BRIAN A. CLARK

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ACADEMIC APPOINTMENTS

Assistant Professor 2023-Present
The University of Maryland, College Park, MD USA

NSF Astronomy and Astrophysics Postdoctoral Fellow 2019-2022
Michigan State University, East Lansing, MI USA

NSF Graduate Research Fellow 2016-2019
The Ohio State University, Columbus, OH USA

Teaching Assistant 2015-2016
The Ohio State University, Columbus, OH USA

EDUCATION

Ph.D. in Physics, The Ohio State University, Columbus, Ohio USA 2014-2019
Thesis: *Optimization of a Search for Ultra-High Energy Neutrinos in Four Years of Data of ARA Station 2*
Advisor: Prof. Amy Connolly

M.S. in Physics, The Ohio State University, Columbus, Ohio USA 2014-2016

B.A. in Physics, Washington University in St. Louis, St. Louis, Missouri USA 2010-2014
Cum Laude, Advisor: Prof. Henric Krawczynski

FELLOWSHIPS and AWARDS

NSF Astronomy and Astrophysics Postdoctoral Fellowship	2019-2022
Japanese Society for the Promotion of Science Postdoctoral Fellowship	2022
NSF Graduate Research Fellowship	2016-2019
OSU Graduate Enrichment Fellowship	2014-2015
WUSTL Undergraduate Physics Research Fellow	2011
APS Division of Astrophysics Travel Award	2017, 2019
Bunny and Thomas Clark Graduate Scholarship Honorable Mention	2019

EXTERNAL FUNDING

PI of NSF Award PHY-2411849 – $969,640 2024/09-2027/08
"*WoU-MMA: Extremely High Energy Neutrinos in the IceCube Neutrino Observatory*"

PI of NSF Award PHY-2310125 – $148,000 2023/09-2025/08
"*Collaborative Research: WoU-MMA: Ultrahigh Energy Neutrinos with the Radio Neutrino Observatory in Greenland*"

PI of NSF Award AST-1903885 – $328,750 2019/08-2022/12
"*Unveiling the Ultra-High Energy Universe with Neutrinos*"

SELECTED PUBLICATIONS (h-index = 33)

It is the policy of the ARA and IceCube collaborations that authors be listed in alphabetical order. A full publication list is available at the end of the CV and at my ORCID or INSPIRE-HEP pages.

12. "Search for Extremely High Energy Neutrinos with IceCube"
M. Meier, **B. A. Clark**, for the IceCube Collaboration
Proc. 38th International Cosmic Ray Conference PoS (ICRC2023)1149. [arXiv:2308.07656]

11. "A low-threshold ultrahigh-energy neutrino search with the Askaryan Radio Array"
P. Allison *et al.* for the ARA Collaboration (incl. **B. A. Clark**)
Physical Review D 105, 122006 (2022). [arXiv:2202.07080]

10. "toise: a framework to describe the performance of high-energy neutrino detectors"
J. van Santen, **B. A. Clark**, R. Halliday, S. Hallman, A. Nelles
JINST 17 (2022) T08009. [arXiv:2202.11120]

9. "Simulation and Sensitivity for a phased IceCube-Gen2 deployment"
B. A. Clark, R. Halliday for the IceCube-Gen2 Collaboration
Proc. 37th International Cosmic Ray Conference PoS (ICRC2021)1186. [arXiv:2107.08500]

8. "Sensitivity Studies for the IceCube-Gen2 radio array"
S. Hallmann, **B. A. Clark**, C. Glaser, D. Smith for the IceCube-Gen2 Collaboration
Proc. 37th International Cosmic Ray Conference PoS (ICRC2021)1183. [arXiv:2107.08910]

7. "The IceCube-Gen2 Neutrino Observatory"
B. A. Clark for the IceCube-Gen2 Collaboration
JINST 16 (2021) C100O7, Proc. 9th Very Large Volume Neutrino Telescope Workshop (VLVnT-2021). [arXiv:2108.05292]

6. "Constraints on the diffuse flux of ultrahigh energy neutrinos from four years of Askaryan Radio Array Data in two stations"
P. Allison *et al.* for the ARA Collaboration (incl. **B. A. Clark** as corresponding author)
Physical Review D 102, 043021 (2020). [arXiv:1912.00987]

