Julian B. Muñoz

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RESEARCH INTERESTS

I am a theoretical astrophysicist specializing in cosmic dawn, the era of the first stars and galaxies. I develop analytical and statistical tools to understand dark matter and reionization with data from 21-cm experiments (HERA), JWST, and line-intensity mapping. I am best known for discovering Velocity Acoustic Oscillations (VAOs) as a new cosmological probe, and for testing dark-matter models in the epoch of first light.

ACADEMIC POSITIONS

2023- **Assistant Professor,** Department of Astronomy, University of Texas at Austin, TX.
2020-23 **Clay Fellow,** Harvard-Smithsonian Center for Astrophysics, Cambridge, MA
2017-20 **Postdoctoral Fellow,** Department of Physics, Harvard University, Cambridge, MA.

EDUCATION

2017 **Ph.D. in Physics,** Johns Hopkins University, Baltimore, MD. "*New Cosmological Probes for Old Fundamental Questions*". Advisor: Marc Kamionkowski.

2013 **Graduado en Física** (Bachelor's in Physics), Complutense University of Madrid, Spain.

AWARDS & HONORS

AAAS runner-up breakthrough of the year: invited reviewer of JWST studies of early light (2025).
Board of Visitors Excellence in Teaching Award; Rom Rhome Professional Development Award, UT (2024).
Named one of ScienceNews 10 scientists to watch (2023).
Clay Fellowship (2020)
Dan David Prize Scholar (2017); EJ Rhee JHU and Pitt PACC travel awards (2017).
Spanish Ministry of Education Fellowship (2012), Summer Fellowship at IAC, Tenerife (2012).

FUNDING

PI - NSF AAG "*Decoding the First Galaxies via 21-cm Fluctuations*" ~$500k (2024-)
PI - NSF AAG "*NSF-BSF: Dark Matter Interactions at Cosmic Dawn*" ~$450k (2023-)
CoI - **NSF** AI Center CosmicAI ~$20M (2024-29),
CoI - **NASA JWST GO** 06882, 07417, 07081, and **DD** 09223
Admin PI – **NASA JWST-GO-03224, HST-HF2-51561** (PI NHFP fellow: Jed McKinney)

PRESENTATIONS

I have given more than 120 invited presentations since 2014, with >25 colloquia and reviews at international conferences. Highlights include the AAAS 2025 Breakthrough of the Year review and the Clay Lectureship.

Colloquia *(selected)* "What is JWST teaching us about galaxies and cosmology?", MIT, UCLA, UCSB, JPL, NASA Goddard, UT Dallas, Missouri S&T (2024–). "Cosmic Dawn: The Next Frontier", Cornell, CITA, SLAC, McGill, Dartmouth, UNC, UT Astronomy, UT Physics, Clay Lecture/CfA, Weinberg memorial (2021–24). "New Physics at Cosmic Dawn", ETH Zurich, Yale, Stanford, KICP (2019–22).

Other Invited/Plenary Talks *(selected)* "Cosmological puzzles from JWST", TeVPA, KITP, Perimeter, JHU, UIUC, Caltech, BU, Mainz, Copenhagen, Barcelona (2023–). "New physics and first galaxies at Cosmic Dawn", CERN, Weizmann, Fermilab, MPA, King's College, and others (2018–23).

TEACHING & ADVISING

I have mentored 11 graduate students, 5 postdocs, and 3 undergraduates (9 while at UT Austin), leading to more than 20 papers with mentees as first authors.

Recent Students and Postdocs

Emily Bregou (graduate student at UT Austin), since 2024.
Owen Chase (graduate student at UT Austin), since 2023.
Yonny Sklansky (graduate student at UT Austin), since 2023.
Alessandra Venditti (postdoc at UT Austin), since 2024.
Kuan Wang (postdoc at UT Austin), since 2024.
Mahdi Qezlou (postdoc at UT Austin -> Sandbox AI), since 2024.
Emilie Thélie (postdoc at UT Austin), since 2023.
Hector Cruz (graduate student at JHU->Simons Fellow CCA), 2023-.
Wenzer Qin (graduate student at MIT ->Simons Fellow NYU), 2022-24.

