

Publication List

I Papers Published in International Refereed Journals (11)

1. **Probing Earth's core using atmospheric neutrino oscillations in the presence of NSI at INO-ICAL**, Krishnamoorthi J, Anuj Kumar Upadhyay, [Anil Kumar](#), Sanjib Kumar Agarwalla, [Journal of High Energy Physics](#), 10 (2025) 213, e-Print arXiv: [2507.02167 \[hep-ph\]](#)
2. **Constraining non-unitary neutrino mixing using matter effects in atmospheric neutrinos at INO-ICAL**, Sadashiv Sahoo, Sudipta Das, [Anil Kumar](#), Sanjib Kumar Agarwalla, [Journal of High Energy Physics](#), 09 (2024) 184, e-Print arXiv: [2309.16942 \[hep-ph\]](#)
3. **Measurement of atmospheric neutrino mixing with improved IceCube Deep-Core calibration and data processing**, R. Abbasi et al. (IceCube Collaboration), [Physical Review D](#), 108 (2023), 012014, e-Print arXiv: [2304.12236 \[hep-ph\]](#)
4. **Probing dark matter inside Earth using atmospheric neutrino oscillations at INO-ICAL**, Anuj Kumar Upadhyay, [Anil Kumar](#), Sanjib Kumar Agarwalla, Amol Dighe, [Physical Review D](#), 107 (2023) 11, 115030, e-Print arXiv: [2112.14201 \[hep-ph\]](#)
5. **Discriminating between Lorentz violation and non-standard interactions using core-passing atmospheric neutrinos at INO-ICAL**, Sadashiv Sahoo, [Anil Kumar](#), Sanjib Kumar Agarwalla, Amol Dighe, [Physics Letters B](#), 841 (2023) 137949, e-Print arXiv: [2205.05134 \[hep-ph\]](#)
6. **Locating the core-mantle boundary using oscillations of atmospheric neutrinos**, Anuj Kumar Upadhyay, [Anil Kumar](#), Sanjib Kumar Agarwalla, Amol Dighe, [Journal of High Energy Physics](#), 04 (2023) 068, e-Print arXiv: [arXiv:2211.08688 \[hep-ph\]](#)
7. **Probing Lorentz Invariance Violation with Atmospheric Neutrinos at INO-ICAL**, Sadashiv Sahoo, [Anil Kumar](#), Sanjib Kumar Agarwalla, [Journal of High Energy Physics](#), 03 (2022) 050, e-Print arXiv: [2110.13207 \[hep-ph\]](#)
8. **Validating the Earth's Core using Atmospheric Neutrinos with ICAL at INO**, [Anil Kumar](#), Sanjib Kumar Agarwalla, [Journal of High Energy Physics](#), 08 (2021) 139, e-Print arXiv: [2104.11740 \[hep-ph\]](#)

9. **A New Approach to Probe Non-Standard Interactions in Atmospheric Neutrino Experiments**, Anil Kumar, Amina Khatun, Sanjib Kumar Agarwalla, Amol Dighe, [Journal of High Energy Physics](#), 04 (2021) 159, e-Print arXiv: [2101.02607 \[hep-ph\]](#)
10. **From oscillation dip to oscillation valley in atmospheric neutrino experiments**, Anil Kumar, Amina Khatun, Sanjib Kumar Agarwalla, Amol Dighe, [The European Physical Journal C](#), volume 81 (2021) 2, 190, e-Print arXiv: [2006.14529 \[hep-ph\]](#)
11. **A compact cosmic muon veto detector and possible use with the Iron Calorimeter detector for neutrinos**, Neha Panchal, S. Mohanraj, A. Kumar, T. Dey, G. Majumder, R. Shinde, P. Verma, B. Satyanarayana, V.M. Datar, [Journal of Instrumentation](#), 12 (2017) 11, T11002, e-Print arXiv: [1708.08597 \[physics.ins-det\]](#)

II Papers Communicated to International Refereed Journals (1)

1. **Constraining the core radius and density jumps inside Earth using atmospheric neutrino oscillations**, Anuj Kumar Upadhyay, Anil Kumar, Sanjib Kumar Agarwalla, Amol Dighe, Submitted in the Journal of High Energy Physics, e-Print arXiv: [2405.04986 \[hep-ph\]](#)

III Conference Proceedings (13)