5. "Long-baseline horizontal radio-frequency transmission through polar ice"
P. Allison *et al.* for the ARA Collaboration (incl. **B. A. Clark**)
JCAP Vol 2020 No 12 Pg 009. [arXiv:1908.10689]

4. "NuRadioMC: Simulating the radio emission of neutrinos from interaction to detector"
C. Glaser *et al.* (incl. **B. A. Clark**)
European Physical Journal C 80, 77 (2020). [arXiv:1906.01670]

3. "Design and Performance of an Interferometric Trigger Array for Radio Detection of High-Energy Neutrinos"
P. Allison *et al.* for the ARA Collaboration (incl. **B. A. Clark**)
Nuclear Instruments and Methods A 930, 112-125 (2019). [arXiv:1809.04573]

2. "Observation of Reconstructable Radio Emission Coincident with an X-Class Solar Flare in the Askaryan Radio Array Prototype Station."
P. Allison *et al.* for the ARA Collaboration (incl. **B. A. Clark** as corresponding author)
Submitted to Astroparticle Physics. [arXiv:1807.03335]

1. "Analyzing the Data from X-ray Polarimeters with Stokes Parameters."
F. Kislat, **B. Clark**, M. Bielicke, H. Krawczynski.
Astroparticle Physics 68, 45-51 (2015). [arXiv:1409.6214]

SCIENTIFIC TALKS & POSTERS

Invited Talks

12. Plenary, TeV Particle Astrophysics, Chicago IL 2024/08/28
11. Physics Colloquium, University of Virginia, Charlottesville VA 2023/12/01
10. Seminar, Yale University Wright Lab, New Haven CT 2023/05/04
9. Seminar, IIHE at VUB/ULB, Brussels BE 2022/10/14
8. Plenary, 15th Intnl. Conf. on Particle Phys and Cosmology (PPC), St. Louis MO 2022/06/09
7. HEP Seminar, Univ. of Maryland, College Park MD 2022/02/23
6. Physics Colloquium, Drexel University, Philadelphia PA 2022/02/17
5. Physics & Astronomy Colloquium, Univ. of Delaware, Newark DE 2022/02/09
4. Physics & Astronomy Colloquium, Univ. of Kansas, Lawrence KS 2021/11/22
3. Plenary, Very Large Volume Neutrino Telescopes 2021 2021/05/19
2. Astronomy Seminar, Michigan State Univ., East Lansing MI 2019/10/23
1. Physics Colloquium, College of Wooster, Wooster OH 2016/10/04

Contributed Talks and Posters

18. Snowmass 2021 Community Summer Study, Seattle, WA 2022/07/19
17. APS April Meeting 2022, New York NY 2022/04/12
16. 20th Annual AAPF Symposium 2022/01/10
15. International Cosmic Ray Conference 2021, Berlin Germany 2021/07/20
14. APS April Meeting 2021 2021/04/19
13. 19th Annual AAPF Symposium 2021/02/09
12. NEUTRINO 2020, Chicago IL 2020/06/21
11. 18th Annual AAPF Symposium at the 235th AAS Meeting, Honolulu HI 2020/01/04
10. OSU CCAPP Seminar, Columbus OH. 2019/07/16
9. APS April Meeting 2019, Denver CO 2019/04/15
8. Ohio Section of the APS Fall 2018 Meeting, Toledo OH 2018/09/29
7. OSU CCAPP Seminar, Columbus OH 2018/05/22
6. APS April Meeting 2018, Columbus OH 2018/04/16
5. TeV Particle Astrophysics, Columbus OH 2017/08/11
4. APS April Meeting 2017, Washington DC 2017/01/31
3. Computing in High Energy Astropart. Phys. Research 2016, Columbus OH. 2016/05/26
2. OSU Physics Summer Seminar Series, Columbus OH 2016/04/23
1. Ohio Section of the APS Spring 2016 Meeting, Dayton OH 2016/04/09

LEADERSHIP and SERVICE

Scientific Leadership

IceCube Collaboration Diffuse Working Group Convener	2022-Present
Early Career Scientists Representative, the IceCube Collaboration	January 2021-January 2023
ARA Analysis Coordinator	2020-2023
ARA Operations Coordinator	2018-2019