Teaching

Introductory Astronomy, AST 307 at UT Austin, Spring 25, Fall 25.
Undergraduate Cosmology, AST 376C at UT Austin, Fall 23, 24, and Spring 26.
Navigating Graduate School in Astronomy, Seminar for 1st year PhDs at UT Austin, Fall 23-24.
Guest Lecturer**,** Ay98 at Harvard Astronomy, Fall 2018-19. Substitute Lecturer, Graduate Cosmology, Harvard Physics; Graduate Quantum, JHU.

Outreach and Community Activities

Founder and organizer, *Cafecito Cósmico*, Spanish-language astro journal club at UT Austin (2024-)
Science host, first DeepSkyTour in Spanish at the McDonald observatory (2024).
Demystifying the total eclipse, appearance on Fox7 Austin TV (2024).
Programs with Science for the Public, a Boston non-profit TV station in 2018 and 2024.
Panelist, 'Cosmology in Crisis' live+podcast, UT CNS public event (2023).
Mentor *Muse* program for underrepresented genders in STEM, UT Austin (2023-)
REU Advisor, Smithsonian Latino Initiative Program (2022) and UT Astro program (2024).
Astronomy on Tap (Boston 2019, Austin 2025).

SELECTED PROFESSIONAL SERVICE

Professional Duties

Member, APS DAP executive committee (2025-), APS Fellows selection committee (2025-)
Assistant Graduate Advisor, Graduate Studies Executive Committee, UT Austin Astronomy (2023-)
Committee member, UT faculty search (2024, 2025), CFC postdoctoral fellowship (2024), UT Grad admissions (2023), TCCAP fellowship (2022-23), ITC postdoctoral fellowships (2021).
Organizer, UT Austin Colloquium (2025-26), Extragalactic seminar (2023-24), Harvard seminar (2018-19), KITP follow-up program (2025).
Founder, UT Cosmo pizza (2025-)

Reviewing and Refereeing

NSF '21, 23, 24; NASA Postdoctoral '22, 23, 25; DoE HEP '24, ERC *Synergy*, and *FONDECYT*.
PRL, PRD, ApJ, ApJ Lett., JCAP, MNRAS, MNRAS Lett., Phys.Rept., Nature Astronomy & Nature Comm.

Professional Collaborations

Lead, Zeus21 collaboration, 21cmvFAST, RelicFast, and GALLUMI.
Coordinator, dark matter group in HERA experiment and Glimpse JWST collaboration.
Contributor, CMB-S4 science book, thirteen Astro2020 and six Snowmass 2021 white papers.

PUBLICATION LIST

Total number of publications: 80 (including preprints: 110)
Total number of citations: >5500 (including preprints: >9000)
h-index: 38 (including preprints: 42)
citations/paper: 82 (including preprints: 89)

Selected

1. **J. B. Muñoz** et al.
Evidence for Increased Burstiness in Smaller Halos at Cosmic Dawn
MNRAS 547, 4, 415 (2026). ArXiv: 2601.07912. **– Featured in** Texas Science**.**

2. **J. B. Muñoz,** J. Mirocha, J. Chisholm, S.R. Furlanetto, and C. Mason
Reionization after JWST: a photon budget crisis?
MNRAS Lett. 535, 1, L37–L43 (2024). ArXiv: 2404.07250. **– Featured in** Science, Astronomy.com, Knowable Magazine, Phys.org, and others. (>100 citations)

3. **J. B. Muñoz**
Zeus21: An Effective Model for the Cosmic-Dawn 21-cm Signal
MNRAS 523 2, 2587 (2023). ArXiv: 2302.08506. (>50 citations)

4. **J. B. Muñoz**
A Standard Ruler at Cosmic Dawn
Phys. Rev. Lett. 123, 131301 (2019). ArXiv: 1904.07868 **– Editor's Suggestion**, **featured in** APS, ScienceNews, and others. (>75 citations)

5. **J. B. Muñoz** and A. Loeb
A small amount of mini-charged dark matter could cool the baryons in the early Universe
Nature 557 no.7707, 684 (2018). ArXiv: 1802.10094. **– Featured in** Physics World, Cosmos Magazine, Live Science, and El País (ES) amongst others. (>300 citations)

