

List of publications

HAMSA PADMANABHAN

SIX SELECTED PUBLICATIONS:

1. **Hamsa Padmanabhan**, Alexandre Refregier, Adam Amara (2017), *A halo model for cosmological neutral hydrogen : abundances and clustering*, MNRAS 469 (2), 2323, arXiv:1611.06235 [astro-ph.CO].
2. **Hamsa Padmanabhan**, T. Roy Choudhury, Alexandre Refregier (2015), *Theoretical and observational constraints on the HI intensity power spectrum*, MNRAS 447, 3745, arXiv:1407.6366 [astro-ph.CO].
3. **Hamsa Padmanabhan**, Alexandre Refregier, *Constraining a halo model for cosmological neutral hydrogen*, MNRAS, 464, 4, 4008 (2017), arXiv:1607.01021 [astro-ph.CO].
4. **Hamsa Padmanabhan** (2019), *Constraining the evolution of CII intensity through the end stages of reionization*, MNRAS 488, 3, 3014, arXiv:1811.01968.
5. **Hamsa Padmanabhan** (2018), *Constraining the CO intensity mapping power spectrum at intermediate redshifts*, MNRAS 475 (2), 1477, arXiv:1706.01471 [astro-ph.GA].
6. *Fundamental Physics with the Square Kilometre Array*⁸, Weltman, A.[†], Bull, P.*, Camera, S.*, Kelley, K.*, **Padmanabhan, H.***, Pritchard, J.*, . . . Gaensler, B.[‡] (2020), Publications of the Astronomical Society of Australia, 37, E002. doi:10.1017/pasa.2019.42, arXiv:1810.02680

OTHER PUBLICATIONS:

(A) *Lead author/single author refereed journal papers:*

7. **Hamsa Padmanabhan**, Abraham Loeb (2021), *Distinguishing AGN from starbursts as the origin of double peaked Lyman-Alpha Emitters in the reionization era*, A&A Letters, 646, 10, arXiv:2012.00014.
8. **Hamsa Padmanabhan**, Abraham Loeb (2020), *Constraining the host galaxy halos of massive black holes from LISA event rates*, JCAP 11, 055, arXiv:2007.12710.
9. **Hamsa Padmanabhan**, Abraham Loeb (2021), *Signatures of Population III supernova at Cosmic Dawn: the case of GN-z11-flash*, submitted.
10. **Hamsa Padmanabhan**, Patrick Breyse, Adam Lidz and Eric. R. Switzer (2021), *Intensity mapping from the sky: synergizing the joint potential of [OIII] and [CII] surveys at reionization*, submitted, arXiv: 2105.12148 [astro-ph.GA]
11. **Hamsa Padmanabhan**, Abraham Loeb (2020), *New empirical constraints on the cosmological evolution of gas and stars in galaxies*, MNRAS 496, 2, 1124, arXiv:2002.01489.
12. **Hamsa Padmanabhan**, Abraham Loeb (2021), *Contribution of Flares from Tidal Disruption of Stars to high-redshift AGN*, A&A 656, A47 (2021), arXiv:2003.07365.
13. **Hamsa Padmanabhan**, Alexandre Refregier, Adam Amara (2020), *Cross-correlating 21 cm and galaxy surveys: implications for cosmology and astrophysics*, MNRAS, 495, 4, 3935, arXiv:1909.11104.
14. **Hamsa Padmanabhan**, Abraham Loeb (2020), *It is Feasible to Directly Measure Black Hole Masses in the First Galaxies*, JCAP 03, 032, arXiv:1912.05555
15. **Hamsa Padmanabhan**, Alexandre Refregier, Adam Amara (2019), *Impact of astrophysics on cosmology forecasts with 21 cm surveys*, MNRAS 485 (3), 4060, arXiv:1804.10627 [astro-ph.CO]
16. **Hamsa Padmanabhan**, Girish Kulkarni (2017), *Constraints on the evolution of the relationship between HI mass and halo mass in the last 12 Gyr*, MNRAS 470 (1), 340, arXiv:1608.00007 [astro-ph.GA].

