

Crisel Suarez

Curriculum Vita
criselsuarez@gmail.com

Education

Vanderbilt University, Nashville, TN.
Doctor of Philosophy in Physics

Expected Spring 2025

Fisk University, Nashville, TN.
Master of Arts in Physics

December 2019

St. Edward's University, Austin, TX
Bachelor of Science, Mathematics,
Minors: Physics, Global Studies

May 2017

Research Positions

- **Smithsonian Astrophysical Observatory (SAO) Hinode/X-Ray Telescope Chief Observer**
Center for Astrophysics | Harvard & Smithsonian September 2021- Present
- **Smithsonian Astrophysical Observatory (SAO) Predoctoral Fellow**
Center for Astrophysics | Harvard & Smithsonian July 2020- Present
- **Fisk-Vanderbilt Masters to PhD Bridge Research Assistant**
Fisk University and Vanderbilt University August 2017-Present
- **Fisk-Vanderbilt-Smithsonian Astrophysical Observatory (SAO) Bridge Program Fellow**
Center for Astrophysics | Harvard & Smithsonian May-August 2018 & May-August 2019
- **St. Edward's University McNair Scholar**
St. Edward's University November 2015-May 2017
- **Mathematics Research Assistant**
St. Edward's University August 2015-May 2017
- **Computer Science Research Assistant**
Texas Tech University June 2016-August 2016
- **Physics Research Assistant**
St. Edward's University August 2016-December 2016
- **Computer Science Research Assistant**
St. Edward's University May 2014-June 2014

Teaching Positions

- **Mathematics Tutor**
Cambridge Math Circle, Cambridge, MA September 2023- Present
- **Mathematics Tutor**
Harris Elementary School, Austin, TX March 2022- June 2022
- **Computer Programming Fisk-Vanderbilt Bridge Program Bootcamp Instructor**
Fisk University/Vanderbilt University, Nashville, TN August 2021
- **Teaching Assistant, Physics Lab I**
Vanderbilt University, Nashville, TN August 2017-May 2019
- **Mathematics Tutor**
St. Edward's University, Austin, TX August 2015-May 2017
- **Calculus I Teaching Assistant**
St. Edward's University, Austin, TX August 2016-December 2016
- **Calculus I Supplemental Instructor**
St. Edward's University, Austin, TX August 2016-December 2016

Certificates/Training

- **International Coaching Federation (ICF), FUNDinnova** January 2023
Coaching and Mentoring Certificate
Mexico City, Mexico
- **Austria Research Promotion Agency (FFG)** July 2022
Alpbach Summer School Comparative Plasma Physics in the Universe
Alpbach, Austria
- **European Space Agency (ESA) Academy** November 2022
Post-Alpbach Summer School Concurrent Engineering
Libin, Belgium, ESEC-Galaxia
- **Software Carpentry** January 2022
Certified Instructor
<https://carpentries.org/>
- **Vanderbilt University- Center for Teaching and the Graduate School** April 2021
Certificate in College Teaching
Nashville, TN
- **University of Texas at Austin** December 2017
Hands-on Nanotechnologies Certificate
Austin, TX

Honors/Awards

- **Education and Public Outreach Solar Eclipse Grant** March 2024
American Astronomical Society/Solar Physics Division (AAS/SPD)
- **Metclaf Student Travel Award** June 2023
American Astronomical Society/Solar Physics Division (AAS/SPD)
Waves and Instabilities in the Solar Atmosphere (WISA) Workshop
- **American Geophysical Union Student Travel Award** May 2023
American Geophysical Union Chapman Conference-Advances
in Understanding Alfvén Waves in the Sun and the Heliosphere
- **Post-Alpbach Summer School Student Travel Award** November 2022
European Space Agency (ESA) Academy
- **Alpbach Summer School Student Travel Award** July 2022
Luxembourg National Research Fund (FNR)
- **SHINE Student Travel Award** June 2022
Solar Heliospheric and INterplanetary Environment (SHINE) Workshop
- **McMinn Research Award** Spring 2020
Vanderbilt University
- **St. Edward's University Outstanding Student in Mathematics Leadership** 2016-2017
St. Edward's University
- **St. Edward's University Honors Scholar** 2013-2017
St. Edward's University
- **St. Edward's University Dean's Achievement Scholarship** 2013-2017
St. Edward's University
- **St. Edward's University Dr. M. Jean McKemie Endowed Scholarship** 2013-2017
St. Edward's University
- **St. Edward's University Outstanding First-Year Mathematics Student** 2013-2014
St. Edward's University
- **Optimist Club Scholarship** 2013
Austin TX

