Margaret Lazzarini

California State University Los Angeles (Cal State LA)
Department of Physics & Astronomy
5151 State University Drive
Los Angeles, CA, 90032
(626) 808-3889 (c)
mlazz@calstatela.edu
Pronouns: she/her/hers

EMPLOYMENT

Assistant Professor, Physics & Astronomy, CSU Los Angeles | Aug. 2023—present
NSF Astronomy & Astrophysics Postdoctoral Fellow, Caltech | 2021—2023
Graduate Instructor, Teaching/Research Assistant, University of Washington | 2015-2021
NASA Graduate Student Intern, NASA Goddard Space Flight Center | Summer 2017, 2018
High School Teacher, Early College Academy for Leaders & Scholars (eCALS) | 2013-2015

EDUCATION

PhD in Astronomy, University of Washington, Seattle, WA | 2021
Advisor: Prof. Benjamin F. Williams
Thesis: "Accreting Compact Objects in Technicolor: Multiwavelength Characterization of High Mass X-ray Binaries in the Local Group"
MS in Astronomy, University of Washington, Seattle, WA | 2017
MA in Urban Education, Loyola Marymount University, Los Angeles, CA | 2015
Concentration in digital learning
Thesis: "Understanding Pathways to Career Success from Latinas in STEM Professions"
CA Single Subject Teaching Credential, Secondary Science (2014—2019)
BS in Astronomy & Physics, Yale University, New Haven, CT | 2013
Advisor: Prof. Meg Urry
Thesis: "Seeing Through the Clouds: Determining the Intrinsic Structure of AGN from the Swift BAT Sample"

RESEARCH INTERESTS

My primary research area is combining observations and theoretical simulations of high mass X-ray binaries to study the complex process of massive binary stellar evolution. I am also interested in resolved stellar populations observations, the connection between star formation and galaxy evolution, multi-messenger astronomy, and high energy astrophysics.

RESEARCH GRANTS & PROPOSALS

PI: Keck Observatory | 2023B
"Spectroscopic Constraints on Massive Binary Stellar Evolution in M33", 3 half nights
Co-I: NuSTAR Cycle 9 | 2023
"All the Luminous X-ray Binaries in M31: Hard X-ray Demographics and Binary Population Synthesis Applications"
PI: Keck Observatory | 2022B
"Spectroscopic Constraints on Massive Binary Stellar Evolution in M31 and M33", 4 half nights

Co-I: James Webb Space Telescope Cycle 1 Proposal | 2021
"The First Resolved View of Individual Star Formation Across a Spiral Arm"
Co-I: Hubble Space Telescope Cycle 29 Proposal | 2021
"The Panchromatic Hubble Andromeda Southern Treasury (PHAST)"
Co-I: Chandra Cycle 22 Proposal | 2020
"Monitoring the High Mass X-ray Binary Population of M33"
PI: Apache Point Observatory 3.5 m Telescope | 2017
"NuSTAR X-ray Sources in M31", Awarded 3 half nights

AWARDS & FELLOWSHIPS

NSF Astronomy & Astrophysics Postdoctoral Fellow, Caltech | 2021
Excellence in Teaching Award Finalist (campus-wide), University of Washington | 2020
John Mather Nobel Scholar, NASA Goddard Space Flight Center | 2018
UW Astronomy Graduate Teaching Award, University of Washington | 2018
Top Scholar Award, University of Washington Graduate School | 2015
Dean's Fellow in the Sciences, Yale University | 2011, 2012

TEACHING EXPERIENCE

Co-Advisor, MESA Program, Early College Academy for Leaders & Scholars | 2021-2022

- Co-advisor to high school Math Engineering Science Achievement (MESA) team as part of after school club
- Led students in computer programming, science, engineering challenges to compete in local and state-wide competitions

Instructor, Pre-Major in Astronomy Program (Pre-MAP) Seminar, UW | Fall 2018, 2019

- Lead instructor for quarter-long 5 credit seminar course for undergraduates from underrepresented groups in astronomy without prior research experience
- Taught programming (python), research and science literacy skills, and organized research mentor program
- Coordinated year-long program for students including STEM lab tours, end of year field trip, bi-quarterly social events