Professional Activities

Reviewer in a NSF Astronomy and Asrophysics Panel	2024-Present
Reviewer in a NASA Peer Review Panel	2021-2022
Peer Reviewer, Journal of Astroparticle Physics	2022-Present
Peer Reviewer, Journal of Instrumentation	2021-Present

University and Departmental Service

Co-Chair, UMD Physics Departmental Colloquium Committee	2023-Present
Member, UMD Physics Departmental Laboratory Committee	2023-Present
Member, UMD Physics Departmental Admissions Committee	2023-Present
Member, OSU Physics Climate and Diversity Committee	January 2017-May 2018
Officer, OSU Physics Graduate Student Council	October 2014-May 2017

MENTORSHIP and ADVISING

Postdoctoral Researchers

Steve Sclafani	2023-Present

PhD Research Students

Taylor St Jean	2024-Present
Aishwarya Vijai	2022-Present

Undergraduate Research Students

Zoe Brunton	2024-Present
Rohan Panchwagh	2023-Present
Santiago Sued	2024-Present

Committee Membership

Eli Mazrachi (PhD)	March 2024
Lucas Smith (PhD)	2023-Present
Elijah Willox (PhD)	April 2024

TEACHING

The University of Maryland, College Park, MD

Physics 276: Experimental Physics II (Spring 2023, Spring 2024, Fall 2024)

The Ohio State University, Columbus, OH

Astronomy 1143: Stars, Galaxies, and Cosmology (Spring 2016)
Physics 1251: E&M, Optics, and Quantum Mechanics (Fall 2015)

OUTREACH

Talk at UMD PHYS 170 "Professional Physics" Seminar	September 2023
Laboratory Tour for UMD Departmental "Toolkit for Success" Program	July 2023
Outreach at Maryland Day	April 2023
Talk at UMD Graduate Survey Seminar	March 2023
Talk, MSU Science Festival	April 2021
Talk, Making Space for All	June 2020
Talk, Astronomy on Tap Lansing	October 2019, August 2021
Coordinator for ASPIRE Workshop for High School Women, OSU	July 2015-June 2019
Volunteer Judge, Ohio State Science Day	2015-2019
Talk, Columbus Science Pub	May 2018
Talk, The Wellington School, Columbus, OH	April 2018
Volunteer Judge, OSU Denman Undergraduate Research Forum	2016

FULL PUBLICATION LIST

143. R. Abbasi et al. "Improved modeling of in-ice particle showers for IceCube event reconstruction". In: (Mar. 2024). arXiv: 2403.02470 [astro-ph.HE].

142. R. Abbasi et al. "Characterization of the Astrophysical Diffuse Neutrino Flux using Starting Track Events in IceCube". In: (Feb. 2024). arXiv: 2402.18026 [astro-ph.HE].

141. R. Abbasi et al. "Citizen Science for IceCube: Name that Neutrino". In: (Jan. 2024). arXiv: 2401.11994 [astro-ph.HE].

140. R. Abbasi et al. "Search for 10–1,000 GeV neutrinos from Gamma Ray Bursts with IceCube". In: (Dec. 2023). arXiv: 2312.11515 [astro-ph.HE].

139. R. Abbasi et al. "All-Sky Search for Transient Astrophysical Neutrino Emission with 10 Years of IceCube Cascade Events". In: (Dec. 2023). arXiv: 2312.05362 [astro-ph.HE].

138. N. Kurahashi Neilson et al. "Highlights from the IceCube Neutrino Observatory". In: *PoS* ICRC2023 (2024), p. 017. DOI: 10.22323/1.444.0017. arXiv: 2310.12840 [astro-ph.HE].

137. R. Abbasi et al. "Search for Continuous and Transient Neutrino Emission Associated with IceCube's Highest-Energy Tracks: An 11-Year Analysis". In: (Sept. 2023). arXiv: 2309.12130 [astro-ph.HE].

136. R. Abbasi et al. "Search for Galactic Core-collapse Supernovae in a Decade of Data Taken with the IceCube Neutrino Observatory". In: *Astrophys. J.* 961.1 (2024), p. 84. DOI: 10.3847/1538-4357/ad07d1. arXiv: 2308.01172 [astro-ph.HE].