Publications

- “Estimations of Elemental Abundances during Solar Flares Observed in Soft X-Rays by the MinXSS-1 CubeSat Mission,” **Crisel Suarez**; Christopher S. Moore, *The Astrophysical Journal*, 2023-11-01, [DOI: 10.3847/1538-4357/acf0c2](https://doi.org/10.3847/1538-4357/acf0c2)
- “Quasi-periodic pulsations in solar flares: a key diagnostic of energy release on the Sun,” Andrew Inglis et al., Vol. 55, Issue 3 (*Heliophysics 2024 Decadal Whitepapers*), 2023-07-31, [DOI: 10.3847/25c2cfcb.55d6b861](https://doi.org/10.3847/25c2cfcb.55d6b861)
- “Zoobot: Adaptable Deep Learning Models for Galaxy Morphology,” Mike Walmsley et al., *Journal of Open Source Software*, 2023-05-08, [DOI: 10.21105/joss.05312](https://doi.org/10.21105/joss.05312)
- “Probing for Bias: Comparing Populations Using Item Response Curves,” Paul Walter; Edward Nuhfer; **Crisel Suarez**, *Numeracy*, 2021-01, [DOI: 10.5038/1936-4660.14.1.1357](https://doi.org/10.5038/1936-4660.14.1.1357)
- “Simulating Solar Flare Irradiance with Multithreaded Models of Flare Arcades,” Jeffrey W. Reep; Harry P. Warren; Christopher S. Moore; **Crisel Suarez**; Laura A. Hayes, *The Astrophysical Journal*, 2020-05-21, [DOI: 10.3847/1538-4357/ab89a0](https://doi.org/10.3847/1538-4357/ab89a0)
- “Online SPARC for Drawing and Animation. Online SPARC for Drawing and Animation,” Marcopoulos, Elias ; Rayatidamavandi, Maede ; **Suarez, Crisel** ; Zhang, Yuanlin, *Proceedings of the Seventh Symposium on Educational Advances in Artificial Intelligence (EAAI-17)*, NSF CNS1359359, (2017). <https://doi.org/10.1609/aaai.v31i1.10555>

Invited Presentations

- **C. Suarez**, C. Moore, MinXSS Team, “Science Results from the MinXSS CubeSats”
235th American Astrophysical Society (AAS), Honolulu, HI January 6, 2020

Students Mentored

- Brendan D’Aquino (Co-mentored w/ Christopher S. Moore)
Harvard-Smithsonian/Northeastern U Co-Op program Fall 2022-Present
- Carleano Libretto (Co-mentored w/ Christopher S. Moore)
Harvard-Smithsonian Latino Initiative Program Summer 2020

Outreach and Public Understanding of Science

Harris Elementary School, Austin, TX

Volunteer (Apr. 2-8, 2024)

- Organized bilingual eclipse lesson “The Moon’s Shadow for Pre-K to 5th grade
- Support students by building positive and authentic relationships with students
- Assist students to gain better understanding of solar eclipse
- Provide hands-on experiments for kids

Saturday Academy, National Air and Space Museum at Smithsonian Center, Washington DC

Volunteer (Jan. 12, 2019, Sept. 21, 2019)

- Organizing public outreach at the National Air and Space Museum for families.
- Activities are geared to be bilingual for English Language Learning families

Vanderbilt Students Volunteer for Science, Vanderbilt University, Nashville, TN

Volunteer (2017-2019)

- Participate in inquiry-based, hands-on science lessons to middle-school students.
- Help set-up and volunteer at the Nashville Science Center's Robotics Day

St. Edward's University Math Club, St. Edward's University, Austin, TX

President (2017-2016), *Vice-President* (2016-2015), *Secretary* (2015-2014)

- Organized social events, Mathematics workshops and outreach events
- Volunteered at local elementary
- Participated in professional mathematics conferences (TUMC, MAA, JMM)

St. Edward's University Computer Science Club, St. Edward's University, Austin, TX

Event Coordinator (2016-2017)

- Organized social events and Computer Science workshops

Posada Esperanza, Austin, TX

Volunteer (2015-2016)

- Tutored and mentor 3 students of low socio-economic background in Mathematics and English