Instructor, UW Summer Outreach Programs | Summer 2016, 2018, 2019

- Taught "Protostars", two week course for ∼25 middle school girls
- Developed curriculum covering topics including solar system, exoplanets, stellar evolution
- Invited guest speakers from UW astronomy, mathematics departments
- Organized poster session where students presented projects at end of course

Teaching Assistant, University of Washington | 2015-2017

- TA for Astronomy 101 (Introductory Astronomy), 102 (Advanced Introductory Astronomy), 150 (The Planets)
- Taught twice-weekly section for ∼60 students per quarter, for six total quarters
- Student feedback consistently rated TA effectiveness $\geq$4.6/5.0
- Developed teaching materials and instructional tools still used by TAs and instructors in Astronomy 150

High School Teacher, Early College Academy for Leaders & Scholars (eCALS) | 2013-2015

- Taught physics and astronomy at Early College Academy for Leaders & Scholars, small charter school in Northeast Los Angeles where >75% of students receive free/reduced lunch (metric for student poverty) and 92% of students identify as Hispanic or Latino

- Designed and implemented rigorous, college-preparatory, inquiry-based curriculum in physics and astronomy
- Taught >100 students per year as only physics and astronomy teacher at the school
- Proposed and created year-long astronomy course that >100 students elected to take in inaugural year
- Organized field trip to NASA Jet Propulsion Laboratory, invited guest speakers from Latinas in STEM and Caltech

MENTORING

Cheyanne Shariat, undergraduate (UCLA), Caltech SURF Program | Summer 2022
Kyros Hinton, undergraduate/post-baccalaureate (UW) | Spring 2022—present
● Presenting poster at American Astronomical Society January 2023 meeting
Aria Gasca, high school student (eCALS) | Summer 2022
Quetzalcoatl Kuauhtzin, high school student (eCALS) | Summer 2022
Ani Mazmanian, high school science teacher (eCALS) | Summer 2022
● Aria Gasca, Ani Mazmanian, Quetzalcoatl Kuauhtzin all mentored through Hybrid Summer Research Connections at Caltech

PROFESSIONAL SERVICE & OUTREACH

High-Energy X-ray Probe (HEX-P) Resolved Populations/Supernova Remnants Science Team Member | 2022—present
UltraViolet EXplorer (UVEX) Science Team Member | 2022—present
NASA Bridge Program Early Career Working Group Member | 2022—present
Planetarium Coordinator, University of Washington | 2017—2018
EquiTea Seminar Series Co-Organizer, University of Washington | 2016-2019

SELECTED TALKS & PRESENTATIONS

AAS Winter Meeting, Contributed Talk | Seattle, WA, January 2023
NSF Astronomy & Astrophysics Postdoctoral Fellows Symposium, Contributed Talk | January 2023
Carnegie Observatories Lunch Seminar, Invited Talk | Pasadena, CA, October 2022
Cal Poly Pomona Physics & Astronomy Seminar, Invited Talk | Pomona, CA, October 2022
OzGrav Seminar, Invited Talk | virtual, August 2022
Monash University Astro Seminar, Invited Talk | Melbourne, Australia, August 2022
AAS Summer Meeting, Contributed Talk | Pasadena, CA, June 2022
IAU Symposium 361: Massive Stars Near and Far, Poster | Ballyconnell, Ireland, May 2022
Caltech Stargazing Lecture, Invited Talk | Virtual (YouTube), March 2022
NSF Astronomy & Astrophysics Postdoctoral Fellows Symposium, Contributed Talk | January 2022
Tea Talk Seminar, Invited Talk | Stanford KIPAC, October 2020
Tea Talk Seminar, Invited Talk | Caltech, September 2020
High Energy Division Seminar, Invited Talk | University of Geneva, June 2019
20 Years of Chandra Symposium, Contributed Talk | Boston, MA, December 2019
STScI Symposium – The Deaths and Afterlives of Stars, Poster | Baltimore, MD, April 2019
AAS Winter Meeting, Contributed Talk | Seattle, WA, January 2019