Mentored and other first-author publications ($^{*/**}$ = Student/Postdoc supervised at UT Austin or before)

6. K. Wang**, **J. B. Muñoz,** and A. Yung
An Improved Fit for Linear Halo Bias at High Redshift
Submitted. ArXiv: 2604.14312

7. A. Venditti** et al. (incl. **J. B. Muñoz)**
Line-emission Signatures from PopIII-forming Pockets around Massive Galaxies at Reionization
Submitted. ArXiv: 2603.27582

8. E. Thélie**, S. Libanore**, Y. Sklansky*, **J. B. Muñoz**, and E. D. Kovetz
Reionization Bubbles from Real-Space Cross Correlations of Line Intensity Maps
Submitted. ArXiv: 2602.12277

9. G. Montefalcone*, H.A. Cruz**, **J. B. Muñoz,** E. Kovetz, and M. Kamionkowski
Tracing the Neutrino-Induced Phase Shift in the 21-cm Spectrum
Phys. Rev. D 113, 063556 (2026). ArXiv: 2509.03595

10. A. Venditti**, **J. B. Muñoz,** V. Bromm, S. Finkelstein, S. Fujimoto, J. Chisholm
Bursty or heavy? The surprise of bright Population III systems in the Reionization era
ApJ. 994 1, 32(2025). ArXiv: 2505.20263 **– Featured in** Starxiv.

11. J. McKinney[**], O. Cooper, C M. Casey, **J. B. Muñoz**, H Akins, E Lambrides, A S. Long
Modeling Galaxies in the Early Universe with Supernova Dust Attenuation
ApJL 985 L21 (2025). ArXiv:2502.14031.

12. E. Thélie[**]; F. Balso, **J. B. Muñoz**, and A. Liu
An Alcock-Paczynski Test on Reionization Bubbles for Cosmology
Phys.Rev.D 111 12, 123501 (2025). ArXiv: 2502.02638 - **Editor's Suggestion, featured in Astrobites.**

13. N. Sabti[*], R. Reddy, **J. B. Muñoz**, S. Mishra-Sharm, and T. Youn
A Generative Modeling Approach to Reconstructing 21-cm Tomographic Data
*Machine Learning: Science and Technology, 6, 1. NeurIPS workshop ML4PS*24. ArXiv: 2407.21097.

14. H.A. Cruz[*], **J. B. Muñoz**, N. Sabti, and M. Kamionkowski
The First Billion Years in Seconds: An Effective Model for the 21-cm Signal with PopIII Stars
PRD 111, 083503 (2025). ArXiv: 2407.18294.

15. C. Shallue[*], **J. B. Muñoz**, and G. Krnjaic
Warm Hawking Relics from Primordial Black Hole Domination
JCAP 02 037 (2025). ArXiv: 2406.08535.

16. **J. B. Muñoz**, J. Mirocha, S. Furlanetto, and N. Sabti
Breaking degeneracies in the first galaxies with clustering
MNRAS Lett. 526 L47 (2023). ArXiv: 2306.09403. (>50 citations)

17. N. Sabti[*], **J. B. Muñoz**, and M. Kamionkowski
Insights from HST into Ultra-Massive Galaxies and Early-Universe Cosmology
Phys.Rev.Lett. 132 6, 061002 (2024). ArXiv: 2305.07049 – **Editor's Suggestion**, highlighted in APS, **featured in** KXAN, Scientific American, ScienceNews, Physics, Phys.org, and selected for the PRL 2024 collection (2% of all Letters published in 2024).

18. M. Montero[^], **J. B. Muñoz**[^], G. Obied[^] **(^Alphabetical)**
Swampland bounds on dark sectors
JHEP 121 (2022). ArXiv: 2207.09448.

