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| AWARDS & SCHOLARSHIPS | \$10,000 – UC Irvine National Osterbrock Leadership Fellowship | Spring 2022 |
| | \$1,000 – UC Irvine Latino Excellence and Achievement Award | Spring 2021 |
| | \$9,000 – UC Irvine Physical Sciences Diversity Fellowship | Spring 2021 |
| | \$4,500 – UC Irvine Diversity Recruitment Fellowship | Fall 2017 |
| | \$800 – President's Student Research Travel Scholarship | Winter 2016 |
| | \$20,000 – Cal-Bridge Scholarship | 2015 - 2017 |
| | \$4,000 – TELACU Scholarship | 2013-2017 |

PUBLICATIONS LEAD AUTHOR/MAJOR CONTRIBUTOR

Mentees highlighted in *bolded italics*

20. Environmental effects on satellite quenched fractions around simulated Milky Way-like galaxies:
F. J. Mercado, D. Baxter, M. K. Rodriguez Wimberly, J. Moreno, C. Wheeler (2026);
[In prep; draft available upon request](#)
19. Host property effects on satellite quenched fractions around simulated Milky Way-like galaxies:
F. J. Mercado, D. Baxter, M. K. Rodriguez Wimberly, J. Moreno, C. Wheeler (2026);
[In prep; draft available upon request](#)
18. Environmental effects on galaxy formation time scales in FIREbox:
B. Giraud Calderon, **F. J. Mercado**, J. Moreno, C. Wheeler, FIRE Collaboration (2025);
[In prep; draft available upon request](#)
17. Satellite quenched fractions around simulated Milky Way-like galaxies:
F. J. Mercado, D. Baxter, M. K. Rodriguez Wimberly, J. Moreno, C. Wheeler (2025);
[In prep; draft available upon request](#)
16. Effects of galactic environment on size and dark matter content in low-mass galaxies:
F. J. Mercado, J. Moreno, R. Feldmann, M. Zeender, J. A. Benavides, J. M. Piotrowska, C. Klein, C. Wheeler, L. Necib, J. S. Bullock, P. F. Hopkins (2025); [ApJ, Volume 983, Issue 2, id.93, 14 pp.](#)
15. Hooks & Bends in the RAR: Discriminatory Tests for Dark Matter and MOND:
F. J. Mercado, J. S. Bullock, J. Moreno, M. Boylan-Kolchin, A. Wetzel, C. Faucher-Giguère, J. Samuel (2024); [MNRAS, Volume 530, Issue 2, pp.1349-1362](#)
14. Comparing implementations of self interacting dark mater in the GIZMO and AREPO codes:
H. Meskhidse, **F. J. Mercado**, O. Sameie, V. Robles, J. S. Bullock, M. Kaplinghat, J. O. Weatherall (2022); [MNRAS, Volume 513, Issue 2, pp.2600-2608](#)
13. Amplified J-factors in the galactic center for velocity-dependent dark matter annihilation in FIRE simulations: *D. McKeown*, J. S. Bullock, **F. J. Mercado**, Z. Hafen, M. Boylan-Kolchin, A. Wetzel, L. Necib, P. F. Hopkins, S. Yu (2021); [MNRAS, Volume 513, Issue 1, pp.55-70](#)
12. A Relationship Between Stellar Metallicity Gradients & Galaxy Age in Dwarf Galaxies:
F. J. Mercado, J. S. Bullock, M. Boylan-Kolchin, J. Moreno, A. Wetzel, K. El-Badry, A.S. Graus, A. Fitts, P. F. Hopkins, C. Faucher-Giguère, A. B. Gurvich (2020); [MNRAS, Volume 501, Issue 4, pp.5121-5134](#)

CONTRIBUTING CO-AUTHOR

11. Igniting galaxy formation in the late universe:
J. Moreno, C. Wheeler, **F. J. Mercado**, M. K. Rodriguez Wimberly, J. Samuel, J. S. Bullock, R. Feldmann, P. F. Hopkins (2025); [In prep; Draft available upon request](#)
10. Disks no more: the morphology of low-mass simulated galaxies in FIREbox:
J. A. Benavides, L. V. Sales, A. Wetzel, J. Moreno, R. Feldmann, **F. J. Mercado**, J. S. Bullock, P. F. Hopkins, C. Faucher-Giguère, J. Stern, C. Wheeler, D. Keres (2025); [eprint arXiv:2508.00991; Accepted to MNRAS](#)