135. R. Abbasi et al. "Sensitivity of the IceCube-Gen2 Surface Array for Cosmic-Ray Anisotropy Studies". In: *PoS* ICRC2023 (2023), p. 354. DOI: 10.22323/1.444.0354. arXiv: 2307.14655 [astro-ph.HE].

134. M. Dittmer et al. "Performance studies on new 4" photomultiplier types intended for IceCube-Gen2 optical modules". In: *PoS* ICRC2023 (2023), p. 985. DOI: 10.22323/1.444.0985. arXiv: 2307.14589 [astro-ph.IM].

133. R. Abbasi et al. "Estimating the coincidence rate between the optical and radio array of IceCube-Gen2". In: *PoS* ICRC2023 (2023), p. 1022. DOI: 10.22323/1.444.1022. arXiv: 2308.00961 [astro-ph.HE].

132. T. Glüsenkamp et al. "VAE-based latent-space classification of RNO-G data". In: *PoS* ICRC2023 (2023), p. 1056. DOI: 10.22323/1.444.1056. arXiv: 2309.16401 [astro-ph.HE].

131. R. Abbasi et al. "Searching for High-energy Neutrino Emission from Seyfert Galaxies in the Northern Sky with IceCube". In: *PoS* ICRC2023 (2023), p. 1052. DOI: 10.22323/1.444.1052. arXiv: 2308.00024 [astro-ph.HE].

130. A. Coleman et al. "Enhancing the Sensitivity of RNO-G Using a Machine-learning Based Trigger". In: *PoS* ICRC2023 (2023), p. 1100. DOI: 10.22323/1.444.1100.

129. E. Oberla et al. "Low-Power Radiofrequency Systems for the RNO-G Project". In: *PoS* ICRC2023 (2023), p. 1171. DOI: 10.22323/1.444.1171.

128. R. Abbasi et al. "Searching for Decoherence from Quantum Gravity at the IceCube South Pole Neutrino Observatory". In: (July 2023). arXiv: 2308.00105 [hep-ex].

127. M. S. Muzio et al. "Multimessenger Potential of the Radio Neutrino Observatory in Greenland". In: *PoS* ICRC2023 (2023), p. 1485. DOI: 10.22323/1.444.1485. arXiv: 2308.07224 [astro-ph.HE].

126. R. Abbasi et al. "The IceCube Collaboration – Contributions to the 38th International Cosmic Ray Conference (ICRC2023)". In: *38th International Cosmic Ray Conference*. July 2023. arXiv: 2307.13047 [astro-ph.HE].

125. R. Abbasi et al. "Search for Extended Sources of Neutrino Emission in the Galactic Plane with IceCube". In: *Astrophys. J.* 956.1 (2023), p. 20. DOI: 10.3847/1538-4357/acf713. arXiv: 2307.07576 [astro-ph.HE].

124. R. Abbasi et al. "Observation of high-energy neutrinos from the Galactic plane". In: *Science* 380.6652 (2023), adc9818. DOI: 10.1126/science.adc9818. arXiv: 2307.04427 [astro-ph.HE].

123. J. Henrichs et al. "Searching for air showers with RNO-G". In: *PoS* ARENA2022 (2023), p. 007. DOI: 10.22323/1.424.0007.

122. J. A. Aguilar et al. "The Radio Neutrino Observatory Greenland RNO-G: Status update". In: *PoS* ARENA2022 (2023), p. 005. DOI: 10.22323/1.424.0005.

121. R. Abbasi et al. "Search for Correlations of High-energy Neutrinos Detected in IceCube with Radio-bright AGN and Gamma-Ray Emission from Blazars". In: *Astrophys. J.* 954.1 (2023), p. 75. DOI: 10.3847/1538-4357/acdfcb. arXiv: 2304.12675 [astro-ph.HE].

120. R. Abbasi et al. "Measurement of atmospheric neutrino mixing with improved IceCube DeepCore calibration and data processing". In: *Phys. Rev. D* 108.1 (2023), p. 012014. DOI: 10.1103/PhysRevD.108.012014. arXiv: 2304.12236 [hep-ex].

