

Mehr Un Nisa

Department of Physics and Astronomy
Michigan State University
East Lansing, Michigan 48823
U.S.A.

nisamehr@msu.edu
<https://icecube.wisc.edu/~mnisa>

Publication List

Articles as Primary* Author

- [1] A. Albert *et al.*, “Discovery of Gamma Rays from the Quiescent Sun with HAWC,” *Phys. Rev. Lett.*, vol. 131, no. 5, p. 051201, 2023.
- [2] R. Abbasi *et al.*, “IceCat-1: the IceCube Event Catalog of Alert Tracks,” *Submitted to ApJS*, 4 2023.
- [3] R. Abbasi *et al.*, “Search for Extended Sources of Neutrino Emission in the Galactic Plane with IceCube,” *Submitted to ApJ*, 7 2023.
- [4] R. Abbasi *et al.*, “Searching for High-Energy Neutrino Emission from Galaxy Clusters with IceCube,” *Astrophys. J. Lett.*, vol. 938, p. L11, 6 2022.
- [5] R. Abbasi *et al.*, “Search for GeV-scale Dark Matter Annihilation in the Sun with IceCube DeepCore,” *Phys. Rev. D*, vol. 105, no. 6, p. 062004, 2022.
- [6] A. Albert *et al.*, “3hwc: The third HAWC catalog of very-high-energy gamma-ray sources,” *The Astrophysical Journal*, vol. 905, p. 76, dec 2020.
- [7] M. U. Nisa, J. F. Beacom, S. Y. BenZvi, R. K. Leane, T. Linden, K. C. Y. Ng, A. H. G. Peter, and B. Zhou, “The Sun at GeV–TeV Energies: A New Laboratory for Astroparticle Physics,” *Bulletin of the American Astronomical Society*, vol. 51, no. 194, 2019.
- [8] A. Albert *et al.*, “First HAWC Observations of the Sun Constrain Steady TeV Gamma-Ray Emission,” *Phys. Rev.*, vol. D98, no. 12, p. 123011, 2018.
- [9] A. Albert *et al.*, “Constraints on Spin-Dependent Dark Matter Scattering with Long-Lived Mediators from TeV Observations of the Sun with HAWC,” *Phys. Rev. D*, 2018. [Phys. Rev.D98,123012(2018)].
- [10] A. U. Abeysekara *et al.*, “Constraining the \bar{p}/p ratio in TeV cosmic rays with observations of the Moon shadow by HAWC,” *Phys. Rev.*, vol. D97, no. 10, p. 102005, 2018.

*Played a leading role in designing and performing the analysis and drafting the publication

As a Contributing† Author

- [1] A. Albert *et al.*, “Constraining the Local Burst Rate Density of Primordial Black Holes with HAWC,” *JCAP*, vol. 04, p. 026, 2020.
- [2] R. Lopez-Coto, J. Hahn, S. BenZvi, B. Dingus, J. Hinton, M. U. Nisa, R. D. Parsons, F. Salesa Greus, H. Zhang, and H. Zhou, “Effect of the diffusion parameters on the observed γ -ray spectrum of sources and their contribution to the local all-electron spectrum: The EDGE code,” *Astropart. Phys.*, vol. 102, pp. 1–11, 2018.
- [3] D. Rysewyk, D. Lennarz, T. DeYoung, J. Auffenberg, M. Schaufel, T. Bretz, C. Wiebusch, and M. Nisa, “Atmospheric cherenkov telescopes as a potential veto array for neutrino astronomy,” *Astroparticle Physics*, vol. 117, p. 102417, 2020.

† Significant contributions to the paper as a co-author

In Preparation as Primary Author

- [1] HAWC, “Search for Decaying Dark Matter from the Virgo Cluster of Galaxies with HAWC,” *To be Submitted to PRD*, 09 2023.

