

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 Deep-Core calibration and data processing**
R. Abbasi et al. (IceCube Collaboration)
[Physical Review D](#), 108 (2023), 012014
e-Print arXiv: [2304.12236 \[hep-ph\]](#)
- 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 (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 [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](#)