119. R. Abbasi et al. "IceCat-1: The IceCube Event Catalog of Alert Tracks". In: *Astrophys. J. Suppl.* 269.1 (2023), p. 25. DOI: 10.3847/1538-4365/acfa95. arXiv: 2304.01174 [astro-ph.HE].

118. R. Abbasi et al. "A Search for IceCube Sub-TeV Neutrinos Correlated with Gravitational-wave Events Detected By LIGO/Virgo". In: *Astrophys. J.* 959.2 (2023), p. 96. DOI: 10.3847/1538-4357/aceefc. arXiv: 2303.15970 [astro-ph.HE].

117. R. Abbasi et al. "Search for neutrino lines from dark matter annihilation and decay with IceCube". In: *Phys. Rev. D* 108.10 (2023), p. 102004. DOI: 10.1103/PhysRevD.108.102004. arXiv: 2303.13663 [astro-ph.HE].

116. R. Abbasi et al. "Observation of seasonal variations of the flux of high-energy atmospheric neutrinos with IceCube". In: *Eur. Phys. J. C* 83.9 (2023), p. 777. DOI: 10.1140/epjc/s10052-023-11679-5. arXiv: 2303.04682 [astro-ph.HE].

115. R. Abbasi et al. "Constraining High-energy Neutrino Emission from Supernovae with IceCube". In: *Astrophys. J. Lett.* 949.1 (2023), p. L12. DOI: 10.3847/2041-8213/acd2c9. arXiv: 2303.03316 [astro-ph.HE].

114. J. A. Aguilar et al. "Triboelectric backgrounds to radio-based polar ultra-high energy neutrino (UHEN) experiments". In: *Astropart. Phys.* 145 (2023), p. 102790. DOI: 10.1016/j.astropartphys.2022.102790.

113. L. Pyras et al. "The Radio Neutrino Observatory Greenland: Status Update and Prospect for Air Showers". In: *PoS* ECRS (2023), p. 088. DOI: 10.22323/1.423.0088.

112. R. Abbasi et al. "Limits on Neutrino Emission from GRB 221009A from MeV to PeV Using the IceCube Neutrino Observatory". In: *Astrophys. J. Lett.* 946.1 (2023), p. L26. DOI: 10.3847/2041-8213/acc077. arXiv: 2302.05459 [astro-ph.HE].

111. R. Abbasi et al. "D-Egg: a dual PMT optical module for IceCube". In: *JINST* 18.04 (2023), P04014. DOI: 10.1088/1748-0221/18/04/P04014. arXiv: 2212.14526 [astro-ph.IM].

110. R. Abbasi et al. "A Search for Coincident Neutrino Emission from Fast Radio Bursts with Seven Years of IceCube Cascade Events". In: *Astrophys. J.* 946.2 (2023), p. 80. DOI: 10.3847/1538-4357/acbea0. arXiv: 2212.06702 [astro-ph.HE].

109. R. Abbasi et al. "Search for sub-TeV Neutrino Emission from Novae with IceCube-DeepCore". In: *Astrophys. J.* 953.2 (2023), p. 160. DOI: 10.3847/1538-4357/acdc1b. arXiv: 2212.06810 [astro-ph.HE].

108. R. Abbasi et al. "Searches for Neutrinos from Large High Altitude Air Shower Observatory Ultra-high-energy γ-Ray Sources Using the IceCube Neutrino Observatory". In: *Astrophys. J. Lett.* 945.1 (2023), p. L8. DOI: 10.3847/2041-8213/acb933. arXiv: 2211.14184 [astro-ph.HE].

107. R. Abbasi et al. "Evidence for neutrino emission from the nearby active galaxy NGC 1068". In: *Science* 378.6619 (2022), pp. 538–543. DOI: 10.1126/science.abg3395. arXiv: 2211.09972 [astro-ph.HE].

106. R. Abbasi et al. "Constraints on Populations of Neutrino Sources from Searches in the Directions of IceCube Neutrino Alerts". In: *Astrophys. J.* 951.1 (2023), p. 45. DOI: 10.3847/1538-4357/acd2ca. arXiv: 2210.04930 [astro-ph.HE].

105. R. Abbasi et al. "Graph Neural Networks for low-energy event classification & reconstruction in IceCube". In: *JINST* 17.11 (2022), P11003. DOI: 10.1088/1748-0221/17/11/P11003. arXiv: 2209.03042 [hep-ex].