As a Member of the IceCube Collaboration

- [1] M. G. Aartsen *et al.*, “Detection of a particle shower at the Glashow resonance with IceCube,” *Nature*, vol. 591, no. 7849, pp. 220–224, 2021. [Erratum: *Nature* 592, E11 (2021)].
- [2] R. Abbasi *et al.*, “Search for Multi-flare Neutrino Emissions in 10 yr of IceCube Data from a Catalog of Sources,” *Astrophys. J. Lett.*, vol. 920, no. 2, p. L45, 2021.
- [3] R. Abbasi *et al.*, “A muon-track reconstruction exploiting stochastic losses for large-scale Cherenkov detectors,” *JINST*, vol. 16, no. 08, p. P08034, 2021.
- [4] R. Abbasi *et al.*, “Search for GeV neutrino emission during intense gamma-ray solar flares with the IceCube Neutrino Observatory,” *Phys. Rev. D*, vol. 103, no. 10, p. 102001, 2021.
- [5] R. Abbasi *et al.*, “Follow-up of Astrophysical Transients in Real Time with the IceCube Neutrino Observatory,” *Astrophys. J.*, vol. 910, no. 1, p. 4, 2021.
- [6] R. Abbasi *et al.*, “The IceCube high-energy starting event sample: Description and flux characterization with 7.5 years of data,” *Phys. Rev. D*, vol. 104, p. 022002, 2021.
- [7] R. Abbasi *et al.*, “A Search for Time-dependent Astrophysical Neutrino Emission with IceCube Data from 2012 to 2017,” *Astrophys. J.*, vol. 911, no. 1, p. 67, 2021.
- [8] M. Aartsen *et al.*, “IceCube Search for Neutrinos Coincident with Compact Binary Mergers from LIGO-Virgo’s First Gravitational-wave Transient Catalog,” *Astrophys. J. Lett.*, vol. 898, no. 1, p. L10, 2020.
- [9] M. Aartsen *et al.*, “IceCube Search for High-Energy Neutrino Emission from TeV Pulsar Wind Nebulae,” *Astrophys. J.*, vol. 898, no. 2, p. 117, 2020.
- [10] A. Albert *et al.*, “Combined search for neutrinos from dark matter self-annihilation in the Galactic Center with ANTARES and IceCube,” *Phys. Rev. D*, vol. 102, no. 8, p. 082002, 2020.
- [11] M. Aartsen *et al.*, “Characteristics of the diffuse astrophysical electron and tau neutrino flux with six years of IceCube high energy cascade data,” *Phys. Rev. Lett.*, vol. 125, no. 12, p. 121104, 2020.
- [12] A. Albert *et al.*, “ANTARES and IceCube Combined Search for Neutrino Point-like and Extended Sources in the Southern Sky,” *Astrophys. J.*, vol. 892, p. 92, 2020.
- [13] M. Aartsen *et al.*, “A search for IceCube events in the direction of ANITA neutrino candidates,” 1 2020.
- [14] M. Aartsen *et al.*, “Constraints on neutrino emission from nearby galaxies using the 2MASS redshift survey and IceCube,” *JCAP*, vol. 07, p. 042, 2020.
- [15] M. Aartsen *et al.*, “Time-Integrated Neutrino Source Searches with 10 Years of IceCube Data,” *Phys. Rev. Lett.*, vol. 124, no. 5, p. 051103, 2020.

As a Member of the HAWC Collaboration

- [1] H. Abdalla *et al.*, “TeV Emission of Galactic Plane Sources with HAWC and H.E.S.S.,” *Astrophys. J.*, vol. 917, p. 6, Aug. 2021.
- [2] A. U. Abeysekara *et al.*, “HAWC observations of the acceleration of very-high-energy cosmic rays in the Cygnus Cocoon,” *Nature Astron.*, vol. 5, no. 5, pp. 465–471, 2021.
- [3] A. Albert *et al.*, “Probing the Sea of Cosmic Rays by Measuring Gamma-Ray Emission from Passive Giant Molecular Clouds with HAWC,” *Astrophys. J.*, vol. 914, no. 2, p. 106, 2021.