19. **J. B. Muñoz**, Y. Qin, A. Mesinger, S. Murray, B. Greig, and C. Mason
The Impact of the First Galaxies on Cosmic Dawn and Reionization
MNRAS 511 3, 3657 (2022). ArXiv: 2110.13919. (>90 citations)

20. N. Sabti[*], **J. B. Muñoz**, and D. Blas
Measurements of the Clustering of Matter with the High-Redshift Galaxy UVLF
ApJ Letters 928 2, L20 (2022). ArXiv: 2110.13161 – **Featured in** AAS Nova. (>50 citations)

21. N. Sabti[*], **J. B. Muñoz**, and D. Blas
GALLUMI: A Galaxy Luminosity Function Pipeline for Cosmology and Astrophysics
Phys.Rev.D 105 4, 043518 (2022). ArXiv: 2110.13168.

22. **J. B. Muñoz**, S. Bohr, F.Y. Cyr-Racine, J. Zavala, and Mark Vogelsberger
ETHOS: Impact of Dark Acoustic Oscillations on Cosmic Dawn
Phys.Rev.D 103 4, 043512 (2021). ArXiv: 2011.05333.

23. N. Sabti[*], **J. B. Muñoz**, and D. Blas
First Constraints on Small-Scale Non-Gaussianity from UV Galaxy Luminosity Functions
JCAP 01 010 (2021). ArXiv: 2009.01245.

24. **J. B. Muñoz** and F.Y. Cyr-Racine
Cosmic Variance of the 21-cm Global Signal
Phys.Rev.D 103 2, 023512 (2021). ArXiv: 2005.03664.

25. R. Laha^, **J. B. Muñoz**^, and T. Slatyer^ **(^Alphabetical)**
INTEGRAL constraints on primordial black holes and particle dark matter
Phys.Rev.D 101,123514 (2020). ArXiv: 2004.00627 – **INTEGRAL paper of the month** (>250 cit.)

26. **J. B. Muñoz**, C. Dvorkin, and F.Y. Cyr-Racine
Probing the Small-Scale Matter Power Spectrum with Large-Scale 21-cm Data
Phys.Rev. D 101, 063526 (2020). ArXiv: 1911.11144. (>75 citations)

27. **J. B. Muñoz**, V. Ravi, and A. Loeb
Periodic Fast Radio Bursts from Young Neutron Stars.
ApJ 890 162 (2020), ArXiv: 1909.00004.

28. **J. B. Muñoz**
Robust Velocity-induced Acoustic Oscillations at Cosmic Dawn
Phys.Rev. D 100, 063538 (2019). ArXiv: 1904.07881 **– Editor's Suggestion, highlighted in APS.** (>75 cit.)

29. **J. B. Muñoz** and A. Loeb
Finding the Missing Baryons with FRBs and Sunyaev-Zeldovich Maps
Phys.Rev. D 98, 103518 (2018). ArXiv: 1809.04074.

30. **J. B. Muñoz** and C. Dvorkin
Efficient Computation of Galaxy Bias with Neutrinos and Other Relics.
Phys.Rev. D 98, 043503 (2018). ArXiv: 1805.11623.

31. **J. B. Muñoz,** C. Dvorkin and A. Loeb
21-cm Fluctuations from Charged Dark Matter.
Phys. Rev. Lett. 121, 121301 (2018). ArXiv: 1804.01092. (>100 citations)

32. **J. B. Muñoz** and A. Loeb
Constraints on Dark Matter-Baryon Scattering from the Temperature Evolution of the IGM.
JCAP 1711, 043 (2017). ArXiv: 1708.08923.

33. **J.B. Muñoz** and M. Kamionkowski
Large-Distance Lens Uncertainties and Time-Delay Measurements of H_0.
Phys.Rev. D 96, 103537 (2017). ArXiv: 1708.08454.

34. **J.B. Muñoz**, E. D. Kovetz, A. Raccanelli, M. Kamionkowski, and J. Silk
Towards a measurement of the spectral runnings.
JCAP 1705, 032 (2017). ArXiv 1611.05883. (>50 citations)

35. **J.B. Muñoz**, E.D. Kovetz, L. Dai, and M. Kamionkowski
Lensing of Fast Radio Bursts as a Probe of Compact Dark Matter
Phys. Rev. Lett. 117, 091301 (2016). ArXiv: 1605.00008 **– Editor's Suggestion, featured in** Futurity and the JHU HUB. (>250 citations)