^{8†}: editor, *: co-lead, ‡: convenor

17. **Hamsa Padmanabhan**, T. Roy Choudhury, Alexandre Refregier (2016), *Modelling the cosmic neutral hydrogen from DLAs and 21 cm observations*, MNRAS 458, 781, arXiv:1505.00008 [astro-ph.CO].
18. **Hamsa Padmanabhan**, R. Srianand, T. Roy Choudhury (2015), *Measuring the equation of state of the high- z intergalactic medium using curvature statistics*, MNRAS Letters 450, L29-L33, arXiv:1502.05140 [astro-ph.CO].
19. **Hamsa Padmanabhan**, T. Roy Choudhury, R. Srianand (2014), *Probing reionization using quasar near-zones at redshift $z \sim 6$* , MNRAS 443, 3761, arXiv:1403.0221 [astro-ph.CO].
20. **Hamsa Padmanabhan**, Aditya Rotti, Tarun Souradeep (2013), *Comparison of CMB lensing efficiency of gravitational waves and large scale structure*, Phys.Rev. D 88, 063507, arXiv:1307.2355 [astro-ph.CO].
21. **Hamsa Padmanabhan**, T. Padmanabhan (2013), *CosMIn: The Solution to the Cosmological Constant Problem*, IJMPD 22, 1342001, arXiv:1302.3226 [astro-ph.CO].⁹
22. **Hamsa Padmanabhan** and T. Padmanabhan (2011), *Nonrelativistic limit of quantum field theory in inertial and noninertial frames and the principle of equivalence*, Phys. Rev. D 84, 085018, arXiv:1110.1314 [gr-qc].
23. **Hamsa Padmanabhan** and T. Padmanabhan (2010), *Aspects of electrostatics in a weak gravitational field*, General Relativity and Gravitation, Volume 42, Issue 5, 1153, arXiv:0910.0926 [gr-qc].
24. **Hamsa Padmanabhan** (2009), *A simple derivation of the electromagnetic field of an arbitrarily moving charge*, Am. J. Phys. 77, 151, arXiv:0810.4246

(B) Invited review articles:

25. **Hamsa Padmanabhan** (2021), *A multi-messenger view of Cosmic Dawn: conquering the Final Frontier*, invited review to appear in Int. Jour. Mod. Phys. D. (2021), arXiv:2109.00003
26. T. Padmanabhan, **Hamsa Padmanabhan**, *Cosmological Constant from the Emergent Gravity Perspective*, Invited review, Int. Jour. Mod. Phys. D. Vol. 23, No. 6 (2014) 1430011, arXiv:1404.2284 [gr-qc].

(C) Co-authored refereed journal papers:

27. Cleary et al. (including **Hamsa Padmanabhan**), *COMAP Early Science I. Overview*, submitted, arXiv:2111.05927
28. Lamb et al. (including **Hamsa Padmanabhan**), *COMAP Early Science II. Pathfinder Instrument*, submitted, arXiv:2111.05928
29. Foss et al. (including **Hamsa Padmanabhan**), *COMAP Early Science III. CO Data Processing*, submitted, arXiv:2111.05929
30. Ihle et al. (including **Hamsa Padmanabhan**), *COMAP Early Science IV. Power Spectrum Methodology and Results*, submitted, arXiv:2111.05930
31. Chung et al. (including **Hamsa Padmanabhan**), *COMAP Early Science V. Constraints and Forecasts at $z \sim 3$* , submitted, arXiv:2111.05931
32. Breyse et al. (including **Hamsa Padmanabhan**), *COMAP Early Science VII. Prospects for CO Intensity Mapping at Reionization*, submitted, arXiv:2111.05933
33. Silva et al. (including **Hamsa Padmanabhan**), *Synergies between the COMAP CO Line Intensity Mapping mission and a Ly α galaxy survey*, submitted, arXiv:2111.05354
34. Tobias Nadolny, Ruth Durrer, Martin Kunz, **Hamsa Padmanabhan**, *A new way to test the Cosmological Principle: measuring our peculiar velocity and the large scale anisotropy independently*, JCAP 11 (2021), 009, arXiv:2106.05284 [astro-ph.CO]
35. Chung et al. (including **Hamsa Padmanabhan**), *A model of spectral line broadening in signal forecasts for line-intensity mapping experiments*, to appear in ApJ, arXiv:2104.11171[astro-ph.CO].

⁹The essay, based on this work, received the Honorable mention in the 2013 Gravity Research Foundation Essay Competition.