104. R. Abbasi et al. "IceCube Search for Neutrinos Coincident with Gravitational Wave Events from LIGO/Virgo Run O3". In: *Astrophys. J.* 944.1 (2023), p. 80. DOI: 10.3847/1538-4357/aca5fc. arXiv: 2208.09532 [astro-ph.HE].

103. R. Abbasi et al. "Search for Astrophysical Neutrinos from 1FLE Blazars with IceCube". In: *Astrophys. J.* 938.1 (2022), p. 38. DOI: 10.3847/1538-4357/ac8de4. arXiv: 2207.04946 [astro-ph.HE].

102. R. Abbasi et al. "Searching for High-energy Neutrino Emission from Galaxy Clusters with IceCube". In: *Astrophys. J. Lett.* 938.2 (2022), p. L11. DOI: 10.3847/2041-8213/ac966b. arXiv: 2206.02054 [astro-ph.HE].

101. R. Abbasi et al. "Searches for connections between dark matter and high-energy neutrinos with IceCube". In: *JCAP* 10 (2023), p. 003. DOI: 10.1088/1475-7516/2023/10/003. arXiv: 2205.12950 [hep-ex].

100. R. Abbasi et al. "Searches for Neutrinos from Gamma-Ray Bursts Using the IceCube Neutrino Observatory". In: *Astrophys. J.* 939.2 (2022), p. 116. DOI: 10.3847/1538-4357/ac9785. arXiv: 2205.11410 [astro-ph.HE].

99. R. Abbasi et al. "Framework and tools for the simulation and analysis of the radio emission from air showers at IceCube". In: *JINST* 17.06 (2022), P06026. DOI: 10.1088/1748-0221/17/06/P06026. arXiv: 2205.02258 [astro-ph.HE].

98. R. Abbasi et al. "Search for Unstable Sterile Neutrinos with the IceCube Neutrino Observatory". In: *Phys. Rev. Lett.* 129.15 (2022), p. 151801. DOI: 10.1103/PhysRevLett.129.151801. arXiv: 2204.00612 [hep-ex].

97. M. Ackermann et al. "High-energy and ultra-high-energy neutrinos: A Snowmass white paper". In: *JHEAp* 36 (2022), pp. 55–110. DOI: 10.1016/j.jheap.2022.08.001. arXiv: 2203.08096 [hep-ph].

96. R. Abbasi et al. "Low energy event reconstruction in IceCube DeepCore". In: *Eur. Phys. J. C* 82.9 (2022), p. 807. DOI: 10.1140/epjc/s10052-022-10721-2. arXiv: 2203.02303 [hep-ex].

95. R. Abbasi et al. "Search for High-energy Neutrino Emission from Galactic X-Ray Binaries with IceCube". In: *Astrophys. J. Lett.* 930.2 (2022), p. L24. DOI: 10.3847/2041-8213/ac67d8. arXiv: 2202.11722 [astro-ph.HE].

94. J. van Santen, B. A. Clark, R. Halliday, S. Hallmann, and A. Nelles. "toise: a framework to describe the performance of high-energy neutrino detectors". In: *JINST* 17.08 (2022), T08009. DOI: 10.1088/1748-0221/17/08/T08009. arXiv: 2202.11120 [astro-ph.IM].

93. P. Allison et al. "Low-threshold ultrahigh-energy neutrino search with the Askaryan Radio Array". In: *Phys. Rev. D* 105.12 (2022), p. 122006. DOI: 10.1103/PhysRevD.105.122006. arXiv: 2202.07080 [astro-ph.HE].

92. R. Abbasi et al. "Density of GeV muons in air showers measured with IceTop". In: *Phys. Rev. D* 106.3 (2022), p. 032010. DOI: 10.1103/PhysRevD.106.032010. arXiv: 2201.12635 [hep-ex].

91. J. A. Aguilar et al. "In situ, broadband measurement of the radio frequency attenuation length at Summit Station, Greenland". In: (Jan. 2022). DOI: 10.1017/jog.2022.40. arXiv: 2201.07846 [astro-ph.IM].