Selected Presentations

- C. Suarez, C.S. Moore, "As Seen from a Small Space Box - Hot, Bright and the Number of Tiny Sun Pieces from Flashes of the Sun," American Geophysical Union, San Francisco, CA, December 12, 2023.
- C. Suarez, C.S. Moore, J.W. Reep, L.A. Hayes, H. Warren, "Multiwavelength Analysis of Quasi-Periodic Pulsations for the July 23, 2016 M7.2 Flare," American Geophysical Union, San Francisco, CA, December 11, 2023.
- C. Suarez, A. Chen, X. Xie, J. Velasquez, C.S. Moore, K.K. Reeves, "Plasma Diagnostics of Solar Flares from the Miniature Xray Solar Spectrometer (MinXSS)-1 CubeSat and the Hinode/X-ray Telescope (XRT)," Hinode 16/IRIS 13, Niigata, Japan, September 25-29, 2023.
- C. Suarez, C.S. Moore, "Quasi-Periodic Pulsation (QPP) in Soft X-ray Emission from the July 23, 2016 M5.0 flare," Waves and Instabilities in the Solar Atmosphere (WISA), Northumbria University, Newcastle Upon Tyne, UK, June 20-23, 2023.
- C. Suarez, C.S. Moore, "Elemental Abundance Analysis of Solar Flares Observed by MinXSS-1 Cubesat," American Geophysical Union Chapman Meeting, Berlin, Germany, May 28 - June 2, 2023.
- *Maraqten, N. and Kutnohorsky, V. and the MVSE Mission Team: MVSE Mission Phase A/0 Study: A Proposal for Understanding the Dynamics of Induced Magnetospheres, EGU General Assembly 2023, Vienna, Austria, 24-28 Apr 2023, EGU23-8206, <https://doi.org/10.5194/egusphere-egu23-8206>, 2023.
- *Maurer, M., Byrne, L., Falk-Petersen, U., Hamdoun, A., Hénaff, G., Huber, K., Ilas, A., Reisinger, N., Sinjan, J., Suarez, C., Szilágy-Sándor, A., Tarvus, V., Tsindis, M., and Vaganov, M.: CASPER: A Space Mission Concept to Investigate Transient Luminous Events and Terrestrial Gamma Ray Flashes, EGU General Assembly 2023, Vienna, Austria, 24-28 Apr 2023, EGU23-12033, <https://doi.org/10.5194/egusphere-egu23-12033>, 2023.
- C. Suarez, C. Moore, "Elemental Abundance Deviations for Solar Flares Observed by the MinXSS-1 CubeSat Mission," American Geophysical Union, Chicago, IL, December 13, 2022.
- MVSE Mission Team, Magnetospheric Venus Space Explorers (MVSE), Post-Alpbach Summer School 2022, ESA Academy, Libin, Belgium, ESEC-Galaxia, November 25, 2023

- C. Suarez, C. Moore, “Solar Flare Elemental Abundance Deviations Obtained by the MinXSS-1 CubeSat Mission,” COMmittee on SPace Research (COSPAR) Scientific Assembly, Athens, Greece, July 22, 2022.
- Byrne, L., Falk-Petersen, U., Hamdoun, A., Hénaff, G., Huber, K., Ilas, A., Maurer, M., Reisinger, N., Sinjan, J., Suarez, C., Szilágy-Sándor, A., Tarvus, V., Tsindis, M., and Vaganov, M.: CASPER: A Space Mission Concept to Investigate Transient Luminous Events and Terrestrial Gamma Ray Flashes, Alpbach, Summer School, July 22, 2022
- C.Suarez, B. Schwab, A. Kumar, MinXSS Team, “MinXSS Tutorial,” Solar Physics High Energy REsearch (SPHERE) Workshop, Virtual, July 13, 2022.
- C. Suarez, C. Moore, MinXSS Team “Solar Flare Elemental Abundance Deviations Obtained by the MinXSS-1 CubeSat Mission,” Solar Physics High Energy REsearch (SPHERE) Workshop, Virtual, July 12, 2022.
- C. Suarez, C. Moore, MinXSS Team “Solar Flare Plasma Transport Inferred from Elemental Abundance Changes using Soft X-ray Spectra,” Solar Heliospheric and INTERplanetary Environment (SHINE) Workshop, Honolulu, HI, June 29, 2022.
- *C.Libretto, C.Moore, C. Suarez, “Analysis of the Distribution of flare Loop Emission Using Multiple Channels of SDO/AIA Observations,” Latino Initiative Program Symposium, Smithsonian Astrophysical Observatory (SAO), Cambridge, MA, August 6, 2020.
- *C.Goettlicher, C.Moore, C. Suarez, S. Saar, “Solar Flare Soft X-Ray Time Series Spectrum Reconstruction,” Solar Research Experience for Undergraduates Symposium, Smithsonian Astrophysical Observatory (SAO), Cambridge, MA, August 7, 2019.

* Mentored (*) or Collaborative Projects