- [4] A. Albert *et al.*, “Evidence of 200 TeV photons from HAWC J1825-134,” *Astrophys. J. Lett.*, vol. 907, no. 2, p. L30, 2021.
- [5] H. A. Ayala Solares *et al.*, “Multimessenger Gamma-Ray and Neutrino Coincidence Alerts Using HAWC and IceCube Subthreshold Data,” *Astrophys. J.*, 8 2020.
- [6] A. Albert *et al.*, “HAWC and fermi-LAT detection of extended emission from the unidentified source 2hwc j2006+341,” *The Astrophysical Journal*, vol. 903, p. L14, oct 2020.
- [7] A. Albert *et al.*, “HAWC j2227+610 and its association with g106.3+2.7, a new potential galactic PeVatron,” *The Astrophysical Journal*, vol. 896, p. L29, jun 2020.
- [8] A. Albert *et al.*, “Constraints on Lorentz Invariance Violation from HAWC Observations of Gamma Rays above 100 TeV,” *Phys. Rev. Lett.*, vol. 124, no. 13, p. 131101, 2020.
- [9] A. Abeysekara *et al.*, “Multiple Galactic Sources with Emission Above 56 TeV Detected by HAWC,” *Phys. Rev. Lett.*, vol. 124, no. 2, p. 021102, 2020.
- [10] A. Abeysekara *et al.*, “Measurement of the Crab Nebula at the Highest Energies with HAWC,” *Astrophys. J.*, vol. 881, p. 134, 2019.
- [11] A. Abeysekara *et al.*, “All-Sky Measurement of the Anisotropy of Cosmic Rays at 10 TeV and Mapping of the Local Interstellar Magnetic Field,” *Astrophys. J.*, vol. 871, no. 1, p. 96, 2019.
- [12] M. G. Aartsen *et al.*, “Multimessenger observations of a flaring blazar coincident with high-energy neutrino IceCube-170922A,” *Science*, vol. 361, no. 6398, p. eaat1378, 2018.
- [13] A. U. Abeysekara *et al.*, “Observation of Anisotropy of TeV Cosmic Rays with Two Years of HAWC,” *The Astrophysical Journal*, vol. 865, no. 1, p. 57, 2018.
- [14] A. U. Abeysekara *et al.*, “Very-high-energy particle acceleration powered by the jets of the microquasar ss 433,” *Nature*, vol. 562, no. 7725, pp. 82–85, 2018.
- [15] A. Albert *et al.*, “Search for Dark Matter Gamma-ray Emission from the Andromeda Galaxy with the High-Altitude Water Cherenkov Observatory,” *JCAP*, vol. 1806, no. 06, p. 043, 2018.
- [16] A. U. Abeysekara *et al.*, “Extended gamma-ray sources around pulsars constrain the origin of the positron flux at Earth,” *Science*, vol. 358, no. 6365, pp. 911–914, 2017.
- [17] A. U. Abeysekara *et al.*, “A Search for Dark Matter in the Galactic Halo with HAWC,” *JCAP*, vol. 1802, no. 02, p. 049, 2018.
- [18] B. P. Abbott *et al.*, “Multi-messenger Observations of a Binary Neutron Star Merger,” *Astrophys. J.*, vol. 848, no. 2, p. L12, 2017.
- [19] R. Alfaro *et al.*, “All-particle cosmic ray energy spectrum measured by the HAWC experiment from 10 to 500 TeV,” *Phys. Rev.*, vol. D96, no. 12, p. 122001, 2017.
- [20] A. Albert *et al.*, “Dark Matter Limits From Dwarf Spheroidal Galaxies with The HAWC Gamma-Ray Observatory,” *Astrophys. J.*, vol. 853, no. 2, p. 154, 2018.
- [21] A. U. Abeysekara *et al.*, “The HAWC real-time flare monitor for rapid detection of transient events,” *Astrophys. J.*, vol. 843, no. 2, p. 116, 2017.
- [22] A. U. Abeysekara *et al.*, “Daily monitoring of TeV gamma-ray emission from Mrk 421, Mrk 501, and the Crab Nebula with HAWC,” *Astrophys. J.*, vol. 841, no. 2, p. 100, 2017.
- [23] A. U. Abeysekara *et al.*, “Search for Very High-energy Gamma Rays from the Northern Fermi Bubble Region with HAWC,” *Astrophys. J.*, vol. 842, no. 2, p. 85, 2017.
- [24] M. G. Aartsen *et al.*, “Multiwavelength follow-up of a rare IceCube neutrino multiplet,” *Astron. Astrophys.*, vol. 607, p. A115, 2017.
- [25] A. U. Abeysekara *et al.*, “The 2HWC HAWC Observatory Gamma Ray Catalog,” *Astrophys. J.*, vol. 843, no. 1, p. 40, 2017.
- [26] A. U. Abeysekara *et al.*, “Observation of the Crab Nebula with the HAWC Gamma-Ray Observatory,” *Astrophys. J.*, vol. 843, no. 1, p. 39, 2017.

Conference Proceedings

- [1] R. Abbasi *et al.*, “A time-independent search for neutrinos from galaxy clusters with IceCube,” *PoS*, vol. ICRC2021, p. 1133, 2021.
- [2] R. Lopez-Coto, J. Hahn, J. Hinton, R. D. Parsons, F. Salesa Greus, S. BenZvi, M. U. Nisa, and H. Zhou, “EDGE: a code to calculate diffusion of cosmic-ray electrons and their gamma-ray emission,” in *Proceedings, 35th International Cosmic Ray Conference (ICRC 2017): Bexco, Busan, Korea, July 12-20, 2017*, 2017.
- [3] M. U. Nisa, “Probing Cosmic-ray Propagation with TeV Gamma Rays from the Sun Using the HAWC Observatory,” in *Proceedings, 35th International Cosmic Ray Conference (ICRC 2017): Bexco, Busan, Korea, July 12-20, 2017*, 2017.
- [4] S. BenZvi, D. Fiorino, Z. Hampel-Arias, and M. U. Nisa, “Towards a Measurement of the e^+e^- Flux above 1 TeV with HAWC,” *PoS*, vol. ICRC2015, p. 248, 2016.