

Arthur Berberyan

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Education	<p>California State University Northridge (CSUN), Northridge, CA. USA</p> <p>M.Sc. (with Distinction) in Physics August 2023-Present (Graduation: May 2025)</p> <p>B.Sc. (cum laude) in Physics August 2021-May 2023</p> <p>Specialization: Astrophysics option</p> <p><i>prior coursework completed (transferred credit) from:</i></p> <p>Los Angeles Valley College (LAVC) August 2019-June 2021</p> <p>College of the Canyons (COC) February 2015-June 2020</p>
Publications	<p>A. Berberyan, D.B. Jess, D.J. Christian et al., “A Search for Mode Coupling in Magnetic Bright Points.”, <i>Astronomy & Astrophysics (A&A)</i>, <i>in review</i>. First authored publication. TBA. (June 2024)</p> <p>J. T. Clark, et al., “<i>Spinning up a Daze: TESS Uncovers a Hot Jupiter Orbiting the Rapid Rotator TOI-778.</i>”, <i>The Astronomical Journal</i> 165, [paper]. (May 2023)</p>
Presentations / Conferences	<p><i>The Search for Mode Coupling in the Lower Solar Atmosphere.</i> Poster board presentation for Cool Stars, Stellar Systems, and the Sun 22 Conference, University of California, San Diego, CA. [poster]. (June 2024)</p> <p><i>The Recent Solar Eclipse and Understanding Mode Coupling in Our Sun.</i> Committee presentation for winning a graduate award, Association of Retired Faculty (ARF), CSUN, [slides]. (May 2024)</p> <p><i>A Search for Mode Coupling in Magnetic Bright Points.</i> 1 of 3 undergraduate winners in the Department of Science & Mathematics, CSUNposium, Northridge, CA. (May 2023)</p> <p><i>Elastic Wave Propagation in Compressed Phononic Crystals.</i> Participation in the REU program (presented to university faculty, staff, and graduate students) at Princeton University (MAE). Princeton, NJ. [poster], [report]. (August 2022)</p> <p><i>Neutralizing Harmful Acids in the Stratosphere While Launching a Payload Off a NASA Sounding Rocket.</i> Undergraduate NASA team-based project. Co-presented at Caltech’s Infrared Imaging & Processing Analysis Center (IPAC), Pasadena, CA. (February 2019)</p> <p><i>NASA HASP and RockSat-X: Using a NASA Weather Balloon and Rockets.</i> Co-presented at the College of the Canyons Star Party, Valencia, CA. (April 2018)</p>
Research Experience	<p>CSUN Solar Physics Group with Dr. Damian J. Christian August 2021-Present</p> <p>I am currently engaged in solar physics research at my institution. I investigate the coronal heating issue by studying mode coupling in magnetic bright points within the Sun’s layers to understand how energy is transported to heat the Corona and the overall energy budget.</p> <ul style="list-style-type: none">• Contributed to the project by deriving light curves, calculating frequencies, and comparing period values (IDL + bash scripting) to theory/papers.• High processed imaging from Dunn Solar Telescope, New Mexico.• Theoretical knowledge from previous courses aids me in utilizing IDL programming to gather and analyze meaningful data for my first publication. <p>Princeton University Summer REU with Dr. Andrej Košmrlj June 2022-August 2022</p> <p>Participated in an undergraduate research program at the Center of Complex Materials in acoustic metamaterials, specifically investigating elastic wave propagation in compressed phononic crystals.</p> <ul style="list-style-type: none">• Collaborating with Princeton graduate students, I incorporated Python coding using FEniCSx, to find solutions for PDEs and gain insights into how elastic waves behave in deforming materials.• My research showcased promising applications in noise reduction and vibrational control. I had the opportunity to present my findings to faculty and fellow graduate students through a poster session, contributing to compelling academic discourse.

