

Arthur Berberyan

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<https://arthurberberyan.github.io/>

Education	University of California, San Diego (UCSD) , La Jolla, CA. USA Ph.D. Student in Astronomy & Astrophysics September 2025 - Present California State University, Northridge (CSUN) , Northridge, CA. USA M.S. (with Distinction) in Physics August 2023-May 2025 Sigma Pi Sigma Honor Society Thesis: <i>Mode Coupling of Magnetic Bright Points in the Solar Atmosphere</i> B.S. (cum laude) in Physics August 2021-May 2023 Specialization: Astrophysics
Recent Coursework	Sel. Topics in Astrophysics (Solar Dynamics, Exoplanets), Classical Mechanics, E&M Theory, Statistical Mechanics, Quantum Mechanics, Optics, Radiative Transfer, Core Astrophysics and Physics
Skills	Observational and Computational Astronomy, Python, IDL, LaTeX, LabVIEW, Lab Experience, Teaching
Publications	A. Berberyan , et al., “A search for mode coupling in magnetic bright points.”, <i>Astronomy & Astrophysics (A&A)</i> , First authored publication. [DOI] (August 2024) J. T. Clark, et al., “Spinning up a Daze: TESS Uncovers a Hot Jupiter Orbiting the Rapid Rotator TOI-778.”, <i>The Astronomical Journal</i> 165, [DOI]. (April 2023)
Presentations & Conferences	<i>The search for star-planet interactions in exoplanet systems with highly elliptical orbits.</i> 245th annual American Astronomical Society (AAS), National Harbor, Maryland. [iPoster]. (January 2025) <i>Searching for mode coupling in magnetic bright points.</i> Presentation for the CSUN Department of Physics & Astronomy Colloquium, Northridge, CA. [slides]. (September 2024) <i>The Search for Mode Coupling in the Lower Solar Atmosphere.</i> Poster board presentation for the 22nd Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun, University of California, San Diego, CA. [DOI]. (June 2024) <i>The Recent Solar Eclipse and Understanding Mode Coupling in Our Sun.</i> Committee presentation for winning graduate award, Association of Retired Faculty (ARF), CSUN, [slides]. (May 2024) <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) <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)
Research Experience	CSUN Solar Physics Group with Dr. Damian J. Christian August 2021-Present 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 chromosphere and overall energy budget. <ul style="list-style-type: none">Contributed to the project by deriving light curves, calculating frequencies, and comparing period values (IDL) 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 data for my first publication. Princeton University Summer REU with Dr. Andrej Košmrlj June 2022-August 2022 Participated in an undergraduate research program at the Center for Complex Materials in Acoustic Metamaterials, investigating elastic wave propagation in compressed phononic crystals. <ul style="list-style-type: none">Collaborated with Princeton graduate students, incorporating Python coding using FEniCSx, found solutions for PDEs, and gained 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 Data were used from NASA's TESS Satellite, Palomar, Keck Observatories, ExoFOP (Exoplanet Follow-up Observing Program) and the NASA Exoplanet Science Institute (NExScI) archive to process imaging and categorization of 150+ TESS Objects of Interest (TOI) stars with exoplanets.	August 2019-August 2020
	<ul style="list-style-type: none"> Organized and analyzed observational stellar data. Calculated star magnitudes, distances, separation, luminosities, and analyzed data using the interactive display tool of ATV in IDL. High-resolution 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 First experience in research by analyzing data collected with the telescope.	June 2019
	<ul style="list-style-type: none"> Collaborated with Caltech astronomers on the 200-inch Hale telescope to capture imaging of star systems with candidate exoplanets. Capturing images with the telescope and utilizing the data for the scientific classification of individual stars and data set analysis from high-quality image processing. 	
Educational Experience	Teaching Associate, Department of Physics & Astronomy at CSUN <ul style="list-style-type: none"> 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 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 11 labs, graded, and held office hours. 	August 2023-Present
	Labs Conducted CSUN ASTR 154L Observational Astronomy Lab, [slides], <i>Teaching Associate</i> CSUN PHYS 220AL Mechanics Lab, <i>Teaching Associate</i> CSUN PHYS 100B General Physics II, <i>Teaching Associate</i>	August 2023-Present January 2024-May 2024 August 2023-December 2023
Other Experience	NASA RockSat-X, <i>Mechanical Team/Assembly</i> NASA High Altitude Student Platform (HASP), <i>Chemical Team Lead</i> NASA L'Space Academy, <i>Project Lead</i> NASA Community College Aerospace Scholar	August 2018-February 2020 August 2017-December 2020 September 2018-December 2018 October 2018-December 2018 (onsite June 2019)
News	[Journal Publication] from the Association of Retired Faculty Award [COC News Release] on my experiences with NASA opportunities.	July 2024 January 2019
Awards & Honors	2025-2026 UCSD Astronomy & Astrophysics Achievement Award 2025 Sigma Pi Sigma Honor Society Member, American Institute of Physics 2024 Department of Physics & Astronomy Travel Award – \$1,500 2024 Department of Physics & Astronomy Summer Research Award – \$4,000 2024 The Debra Costa Graduate Student Scholarship – \$1,500 2024 Association of Retired Faculty Award (1 of 2 in Physics since 1999) [list]– \$2,500 2023 CSUNposium awardee in the Department of Science & Mathematics – \$250 2023 Betty and Martin Altshiller Memorial for Outstanding Undergraduates – \$1,000 2023 Paul and Amy Lee Undergraduate Scholarship for Excellence – \$1,500 2022-2023 CSUN Undergrad Department of Science & Mathematics Dean's List 2021 MSP SAGE Society Scholarship – \$1,200 2019 California Space Grant Consortium – \$1,000 2018 NASA Community College Aerospace Scholar (NCAS)	
Community Involvement	CSUN Star Party, <i>Celestron NexStar 8SE (8") Telescope Operator</i> CSUN Science Day Fair, <i>Student / Experimental Demonstrator</i> CSUN Society of Physics Students, <i>Member</i> CSUN Underrepresented Students in STEM Program, <i>Mentor</i> Princeton Partnership with Trenton High School Students, <i>Mentor</i>	March 2025 May 2023, 2024 August 2021-Present June 2023 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.	