National Collegiate Research Conference at Harvard University - <i>Cambridge, MA</i>	2013
NSF 2012 AGMUS Research Symposium - <i>San Juan, PR</i>	2012
27 <sup>th</sup> MIT Annual Summer Research Programs Poster Presentation - <i>Cambridge, MA</i>	2012

## AWARDS

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2nd Best Poster Award with \$500 prize - Big Data Symposium - Vanderbilt University	2018
Summer Travel Research Award - Summer 2017 - Vanderbilt University	2017
Summer 2014 Research Award - Summer 2014 - Vanderbilt University	2014
Summer 2013 Research Award - Summer 2013 - Vanderbilt University	2013
Best Poster Presentation Award - NSF 2012 AGMUS Research Symposium	2012
Outstanding Senior in Astrophysics & Astronomy Award - Florida Inst. of Tech.	2012
Distinguished Student Scholar Award - Florida Inst. of Tech.	2011

Elected to Phi Kappa Phi (Florida Inst. of Tech.)	2011
Elected to Phi Eta Sigma (Florida Inst. of Tech.)	2010
Dean's List (Florida Inst. of Tech.)	2009 - 2013

## HONOR SOCIETIES & ORGANIZATIONS

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National Honor Society Phi Kappa Phi	(ΦΚΦ)
National Honor Society Phi Eta Sigma	(ΦΗΣ)
Physics Honor Society - Sigma Pi Sigma	(ΣΠΣ)
Society of Physics Students (SPS)	

## ACADEMIC SERVICE

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<a href="#">SciCoder</a> 2017 - Local Organizing Committee member - Vanderbilt University	2017
Co-leader of the <a href="#">Vanderbilt Computational Workshop</a>	2017
MIT Summer Research Program Review Committee	2016, 2017, 2018
Web Admin for the Vanderbilt <a href="#">Astronomy Group website</a>	2015 - present
Host for Vanderbilt <i>Astronomy Journal Club</i>	2015 - present