36. **J.B. Muñoz**, D. Grin, L. Dai, M. Kamionkowski, and E.D. Kovetz
Search for Compensated Isocurvature Perturbations with Planck Power Spectra.
Phys.Rev. D 93, 043008 (2016). ArXiv: 1511.04441. (>50 citations)

37. **J.B. Muñoz**, E.D. Kovetz, and Y. Ali-Haïmoud
Heating of Baryons due to Scattering with Dark Matter During the Dark Ages.
Phys.Rev. D 92, 083528 (2015). ArXiv: 1509.00029. (>150 citations)

38. **J.B. Muñoz**, Y. Ali-Haïmoud, and M. Kamionkowski
Primordial non-gaussianity from the bispectrum of 21-cm fluctuations in the dark ages.
Phys.Rev. D 92, 083508 (2015). ArXiv: 1506.04152 – **Editor's Suggestion.** (>150 citations)

39. **J.B. Muñoz** and M. Kamionkowski
Equation-of-State Parameter for Reheating.
Phys.Rev. D 91, 043521 (2015). ArXiv: 1412.0656. (>200 citations)

40. **J. Muñoz-Bermejo**, A. Asensio Ramos, and C. Allende Prieto
A PCA approach to stellar effective temperatures.
Astronomy & Astrophysics 553, A95 (2013). ArXiv: 1303.7218. (UG summer project at IAC)

Significant contribution (*/** = Student/Postdoc mentored)

41. J. Flitter**, **J. B. Muñoz**, and A. Mesinger
Semi-analytical Approach to Lyα Multiple-scattering in 21-cm Signal Simulations
Submitted. ArXiv: 2601.14360

42. J. Barron, D. Curtin, H. Liu, **J. B. Muñoz**, and S. Roy
Constraining Dark Acoustic Oscillations with the High-Redshift UV Luminosity Function
Submitted. ArXiv: 2512.01998

43. H. Lazare*, E. D. Kovetz, K. K. Boddy, and **J. B. Muñoz**
First galaxy ultraviolet luminosity function limits on dark matter-proton scattering
Submitted to PRL. ArXiv: 2510.10757

44. Y. Sun*, J. W. Foster, and **J. B. Muñoz**
Constraining inhomogeneous energy injection from annihilating dark matter and PBHs with 21-cm
Submitted. ArXiv: 2509.22772

45. S. Libanore**, E. Kovetz**, J. B. Muñoz,** Y. Sklansky*, and E. Thélie*
A New Boundary Condition on Reionization
Submitted. ArXiv: 2509.08886

46. S. Libanore**, **J. B. Muñoz,** and E. Kovetz
oLIMpus: An Effective Model for Line Intensity Mapping in Cosmic Dawn and Reionization
Phys.Rev.D 112 8, 083552 (2025). ArXiv: 2507.15922

47. C. Cain**, A. D'Aloisio, and **J. B. Muñoz**
New constraints on the galactic ionizing efficiency and escape fraction based on QSO absorption spectra
PASA 42, e107 (2025). ArXiv: 2503.08778.

48. H. Bae; A.L. Erickcek, S. Delos, and **J. B. Muñoz**
21-cm Constraints on Dark Matter Annihilation after an Early Matter-Dominated Era
Phys.Rev.D, in press. ArXiv:2502.08719.

49. G. Sun**, **J. B. Muñoz**, J. Mirocha, and C.A. Faucher-Giguère
Constraining bursty star formation histories with galaxy luminosity functions and clustering
JCAP 04 034 (2025). ArXiv: 2410.21409.

50. C. Cain[**], G. Lopez, A. D'Aloisio, **J. B. Muñoz** et al.
Chasing the beginning of reionization in the JWST era
ApJ 980 83 (2025). ArXiv:2409.02989.

51. J. Verwohlt[*], C. Mason, **J. B. Muñoz**, F-Y. Cyr-Racine, M. Vogelsberger, and J. Zavala
Separating Dark Acoustic Oscillations from Astrophysics at Cosmic Dawn
Phys.Rev.D 110 10, 103533 (2024). ArXiv: 2404.17640 - **Editor's Suggestion**, highlighted in APS**.**

52. Y. Sun[*], J.W. Foster, H. Liu, **J. B. Muñoz**, and T. R. Slatyer
Inhomogeneous Energy Injection in the 21-cm Power Spectrum: Sensitivity to Dark Matter Decay
Phys.Rev.D 111 4, 043015 (2025). ArXiv: 2312.11608.