90. A. Albert et al. "Search for Spatial Correlations of Neutrinos with Ultra-high-energy Cosmic Rays". In: *Astrophys. J.* 934.2 (2022), p. 164. DOI: 10.3847/1538-4357/ac6def. arXiv: 2201.07313 [astro-ph.HE].

89. R. Abbasi et al. "Strong Constraints on Neutrino Nonstandard Interactions from TeV-Scale ν_u Disappearance at IceCube". In: *Phys. Rev. Lett.* 129.1 (2022), p. 011804. DOI: 10.1103/PhysRevLett.129.011804. arXiv: 2201.03566 [hep-ex].

88. R. Abbasi et al. "Improved Characterization of the Astrophysical Muon–neutrino Flux with 9.5 Years of IceCube Data". In: *Astrophys. J.* 928.1 (2022), p. 50. DOI: 10.3847/1538-4357/ac4d29. arXiv: 2111.10299 [astro-ph.HE].

87. R. Abbasi et al. "Search for neutrino emission from cores of active galactic nuclei". In: *Phys. Rev. D* 106.2 (2022), p. 022005. DOI: 10.1103/PhysRevD.106.022005. arXiv: 2111.10169 [astro-ph.HE].

86. R. Abbasi et al. "Search for GeV-scale dark matter annihilation in the Sun with IceCube DeepCore". In: *Phys. Rev. D* 105.6 (2022), p. 062004. DOI: 10.1103/PhysRevD.105.062004. arXiv: 2111.09970 [astro-ph.HE].

85. R. Abbasi et al. "Search for quantum gravity using astrophysical neutrino flavour with IceCube". In: *Nature Phys.* 18.11 (2022), pp. 1287–1292. DOI: 10.1038/s41567-022-01762-1. arXiv: 2111.04654 [hep-ex].

84. R. Abbasi et al. "Search for Relativistic Magnetic Monopoles with Eight Years of IceCube Data". In: *Phys. Rev. Lett.* 128.5 (2022), p. 051101. DOI: 10.1103/PhysRevLett.128.051101. arXiv: 2109.13719 [astro-ph.HE].

83. R. Abbasi et al. "Search for Multi-flare Neutrino Emissions in 10 yr of IceCube Data from a Catalog of Sources". In: *Astrophys. J. Lett.* 920.2 (2021), p. L45. DOI: 10.3847/2041-8213/ac2c7b. arXiv: 2109.05818 [astro-ph.HE].

82. V. A. Acciari et al. "Searching for VHE gamma-ray emission associated with IceCube neutrino alerts using FACT, H.E.S.S., MAGIC, and VERITAS". In: *PoS* ICRC2021 (2021), p. 960. DOI: 10.22323/1.395.0960. arXiv: 2109.04350 [astro-ph.HE].

81. B. Clark. "The IceCube-Gen2 Neutrino Observatory". In: *JINST* 16.10 (2021), p. C10007. DOI: 10.1088/1748-0221/16/10/C10007. arXiv: 2108.05292 [astro-ph.HE].

80. H. Ayala et al. "Multimessenger NuEM Alerts with AMON". In: *PoS* ICRC2021 (2021), p. 958. DOI: 10.22323/1.395.0958. arXiv: 2108.04920 [astro-ph.HE].

79. R. Abbasi et al. "Simulation study for the future IceCube-Gen2 surface array". In: *PoS* ICRC2021 (2021), p. 411. DOI: 10.22323/1.395.0411. arXiv: 2108.04307 [astro-ph.HE].

78. R. Abbasi et al. "Searching for neutrino transients below 1 TeV with IceCube". In: *PoS* ICRC2021 (2021), p. 1131. DOI: 10.22323/1.395.1131. arXiv: 2108.01530 [astro-ph.HE].

77. F. G. Schroeder et al. "The Surface Array planned for IceCube-Gen2". In: *PoS* ICRC2021 (2021), p. 407. DOI: 10.22323/1.395.0407. arXiv: 2108.00364 [astro-ph.HE].

76. B. Clark et al. "Characterization of the PeV astrophysical neutrino energy spectrum with IceCube using down-going tracks". In: *PoS* ICRC2021 (2021), p. 1137. DOI: 10.22323/1.395.1137. arXiv: 2107.14298 [astro-ph.HE].