36. Obinna Umeh, Roy Maartens, **Hamsa Padmanabhan** and Stefano Camera, *The effect of finite halo size on the clustering of neutral hydrogen*, JCAP 06 (2021) 027, arXiv:2102.06116[astro-ph.CO].
37. Jurek Bauer, David Marsh, Renée Hložek, **Hamsa Padmanabhan**, Alex Laguë (2020), *Intensity Mapping as a Probe of Axion Dark Matter*, MNRAS 500, 3, 3162, arXiv:2003.09655[astro-ph.CO].
38. Stefano Camera and **Hamsa Padmanabhan** (2020), *Beyond Λ CDM with HI intensity mapping: robustness of cosmological constraints in the presence of astrophysics*, MNRAS 496, 4115, arXiv:1910.00022 [astro-ph.CO].
39. Chung et al. (including **Hamsa Padmanabhan**), *Cross-correlating Carbon Monoxide Line-intensity Maps with Spectroscopic and Photometric Galaxy Surveys*, The Astrophysical Journal 872 (2), 186, arXiv:1809.04550 [astro-ph.GA].
40. Ihle et al. (including **Hamsa Padmanabhan**), *Joint power spectrum and voxel intensity distribution forecast on the CO luminosity function with COMAP*, The Astrophysical Journal 871 (1), 75, arXiv:1808.07487 [astro-ph.CO].
41. Square Kilometre Array Cosmology Science Working Group : Bacon et al. (including **Hamsa Padmanabhan**), *Cosmology with Phase 1 of the Square Kilometre Array; Red Book 2018: Technical specifications and performance forecasts*, Publ. Astron. Soc. Austral. 37 (2020) e007, arXiv:1811.02743
42. T. Padmanabhan, **Hamsa Padmanabhan**, *Cosmic Information, the Cosmological Constant and the Amplitude of primordial perturbations*, Phys. Letts. B 773 (2017) 81 - 85, arXiv:1703.06144 [gr-qc]
43. T. Padmanabhan, **Hamsa Padmanabhan**, *Quantum gravity at Hubble scales determines the cosmological constant and the amplitude of primordial perturbations*, Int. Jour. Mod. Phys., D 26, 1743002 (2017) ¹⁰
44. Aseem Paranjape, T. Roy Choudhury, **Hamsa Padmanabhan**, *Photon number conserving models of HII bubbles during reionization*, MNRAS 460(2), 1801-1810 (2016), arXiv:1512.01345 [astro-ph.CO].
45. Barun Kumar Pal, **Hamsa Padmanabhan**, Supratik Pal, *Towards reconstruction of unlensed, intrinsic CMB power spectra from lensed map*, MNRAS 439 (2014), 3022, arXiv:1309.1827 [astro-ph.CO].

(D) Collaboration white papers:

46. *Inflation and Early Dark Energy with a Stage II Hydrogen Intensity Mapping experiment* (2019), Cosmic Visions 21 cm Collaboration : Ansari et al. (including **Hamsa Padmanabhan**), arXiv:1810.09572
47. *Packed Ultra-wideband Mapping Array (PUMA): A Radio Telescope for Cosmology and Transients* (2019), Bandura et al. (including **Hamsa Padmanabhan**), arXiv:1907.12559
48. *The DESI Experiment Part I: Science, Targeting, and Survey Design*, DESI Collaboration: Aghamousa et al. (including **Hamsa Padmanabhan**), arXiv:1611.00036
49. *The DESI Experiment Part II: Instrument Design*, DESI Collaboration: Aghamousa et al. (including **Hamsa Padmanabhan**), arXiv:1611.00037
50. *Astrophysics and Cosmology with Line-Intensity Mapping*, Kovetz et al. (including **Hamsa Padmanabhan**), Astro2020 Science white paper (2019), arXiv:1903.04496
51. *Inflation and Dark Energy from spectroscopy at $z > 2$* , Ferraro et al. (including **Hamsa Padmanabhan**), Astro2020 Science white paper (2019), arXiv:1903.09208
52. *Primordial non-Gaussianity*, Meerberg et al. (including **Hamsa Padmanabhan**), Astro2020 Science white paper (2019), arXiv:1903.04409
53. *Dark Matter Science in the Era of LSST*, Bechtol et al. (including **Hamsa Padmanabhan**), Astro2020 Science white paper (2019), arXiv:1903.04425

¹⁰The essay, based on this work, received the Honorable mention in the 2017 Gravity Research Foundation Essay Competition and is published in this Special Issue.

(E) Conference proceedings:

54. **Hamsa Padmanabhan**, *Neutral hydrogen in the post-reionization universe*, ***invited talk*** at the IAU Symposium 333 'Peering towards Cosmic Dawn', in the Proceedings of the International Astronomical Union, Volume 333, pp. 216-221, arXiv:1712.01296 [astro-ph.CO]
55. **Hamsa Padmanabhan**, *Intensity mapping: a new window into the cosmos*, ***invited talk*** at the Quantum Theory and Symmetries (QTS-XI), Montreal, July 2019, in Quantum Theory and Symmetries, Proceedings of the 11th International Symposium, Montreal, Canada (2021), arXiv:1910.14059 [astro-ph.CO]