53. W. Qin[*], **J. B. Muñoz**, H. Liu, and T. R. Slatyer
Birth of the first stars amidst decaying and annihilating dark matter
Phys.Rev.D 10, 103026 109 (2024). ArXiv: 2308.12992.

54. C. Mason, **J. B. Muñoz**, B. Greig, A. Mesinger, J. Park
21cmfish: Fisher-matrix framework for fast parameter forecasts from the cosmic 21-cm signal
MNRAS 524 4711 (2023). ArXiv: 2212.09797.

55. X. Wu, **J. B. Muñoz**, and D. J. Eisenstein
Non-parametric Lagrangian biasing from the insights of neural nets
JCAP 05 040 (2023). ArXiv: 2212.08095.

56. HERA collaboration (incl. **J. B. Muñoz**, I led the IGM and dark-matter constraints)
Constraints on the 21cm EoR Power Spectrum with HERA Phase I Observations
ApJ, 945, 124 (2023). ArXiv: 2210.04912. (>200 citations)

57. J. Mirocha, **J. B. Muñoz**, S. Furlanetto, A. Liu, and A. Mesinger
A galaxy-free phenomenological model for the 21-cm power spectrum during reionization
MNRAS 514 2, 2010 (2022). ArXiv: 2201.07249.

58. X. Wu, **J. B. Muñoz**, and D. J. Eisenstein
A fully Lagrangian, non-parametric bias model for dark-matter halos
JCAP 02 02, 002 (2022). ArXiv: 2109.13948.

59. HERA collaboration (incl. **J. B. Muñoz**, I led Secs. 4 and 7 on IGM and dark-matter constraints)
HERA Phase I Limits on the Cosmic 21-cm Signal: Constraints the Epoch of Reionization
*Ap*J 924, 51 (2021). ArXiv: 2108.07282. (>100 citations)

60. M. Rashkovetskyi, **J. B. Muñoz**, D. J. Eisenstein, and C. Dvorkin
Small-scale Clumping at Recombination and the Hubble Tension
Phys.Rev.D 104 10, 103517 (2021). ArXiv: 2108.02747.

61. W.L. Xu[*], **J. B. Muñoz**, and C. Dvorkin
Cosmological Constraints on Light (but Massive) Relics
Phys.Rev.D 105 9, 095029 (2022). ArXiv: 2107.09664.

62. S. Hotinli, T. Binnie, **J. B. Muñoz**, B. Dinda, and M. Kamionkowski
Probing compensated isocurvature with the 21-cm signal during cosmic dawn
Phys.Rev.D 104 6, 063536 (2021). ArXiv: 2106.11979

63. A. Ray, R. Laha, **J. B. Muñoz**, and R. Caputo
Closing the gap: Near future MeV telescopes can discover asteroid-mass primordial black holes
Phys.Rev.D 104 2, 023516 (2021). ArXiv: 2102.06714. (>100 citations)

64. J. Flitter*, **J. B. Muñoz**, and E. Kovetz
Outliers in the LIGO Black Hole Mass Function from Coagulation in Dense Clusters
MNRAS 507 1, 743 (2020). ArXiv: 2008.10389

65. W.L. Xu*, N. Deporzio*, **J. B. Muñoz**, and C. Dvorkin
Accurately Weighing Neutrinos with Cosmological Surveys
Phys.Rev.D 103 2, 023503 (2021). ArXiv: 2006.09395.

66. N. Deporzio*, W.L. Xu*, **J. B. Muñoz**, and C. Dvorkin
Finding eV-scale Light Relics with Cosmological Observables
Phys.Rev.D 103 2, 023504 (2021). ArXiv: 2006.09380.

67. D. Jyoti, **J. B. Muñoz**, R. Caldwell, and M. Kamionkowski
Cosmic Time Slip: Testing Gravity on Supergalactic Scales with Strong-Lensing Time Delays
Phys.Rev. D 100, 043031 (2019). ArXiv: 1906.06324.