9. How invisible stellar halos bias our understanding of ultra-faint galaxies:
C. Wheeler, J. Moreno, M. K Rodriguez Wimberly, **F. J. Mercado**, J. S. Bullock, M. Boylan-Kolchin, P. J. Gandhi, S. R. Loebman, P. F. Hopkins (2025); [eprint arXiv:2506.15785](#); [accepted to ApJ](#)
8. Pickles on FIRE: The 3D Shape Evolution of Simulated Milky Way-Mass Galaxies:
L. Xia, C. Klein, J. S. Bullock, M. Boylan-Kolchin, V. Caudillo, J. Moreno, **F. J. Mercado**, R. Feldmann (2025); [eprint arXiv:2506.08508](#)
7. The shape of FIREbox galaxies and a potential tension with low-mass disks:
C. Klein, J. S. Bullock, L. Xia, J. Moreno, R. Feldmann, **F. J. Mercado**, C. Faucher-Giguère, J. Stern, N. N. Sanchez, A. Hussein (2025); [eprint arXiv:2503.05612](#)
6. Stellar Metallicities and Gradients in the Faint M31 Satellites Andromeda XVI and Andromeda XXVIII:
S. W. Fu, D. R. Weisz, E. Starkenburg, N Martin, M. L. M. Collins, A. Savino, M. Boylan-Kolchin, P. Côté, E. Dolphin, N. Longeard, M. L. Mateo, **F. J. Mercado**, N. R. Sanford, E. D. Skillman (2024); [ApJ, Volume 975, Issue 1, id.2, 14 pp.](#)
5. Size-mass relations for simulated low-mass galaxies: mock imaging versus intrinsic properties:
C. Klein, J. S. Bullock, J. Moreno, **F. J. Mercado**, P. F. Hopkins, R. K. Cochrane, J. A. Benavides (2024); [MNRAS, Volume 532, Issue 1, pp.538-548](#)
4. Confronting the Diversity Problem: The Limits of Galaxy Rotation Curves as a tool to Understand Dark Matter Profiles: I. S. Sands, P. F. Hopkins, A. Shen, M. Boylan-Kolchin, J. S. Bullock, C. Faucher-Giguère, **F. J. Mercado**, J. Moreno, L. Necib, X. Ou, S. Wellons, A. Wetzel (2024); [eprint arXiv:2404.16247](#)
3. Stellar Metallicities and Gradients in the Isolated, Quenched Low-mass Galaxy Tucana:
S. W. Fu, D. L. Weisz, E. Starkenburg, N Martin, **F. J. Mercado**, A. Savino, M. Boylan-Kolchin, P. Côté, A. E. Dolphin, N. Longeard, M. L. Mateo, J. Samuel, N. R. Sanford (2024); [ApJ, Volume 965, Issue 1, id.36, 23 pp.](#)
2. Galaxies lacking dark matter produced by close encounters in a cosmological simulation:
J. Moreno, S. Danieli, J. S. Bullock, R. Feldmann, P.F.Hopkins, O. Catmabacak, A. Gurvich, A. Lazar, C. Klein, C. B. Hummels, Z. Hafen, **F. J. Mercado**, S. Yu, F.Jiang, C. Wheeler, A. Wetzel, D. Angles-Alcázar, M. Boylan-Kolchin, E. Quataert, C.A. Faucher-Giguère, D. Keres (2022); [Nature Astronomy, Volume 6, p. 496-502](#)
1. The time-scales probed by star formation rate indicators for realistic, bursty star formation histories from the FIRE simulations: J. Florez Velázquez, A. Gurvich, C. Faucher-Giguère, J. Bullock, T. Starkenburg, J. Moreno, A. Lazar, **F. J. Mercado**, J. Stern, M. Sparre, C. Hayward, A. Wetzel, K. El-Badry (2020); [MNRAS, Volume 501, Issue 4, pp.4812-4824](#)

**PAST &
UPCOMING
PRESENTA-
TIONS**

INVITED CONFERENCE PRESENTATIONS:

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| 3. 9th biennial Frank N. Bash Symposium – Low-mass galaxies review talk (Austin, TX) | Sep 2025 |
| 2. AAS special session on student-centered pedagogy (Anchorage, AK) | Jun 2025 |
| 1. First Joint NSBP-NSHP Conference (Houston, TX) | Nov 2024 |

INVITED COLLOQUIA & SEMINARS:

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| 15. University of Washington Astro Colloquium (Seattle, WA) | Feb 2026 |
| 14. Yale University Galaxies Seminar (New Haven, CT) | Oct 2025 |
| 13. USC CosmoLab Seminar (Los Angeles, CA) | Sep 2025 |
| 12. UC Santa Cruz Lamat Institute Science Talk (Santa Cruz, CA) | Jul 2025 |
| 11. UW-Madison Science Seminar [Virtual] (Madison, WI) | Feb 2025 |
| 10. UCSD/CSUSD Astronomy & Astrophysics Colloquium (La Jolla, CA) | Jan 2025 |
| 9. Cal Poly Pomona Physics & Astronomy Colloquium (Pomona, CA) | Oct 2024 |
| 8. Cal State LA Colloquium (Los Angeles, CA) | March 2024 |
| 7. Carnegie Observatories Colloquium (Pasadena, CA) | Feb 2024 |

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| 6. TAPIR Seminar at Caltech (Pasadena, CA) | Jan 2024 |
| 5. CSU San Bernardino Physics & Astronomy Colloquium (San Bernardino, CA) | Nov 2023 |
| 4. UC Riverside Astronomy Seminar (Riverside, CA) | Oct 2023 |
| 3. Pomona College Physics & Astronomy Colloquium (Claremont, CA) | Sep 2023 |
| 2. Northwestern University Science Happy Hour [Virtual] (Evanston, IL) | Apr 2021 |
| 1. Ohio Sate ArXiv Seminar [Virtual] (Columbus, OH) | Feb 2021 |

CONTRIBUTED CONFERENCE PRESENTATIONS:

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| 20. New Data that Challenge Assumptions in Early Galaxy Evolution (Acadia, ME) | Jul 2025 |
| 19. Galactic Frontiers II (Hanover, NH) | Jun 2025 |
| 18. 246th AAS Meeting (Anchorage, AK) | Jun 2025 |
| 17. NSF MPS-Ascend Postdoctoral Fellow Conference (Nashville, TN) | Oct 2024 |
| 16. Galaxy Formation & Evolution in Southern California (Pasadena, CA) | Aug 2024 |
| 15. Dwarf Galaxies, Star Clusters & Stellar Streams in the LSST Era (Chicago, IL) | Jul 2024 |
| 14. 22nd NSF Astronomy & Astrophysics Postdoc Symposium (New Orleans, LA) | Jan 2024 |
| 13. 4th Regional Extragalactic Astronomy Meeting (Córdoba, Argentina) | Dec 2023 |
| 12. Galaxy Formation & Evolution in Southern California (Riverside, CA) | Aug 2024 |
| 11. 240th AAS Meeting (Pasadena, CA) | Jun 2022 |
| 10. Flatiron CCA Symposium (New York City, NY) | Aug 2021 |
| 9. Galaxy Formation & Evolution in Southern California (Pasadena & Irvine, CA) | 2017 - 2019 |
| 8. Cal Poly Pomona SIAM Research Symposium (Pomona, CA) | Apr 2016 |
| 7. UC Irvine Summer Research Symposium (Irvine, CA) | May 2017 |
| 6. Cal Poly Pomona SIAM Research Symposium (Pomona, CA) | Apr 2017 |
| 5. 229th AAS Meeting (Grapevine, TX) | Jan 2017 |
| 4. Cal-Bridge/Campare Symposium, Cal Poly Pomona (Pomona, CA) | Sep 2016 |
| 3. UC Irvine Summer Research Symposium (Irvine, CA) | Aug 2016 |
| 2. Galaxy Formation & Evolution in Southern California (Pasadena, CA) | Aug 2016 |
| 1. 227th AAS Meeting (Kissimmee, FL) | Jan 2016 |

VISITING GROUP MEETING PRESENTATIONS:

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| 5. Andrew Benson's Group Meeting, Carnegie Observatories (Pasadena, CA) | Nov 2024 |
| 4. Phil Hopkins' Group Meeting, Caltech (Pasadena, CA) | Sep 2023 |
| 3. Tom Quinn's Group Meeting, University of Washington (Seattle, WA) | Mar 2017 |
| 2. Mark Vogelsberger's Group Meeting, MIT (Cambridge, MA) | Jul 2015 |
| 1. Lars Hernquist's Group Meeting, Harvard CfA (Cambridge, MA) | Jul 2015 |

WORKSHOPS:

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| 3. Towards ethical outreach in astronomy and astrophysics (Choir Conference; Acadia, ME) | Jul 2025 |
| 2. Mentorship and cultivating the next generation of leaders (AAS; Pasadena, CA) | Jun 2022 |
| 1. Various PACE workshops on topics relevant to first year grads (Irvine, CA) | 2021-2022 |

OUTREACH:

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| 7. Cosmos & Coffee Inaugural Talk | Sep 2025 |
| 6. St. Louis of France STEM Career Showcase Invited Speaker | Jan 2024 |
| 5. UCI Astronomy Club Invited Graduate Research Talk (Irvine, CA) | Apr 2023 |
| 4. UCI Astronomy Club Invited Astronomer Talk (Irvine, CA) | May 2020 |
| 3. UC Irvine SACNAS Chapter High School Visit Day (Irvine, CA) | Mar 2019 |
| 2. WATzUP Middle School Workshop Invited Speaker (Orange County, CA) | Spring 2018 |
| 1. BUILD Star Party Invited Speaker (Upland, CA) | May 2017 |

ADVISING & MENTORSHIP

RESEARCH ADVISING/CO-ADVISING:

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| 13. B. Giraud Calderon (Supervised Sr. thesis) Pomona College Undergrad Environmental effects on galaxy formation timescales | 2024 - 2026 |
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| 12. D. E. Olloqui Cortés Pomona College Undergrad Creating and using mock spaxel maps with FIREbox-simulated galaxies | Summer 2025 |
| 11. L. Standifer Pomona College Undergrad Creating and using mock spaxel maps with FIREbox-simulated galaxies | Summer 2025 |
| 10. L. McRoberts Pomona College Undergrad Creating and using mock spaxel maps with FIREbox-simulated galaxies | Spring 2025 |
| 9. K. Chen Harvey Mudd College Undergrad Effect of reionization on Local Group dwarf galaxies (project continuation) | Fall 2024 |
| 8. B. Hanf (Supervised Sr. thesis) Pomona College Undergrad Stellar stream finding in the FIREbox cosmological volume simulation | AY 2024 - 2025 |
| 7. I. Hahn Pomona College Undergrad Finding voids in simulated cosmological volumes | Summer 2023 |
| 6. P. Qin Pomona College Undergrad Finding galaxy streams in the FIREbox simulation | Summer 2022 |
| 5. N. Canim Pomona College Undergrad Finding galaxy streams in the FIREbox simulation | Summer 2022 |
| 4. H. Meskhidse (Resulted in publication) UC Irvine Grad Comparing implementations of SIDM in the GIZMO and AREPO codes | 2021 - 2022 |
| 3. E. Chicas Cal State Long Beach Undergrad Effect of reionization on Local Group dwarf galaxies | Summer 2020 |
| 2. I. Ware San Francisco State University Undergrad Effect of reionization on Local Group dwarf galaxies (worked with Evangelina) | Summer 2020 |
| 1. D. McKewon (Resulted in publication) UC Irvine Grad Amplified J-factors in the galactic center in FIRE simulations | Summer 2020 |

FORMAL PROFESSIONAL MENTORSHIP:

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| UC Santa Cruz LAMAT Mentor 1 undergrad | Summer 2025 |
| UC Irvine PACE Mentorship Program Peer Mentor 4 grads | 2018 - 2023 |
| UC Irvine Competitive Edge Peer Mentor 2 grads | Summer 2022 |
| Cal-Bridge Graduate Mentor 2 undergrads | 2019 - 2022 |
| TELACU Graduate Mentor 2 undergrads | 2019 - 2022 |

TEACHING

Instructor of record in **boldface**

POMONA COLLEGE:

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| Regular Discussion Guest – The Milky Way (ASTR 127) | Spring 2025 |
| Introduction to Galaxies & Cosmology (ASTR 002) | Spring 2024 |
| Regular Discussion Guest – Extragalactic Astronomy (ASTR 125) | Spring 2024 |
| Guest Lecture – Astro Collective (ASTR 001) | Oct 2023 |

SOUTHERN CALIFORNIA UNIVERSITY OF HEALTH SCIENCES:

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| Accelerated Sciences Division – 5 week courses | |
| Basic Physics I Online (PHYS 211) | Spring 2023 |
| Basic Physics I Online Laboratory (PHYS 211L) | Spring 2023 |
| Basic Physics II Online (PHYS 216) | Spring 2023 |
| Basic Physics II Online Laboratory (PHYS 216L) | Spring 2023 |

UC IRVINE:

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| Basic Physics I (PHYSICS 3A) | Summer 2022 |
| Basic Physics II (PHYSICS 3B) | Summer 2021 & 2022 |

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| Intro to Mathematical Physics (PHYSICS 2) | Summer 2021 |
| Statistical Mechanics (PHYSICS 115A) | Fall 2018 |
| Life in the Universe (PHYSICS 20E) | Spring/Fall 2018 |
| Introduction to Mathematical Physics (PHYSICS 2) | Fall 2017 |

CAL POLY POMONA:

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| General Physics III (PHYS 133) | Fall 2015/Winter 2016 |
| General Physics I (PHYS 131) | Spring 2015 |

ELSEWHERE:

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| Learning Shack Math and Physics Tutor | 2018 - 2022 |
| Ardent Academy AP Physics C Instructor | Winter 2020 |

TRAINING & CERTIFICATIONS

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| UCI/CSULB PRE-Professor Program | Spring 2021 |
| UCI OIE Inclusive Excellence Certificate | Fall 2020 |
| UCI DTEI Certificate in Course Design | Spring 2020 |
| CIRTL Associate Level | Spring 2020 |

SERVICE & LEADERSHIP

SCIENTIFIC ORGANIZING COMMITTEES:

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| 23rd Annual NSF AAPF Postdoc Symposium (Chair ; National Harbor, MD) | Jan 2025 |
| Galaxy Formation & Evolution in Southern California (Member; Pasadena, CA) | Sep 2024 |
| Galaxy Formation & Evolution in Southern California (Chair ; Irvine, CA) | Aug 2019 |

REVIEWER:

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| NASA Panel Reviewer | 2025 - Present |
| The Astrophysical Journal | 2023 - Present |

ORGANIZATIONS:

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| Astronomical Society of the Pacific Board Fellow | 2025 - Present |
| NSF Ascend Mentor Network Advisory Fellow Board Member | 2025 |
| UC Irvine PACE Mentorship Program Co-Chair & Administrator | 2022 - 2023 |
| UC Irvine Physics Graduate Caucus Diversity Chair | 2020 - 2022 |
| UC Irvine DECADE Physics Graduate Representative | 2018 - 2022 |

OUTREACH:

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| <i>Cosmos & Coffee</i> Founder & Organizer | 2025 - Present |
| Pomona College Latine Undergraduates in Physics & Astronomy (LUPA) co-organizer | 2025 - 2026 |
| Pomona College Eclipse Party Co-Host | Apr 2024 |
| UC Irvine Telescope Outreach Program Co-Organizer | 2018 - 2019 |
| UC Irvine WATzUP Group Leader | 2017 - 2019 |

MEDIA COVERAGE

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|---|----------|
| 5. NSF Grant Will Fund Symposium for Post-Doctoral Fellows | Sep 2024 |
| 4. Astronomy Post-Doc and Professor Publish Paper on Dark Matter and Galaxies | Apr 2024 |
| 3. UC Irvine astronomers simulations support dark matter theory | Apr 2024 |
| 2. Francisco Mercado wins UCI Latinx Excellence and Achievement Award | Mar 2021 |
| 1. From home, Francisco Mercado is studying distant galaxies | Apr 2020 |

PROFESSIONAL REFERENCES **Jorge Moreno** | Associate Professor, Pomona College
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 +(213) 740-2531, james.bullock@usc.edu

Philip F. Hopkins | Ira S. Bowen Professor of Theoretical Astrophysics, Caltech
 +1(626) 395-2563, phopkins@caltech.edu