1. **Exploring constraints on the core radius and density jumps inside Earth using atmospheric neutrino oscillations**, Anuj Kumar Upadhyay, Anil Kumar, Sanjib Kumar Agarwalla, Amol Dighe, Proceedings of the 25th International Workshop on Neutrinos from Accelerators (NuFact 2024), 16-21 Sep, 2024, Argonne National Laboratory, USA, e-Print arXiv: [2501.07621 \[hep-ph\]](#)
2. **Probing non-unitary neutrino mixing using atmospheric neutrinos at INO-ICAL**, Sadashiv Sahoo, Sudipta Das, Anil Kumar, Sanjib Kumar Agarwalla, Proceedings of the XXV DAE-BRNS High Energy Physics (HEP) Symposium 2022, 12-16 Dec, 2022, IISER, Mohali, India, [Springer Proc. Phys.](#) 304 (2024) 290-293
3. **Earth tomography with oscillating neutrinos at ICAL**, Anuj Kumar Upadhyay, Anil Kumar, Sanjib Kumar Agarwalla, Amol Dighe, Proceedings of the XXV DAE-BRNS High Energy Physics (HEP) Symposium 2022, 12-16 Dec, 2022, IISER, Mohali, India, [Springer Proc. Phys.](#) 304 (2024) 294-297
4. **Probing the interior of Earth using oscillating neutrinos at INO-ICAL**, Anil Kumar, Anuj Kumar Upadhyay, Sanjib Kumar Agarwalla, Amol Dighe, Proceedings of

the European Physical Society Conference on High Energy Physics (EPS-HEP 2023), 21-25 Aug 2023, University of Hamburg, Germany, [PoS\(EPS-HEP2023\)198](#), e-Print arXiv: [2401.17416 \[hep-ph\]](#)

5. **Latest Muon Neutrino Disappearance Results from IceCube DeepCore**, [Anil Kumar](#) (for the IceCube Collaboration), Proceedings of the European Physical Society Conference on High Energy Physics (EPS-HEP 2023), 21-25 Aug 2023, University of Hamburg, Germany, [PoS\(EPS-HEP2023\)179](#)
6. **Neutrino Oscillations in the Earth: A Unique Tool to Probe Dark Matter Inside the Core**, Anuj Kumar Upadhyay, [Anil Kumar](#), Sanjib Kumar Agarwalla, Amol Dighe, Proceedings of The 23rd International Workshop on Neutrinos from Accelerators (NuFact 2022), 31 Jul to 6 Aug, 2022, Salt Lake City, UT, USA, [Phys. Sci. Forum 2023](#), [8\(1\)](#), 54
7. **Discriminating Between Lorentz Violation and Non-Standard Interactions Using Core-Passing Atmospheric Neutrinos at INO-ICAL**, Sadashiv Sahoo, [Anil Kumar](#), Sanjib Kumar Agarwalla, Amol Dighe, Proceedings of The Ninth Meeting on CPT and Lorentz Symmetry, (Online) 17 May - 26 May, 2022, Indiana University, Bloomington, [CPT and Lorentz Symmetry. May 2023](#), 226-228
8. **Exploring NSI using oscillation dip and valley in atmospheric neutrino experiments**, [Anil Kumar](#), Amina Khatun, Sanjib Kumar Agarwalla, Amol Dighe, Proceedings of The 17th International Conference on Topics in Astroparticle and Underground Physics (TAUP2021), Online Conference, 26 Aug - 30 Sep, 2021, [Journal of Physics: Conference Series 2156 \(2021\) 012119](#)
9. **Exploring the Violation of Lorentz Invariance using Atmospheric Neutrinos at INO-ICAL**, Sadashiv Sahoo, [Anil Kumar](#), Sanjib Kumar Agarwalla, Proceedings of The 17th International Conference on Topics in Astroparticle and Underground Physics (TAUP2021), Online Conference, 26 Aug - 30 Sep, 2021, [Journal of Physics: Conference Series 2156 \(2021\) 012238](#)
10. **Probing the Earth's Core using Atmospheric Neutrinos at INO**, [Anil Kumar](#), Sanjib Kumar Agarwalla, Proceedings of The European Physical Society Conference on High Energy Physics (EPS-HEP2021), Online Conference, 26-30 Jul, 2021, [PoS\(EPS-HEP2021\)257](#), e-Print arXiv: [2110.08333 \[hep-ph\]](#)
11. **Probing NSI in Atmospheric Neutrino Experiments using Oscillation Dip and Valley**, [Anil Kumar](#), Amina Khatun, Sanjib Kumar Agarwalla, Amol Dighe, Proceedings

of the XXIV DAE-BRNS High Energy Physics Symposium 2020, 14-18 Dec, 2020, NISER, Bhubaneswar, India, [Springer Proc. Phys. 277 \(2022\) 525-529](#), e-Print arXiv: [2104.06955 \[hep-ph\]](#)

12. **Effect of Variation of Surface Resistivity of Graphite Layer in RPC**, [Anil Kumar](#), V. Kumar, S. Mukhopadhyay, S. Sarkar, and N. Majumdar, Proceedings of the XXIII DAE-BRNS High Energy Physics Symposium 2018, 10-14 Dec, 2018, IIT, Madras, India, [Springer Proc. Phys. 261 \(2021\) 725-730](#)
13. **A compact cosmic muon veto detector and possible use with the Iron Calorimeter detector for neutrinos**, Neha, S. Mohanraj, [A. Kumar](#), T. Dey, G. Majumder, R. Shinde, P. Verma, B. Satyanarayana, V.M. Datar, Proceedings of the 62nd DAE-BRNS Symposium on Nuclear Physics, 20-24 Dec, 2017, Patiala, India, [DAE Symp. Nucl. Phys. 62 \(2017\) 1076-1077](#)