	IPAC/Caltech Research Assistant with Dr. David R. Ciardi August 2019-August 2020 Conducted research using data from NASA's TESS Satellite, Palomar, Keck Observatories, and the NASA Exoplanet Science Institute (NExScI) archive to process images and categorize 150+ TESS Objects of Interest (TOI): candidate stars and exoplanets. <ul style="list-style-type: none"> • Played a pivotal role in organizing and analyzing stellar data. Calculated star's magnitudes, distances, and luminosities, analyzing data (IDL) also from Palomar and Keck Observatories. • High image processing with a concentration in near-infrared adaptive optics. • Conclusions showcased contributions to our understanding of potential habitable planets and their host stars.
	Palomar Observatory Research Assistant June 2019 First experience in research with analyzing data collected with the telescope. <ul style="list-style-type: none"> • Collaborated with Caltech astronomers on the 200-inch Hale telescope to capture imaging of Kepler star systems and exoplanets. • Capturing images with the telescope and utilizing the data for the scientific classification of individual stars and dataset analysis from high-quality image processing.
Educational Experience	Teaching Associate, Department of Physics & Astronomy at CSUN August 2023-Present <ul style="list-style-type: none"> • I have significantly contributed to students' academic success in various subjects, including electromagnetism, circuits, optics, astronomy, mechanics, statistical analysis, and engineering. • Simplified complex scientific concepts, enabling students to persevere and maximize their learning potential. • My passion for teaching comes from my love of physics and aspirations of becoming an academic researcher drive my enthusiasm. I have conducted 8 labs as of now (11 labs by graduation).
Other Experience	CSUN ASTR 154L Observational Astronomy Lab, [slides], <i>Teaching Associate</i> August 2023-Present CSUN PHYS 220AL Mechanics Lab, <i>Teaching Associate</i> January 2024-May 2024 CSUN PHYS 100B General Physics II, <i>Teaching Associate</i> August 2023-December 2023 NASA RockSat-X, <i>Mechanical Team/Assembly</i> August 2018-February 2020 NASA High Altitude Student Platform (HASP), <i>Chemical Team Lead</i> August 2017-December 2020 NASA L'Space Academy, <i>Project Lead</i> September 2018-December 2018 NASA Community College Aerospace Scholar October 2018-December 2018 (onsite June 2019)
News	[COC News Release] on my experiences with NASA opportunities. January 2019
Awards / Honors	2024 Department of Physics & Astronomy Summer Research Award – \$4,000 2024 The Debra Costa Graduate Student Scholarship – \$1,500 2024 CSUN Association of Retired Faculty Award (1 of 4 in all graduates programs) – \$2,500 2023 CSUNposium 2nd place winner in the Department of Science & Mathematics – \$250 2023 CSUN Betty and Martin Altshiller Memorial for Outstanding Undergraduates – \$1,000 2023 CSUN Paul and Amy Lee Undergraduate Scholarship for Excellence – \$1,500 2022-2023 CSUN Undergrad Department of Science & Mathematics Dean's List 2021 CSUN MSP SAGE Society Scholarship – \$1,200 2019 California Space Grant Consortium – \$1,000 2018 NASA Community College Aerospace Scholar (NCAS)
Community Involvement	CSUN Science Day Fair, <i>Student/Experiment Demonstrator</i> May 2023, 2024 CSUN Society of Physics Students, <i>Member</i> August 2021-Present CSUN Underrepresented Students in STEM Program, <i>Mentor</i> June 2023 CSUN Physics Tutor February 2022-May 2023 Princeton Partnership with Trenton High School Students, <i>Mentor</i> June-July 2022
References	Dr. Damian J. Christian Professor of Physics & Astronomy at CSUN, Email: damian.christian@csun.edu, Tel: (818) 677-2769. Dr. Andrej Košmrlj Associate Professor of MAE at Princeton, Email: andrej@princeton.edu, Tel: (609) 258-8613. Dr. David R. Ciardi Deputy Director of NExScI at IPAC/Caltech, Email: ciardi@ipac.caltech.edu, Tel: (626) 395-1834.