68. A.M. Dizgah, H. Lee, **J. B. Muñoz** and C. Dvorkin
Galaxy Bispectrum from Massive Spinning Particles.
JCAP 1805, 013 (2018). ArXiv: 1801.07265. (>75 citations)

69. T. L. Smith, **J.B. Muñoz**, R. Smith, K. Yee, and D. Grin
Baryons still trace dark matter: probing CMB lensing maps for hidden isocurvature.
Phys.Rev. D 96, 083508 (2017). ArXiv 1704.03461.

70. P.D. Meerburg, M. Münchmeyer, **J.B. Muñoz**, and X. Chen
Prospects for Cosmological Collider Physics.
JCAP 1703, 050 (2017). ArXiv: 1610.06559. (>100 citations)

71. M. Shiraishi, **J.B. Muñoz**, M. Kamionkowski, and A. Raccanelli
Violation of statistical isotropy and homogeneity in the 21-cm power spectrum
Phys.Rev. D 93, 103506 (2016). ArXiv: 1603.01206.

72. S. Bird, I. Cholis, **J.B. Muñoz**, Y. Ali-Haïmoud, M. Kamionkowski, E.D. Kovetz, A. Raccanelli, and A.G. Riess
Did LIGO detect dark matter?
Phys. Rev. Lett. 116, 201301 (2016). ArXiv: 1603.00464 – **Featured in** APS. (>1500 citations)

Contributor

73. S. Mukae et al. (incl. **J. B. Muñoz**)
Enhancing Lyα Emitter Identification in HETDEX with a Convolutional Neural Network
Submitted. ArXiv: 2604.12414

74. J. Jecmen et al. (incl. **J. B. Muñoz**)
A GLIMPSE into the UV Continuum Slopes of the Faintest Galaxies in the Epoch of Reionization
Submitted. ArXiv: 2601.19995

75. S. Fujimoto et al. (incl. **J. B. Muñoz**)
GLIMPSE-D: An Exotic Balmer-Jump Object at z=6.20? The Cosmic Abundance of Pop III Galaxies
Submitted. ArXiv: 2512.11790

76. M. Blamart et al. (incl. **J. B. Muñoz**)
A Possible Resolution to the High-z Galaxy Abundance Puzzle and Implications for Cosmic Strings
Submitted. ArXiv: 2512.09980

77. J. C. Rose et al. (incl. **J. B. Muñoz**)
DREAMS: The Impact of Halo-to-Halo Variance and Baryonic Feedback on MW Satellite Galaxies
Submitted. ArXiv: 2512.02095

78. The HERA Collaboration (incl**. J. B. Muñoz and postdoc E. Thélie***)
First Results from HERA Phase II
ApJ 998, 1, 33 (2026). ArXiv: 2511.21289

79. D. A. Berg et al. (incl. **J. B. Muñoz**)
A Fleeting GLIMPSE of N/O Enrichment at Cosmic Dawn: Evidence for Wolf Rayet N Stars at z = 6.1
Submitted to ApJ. ArXiv: 2511.13591

80. H. Atek et al. (incl. **J. B. Muñoz**)
JWST's GLIMPSE: an overview of the deepest probe of early galaxy formation and cosmic reionization
Submitted. ArXiv: 2511.07542

81. V. Kokorev et al. (incl. **J. B. Muñoz**)
The Deepest GLIMPSE of a Dense Gas Cocoon Enshrouding a Little Red Dot
Submitted to *ApJ*. ArXiv: 2511.07515

82. M. L. Niemeyer et al. (incl. **J. B. Muñoz**)
Lyα Intensity Mapping in HETDEX: Galaxy-Lyα Intensity Cross-Power Spectrum
ApJ 999, 2, 177 (2026). ArXiv: 2510.11427

83. D. Korber et al. (incl. **J. B. Muñoz**)
A GLIMPSE into the very faint-end of the H+[OIII]4960,5008 LF at z=7-9 behind Abell S1063
A&A 708, A43 (2026). ArXiv: 2510.04771

84. I. Chemerynska et al. (incl. **J. B. Muñoz**)
The first GLIMPSE of the faint galaxy population at Cosmic Dawn with JWST: UVLF across z~9-15
MNRAS 546, 2, 2267 (2026). ArXiv: 2509.24881

85. V. Kokorev et al. (incl. **J. B. Muñoz**)
CAPERS Observations of Two UV-Bright Galaxies at z>10. More Evidence for Burstiness
ApJL 988 L10. ArXiv: 2504.12504.