PUBLICATIONS

(publications are linked)
First or Second Author:
● Lazzarini, M., Hinton, K., Shariat, C., et al., 2023, ApJ, 952, 114: "Multiwavelength Characterization

of the High Mass X-ray Binary Population of M33"
• Lazzarini, M., Williams, B.F., Durbin, M.J., et al., 2022, ApJ, 934, 76: "The Panchromatic Hubble Andromeda Treasury: Triangulum Extended Region (PHATTER) II. The Spatially Resolved Recent Star Formation History of M33"
• Lazzarini, M., Williams, B.F., Durbin, M.J., et al., 2021, ApJ, 906, 2: "Multiwavelength Characterization of the High Mass X-ray Binary Population of M31"
• Lazzarini, M., Williams, B.F., Hornschemeier, A.E., et al., 2019, ApJ, 884, 2: "Neutron Stars and Black Holes in the Small Magellanic Cloud: The SMC NuSTAR Legacy Project"
• Williams, B.F., Lazzarini, M., et al., 2018, ApJ, 239, 13W: "Comparing Chandra and Hubble in the Northern Disk of M31"
• Lazzarini, M., Hornschemeier, A.E., Williams, B.F., et al., 2018, ApJ, 862, 28: "Young Accreting Compact Objects in M31: The Combined Power of NuSTAR, Chandra, and Hubble"
Nth Author:
• Tran, D., et al., incl. Lazzarini, M., 2023, arXiv:2307.04853, "Spatially-Resolved Recent Star Formation History in NGC 6946"
• Peltonen, J., et al., incl. Lazzarini, M., 2023, arXiv:2305.03618, "Clusters, Clouds, and Correlations: Relating Young Clusters to Giant Molecular Clouds in M33 and M31"
• Brightman, M., et al., incl. Lazzarini M., 2023, arXiv:2305.01693, "A new sample of transient ultraluminous X-ray sources serendipitously discovered by Swift/XRT"
• Binder, B. A., et al., incl. Lazzarini M., 2023, arXiv:2305.01802, "The Spatial C orrelation of High Mass X-ray Binaries and Young Star Clusters in Nearby Star-Forming Galaxies"
• Koplitz, B., et al., incl. Lazzarini M., 2023, arXiv:2303.07318, "The Masses of Supernova Remnant Progenitors in M33"
• Kulkarni, S. R., et al., incl. Lazzarini M., 2022, arXiv:2111.15608, "Science with the Ultraviolet Explorer"
• Misra, D., Kovlakas, K., Fragos, T., Zapartas, E., Lazzarini M., et al., 2022, arXiv:2209.05505, "Studying the HMXB X-ray Luminosity function under different physical assumptions"

PROFESSIONAL REFERENCES

Prof. Fiona Harrison (letter writer)
Chair, Division of Physics, Mathematics, and Astronomy
California Institute of Technology
1200 E. California Blvd, Mail Code 290-17
Pasadena, CA 91125
fiona@srl.caltech.edu
+1 (626) 395-4241

Prof. Benjamin F. Williams (letter writer)
Department of Astronomy
University of Washington
Box 351580, U.W.
Seattle, WA 98195-1580
benw1@uw.edu
+1 (206) 543-9849

Dr. Julianne Dalcanton (letter writer)
Director, Center for Computational Astrophysics
Flatiron Institute
162 5th Ave.

New York, NY 10010
jdalcanton@flatironinstitute.org
+1 (646) 603-3746

Dr. Ann Hornschemeier Cardiff (additional reference)
X-ray Astrophysics Laboratory Chief
NASA Goddard Space Flight Center
8800 Greenbelt Rd., Building 34
Greenbelt, MD 20771
ann.h.cardiff@nasa.gov
+1 (301) 286-7632

Dr. Daniel Stern (additional reference)
NuSTAR Project Scientist
NASA Jet Propulsion Laboratory
4800 Oak Grove Drive
M/S 169-224
daniel.k.stern@jpl.nasa.gov
+1 (818) 354-7264

Last updated on 28th September 2023