Publication List

Anil Kumar

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I Papers Published in International Refereed Journals (10)

1. **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]

2. **Measurement of atmospheric neutrino mixing with improved IceCube DeepCore calibration and data processing**, R. Abbasi et al. (IceCube Collaboration), Physical Review D, 108 (2023), 012014, e-Print arXiv: 2304.12236 [hep-ph]

3. **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]

4. **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]

5. **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]

6. **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]

7. **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]

8. **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]

9. **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]

10. **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 (2)

1. **Probing Earth's core using atmospheric neutrino oscillations with NSI** , Krishnamoorthi J, Anuj Kumar Upadhyay, Anil Kumar, Sanjib Kumar Agarwalla, Submitted in Journal of High Energy Physics, e-Print arXiv: 2507.02167 [hep-ph]

2. **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 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