86. S. Fujimoto et al. (incl. **J. B. Muñoz**)
GLIMPSE: An ultra-faint Pop III Galaxy Candidate and the Pop III UV Luminosity Function at $z \simeq 6-7$
ApJ 989 46. ArXiv: 2501.11678.

87. V. Kokorev, H. Atek, J. Chisholm, R. Endsley, I. Chemerynska, **J. B. Muñoz**, et al.
A Glimpse of the New Redshift Frontier Through Abell S1063
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88. DREAMS collaboration, T. Nguyen et al. (incl. **J. B. Muñoz**)
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91. S. Murray, B. Greig, A. Mesinger, **J. B. Muñoz**, Y. Qin, J. Park, and C. Watkinson
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92. Y. Qin, A. Mesinger, J. Park, B. Greig, and **J. B. Muñoz**
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93. C. Zeng, E.D. Kovetz, X Chen, Y. Gong**, J. B. Muñoz,** and M. Kamionkowski
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94. I. Cholis, E.D. Kovetz, Y. Ali-Haïmoud, S. Bird, M. Kamionkowski
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95. A. Raccanelli, E.D. Kovetz, S. Bird, I. Cholis, and **J.B. Muñoz**
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Selected white papers and preprints

Snowmass 2021(-23)

96. A. Drilica-Wagner et al. (including **J.B. Muñoz**)
Report of the Topical Group on Cosmic Probes of Dark Matter for Snowmass (arXiv: 2209.08215).
97. K. Boddy et al. (including **J.B. Muñoz**)
Astrophysical and Cosmological Probes of Dark Matter (arXiv: 2203.06380).
98. K. Bechtol et al. (including **J.B. Muñoz**)
Dark Matter Physics from Halo Measurements (arXiv: 2203.07354).
99. M. Alvarez et al. (including **J.B. Muñoz**)
Cosmological Simulations and Modeling (arXiv: 2203.07347).
100. C. Dvorkin et al. (including **J.B. Muñoz**)
The Physics of Light Relics (arXiv: 2203.07943).
101. S. Bird et al. (including **J.B. Muñoz**)
Primordial Black Hole Dark Matter (arXiv: 2203.08967, published in Phys. Dark. Univ.).
102. S. Aiola et al. (including **J.B. Muñoz**)
CMB-HD White Paper (arXiv: 2203.05728).

Astro2020 (Decadal):

103. V. Ravi et al. (including **J.B. Muñoz**)
Fast Radio Burst Tomography of the Unseen Universe (arXiv:1903.06535).
104. A. Liu et al. (including **J.B. Muñoz**)
Cosmology with the Highly Redshifted 21cm Line (arXiv:1903.06240).
105. S. Furlanetto et al. (including **J.B. Muñoz**)
Fundamental Cosmology in the Dark Ages with 21-cm Line Fluctuations (arXiv:1903.06240).
106. V. Gluscevic et al. (including **J.B. Muñoz**)
Cosmological Probes of Dark Matter Interactions: The Next Decade (arXiv:1903.05140).
107. C. Dvorkin et al. (including **J.B. Muñoz**)
Neutrino Mass from Cosmology: Physics Beyond the Standard Model (arXiv:1903.03689).
108. J.O. Burns et al. (including **J.B. Muñoz**)
Dark Cosmology: Dark Matter & Exotic Physics in the Dark Ages using 21-cm (arXiv:1902.06147).

Others:

109. A. Loeb and **J.B. Muñoz**
The First Stars May Shed Light on Dark Matter (Invited viewpoint for APS/PRL, arXiv:1807.01531).
110. K.A. Abazajian et al. (incl. **J.B. Muñoz,** I lead one of the parameter forecasts)
CMB-S4 Science Book, First Edition (arXiv:1610.02743). (>3000 citations)