75. R. Abbasi et al. "Searching for time-dependent high-energy neutrino emission from X-ray binaries with IceCube". In: *PoS* ICRC2021 (2021), p. 1136. DOI: 10.22323/1.395.1136. arXiv: 2107.12383 [astro-ph.HE].

74. R. Abbasi et al. "Gravitational Wave Follow-Up Using Low Energy Neutrinos in IceCube DeepCore". In: *PoS* ICRC2021 (2021), p. 939. DOI: 10.22323/1.395.0939. arXiv: 2107.11285 [astro-ph.HE].

73. R. Abbasi et al. "Discrimination of Muons for Mass Composition Studies of Inclined Air Showers Detected with IceTop". In: *PoS* ICRC2021 (2021), p. 212. DOI: 10.22323/1.395.0212. arXiv: 2107.11293 [astro-ph.HE].

72. R. Abbasi et al. "Reconstructing Neutrino Energy using CNNs for GeV Scale IceCube Events". In: *PoS* ICRC2021 (2021), p. 1053. DOI: 10.22323/1.395.1053. arXiv: 2107.11446 [astro-ph.HE].

71. E. Bechtol et al. "Towards Equitable, Diverse, and Inclusive science collaborations: The Multimessenger Diversity Network". In: *PoS* ICRC2021 (2021), p. 1383. DOI: 10.22323/1.395.1383. arXiv: 2107.12179 [physics.ed-ph].

70. R. Abbasi et al. "New flux limit in the low relativistic regime for magnetic monopoles at IceCube". In: *PoS* ICRC2021 (2021), p. 534. DOI: 10.22323/1.395.0534. arXiv: 2107.10548 [astro-ph.HE].

69. L. Halve et al. "Design of an Efficient, High-Throughput Photomultiplier Tube Testing Facility for the IceCube Upgrade". In: *PoS* ICRC2021 (2021), p. 1056. DOI: 10.22323/1.395.1056. arXiv: 2107.09954 [astro-ph.HE].

68. J. Necker et al. "Searching for High-Energy Neutrinos from Core-Collapse Supernovae with IceCube". In: *PoS* ICRC2021 (2021), p. 1116. DOI: 10.22323/1.395.1116. arXiv: 2107.09317 [astro-ph.HE].

67. S. Verpoest et al. "Testing Hadronic Interaction Models with Cosmic Ray Measurements at the IceCube Neutrino Observatory". In: *PoS* ICRC2021 (2021), p. 357. DOI: 10.22323/1.395.0357. arXiv: 2107.09387 [astro-ph.HE].

66. A. Pizzuto et al. "Realtime follow-up of astrophysical transients with the IceCube Neutrino Observatory". In: *PoS* ICRC2021 (2021), p. 952. DOI: 10.22323/1.395.0952. arXiv: 2107.09551 [astro-ph.HE].

65. R. Abbasi et al. "Study of mass composition of cosmic rays with IceTop and IceCube". In: *PoS* ICRC2021 (2021), p. 323. DOI: 10.22323/1.395.0323. arXiv: 2107.09626 [astro-ph.HE].

64. D. Veske et al. "Multi-messenger searches via IceCube's high-energy neutrinos and gravitational-wave detections of LIGO/Virgo". In: *PoS* ICRC2021 (2021), p. 950. DOI: 10.22323/1.395.0950. arXiv: 2107.09663 [astro-ph.HE].

63. R. Abbasi et al. "Measuring total neutrino cross section with IceCube at intermediate energies (˜100 GeV to a few TeV)". In: *PoS* ICRC2021 (2021), p. 1132. DOI: 10.22323/1.395.1132. arXiv: 2107.09764 [astro-ph.HE].

62. R. Abbasi et al. "First air-shower measurements with the prototype station of the IceCube surface enhancement". In: *PoS* ICRC2021 (2021), p. 314. DOI: 10.22323/1.395.0314. arXiv: 2107.08750 [astro-ph.HE].

61. R. Abbasi et al. "Sensitivity studies for the IceCube-Gen2 radio array". In: *PoS* ICRC2021 (2021), p. 1183. DOI: 10.22323/1.395.1183. arXiv: 2107.08910 [astro-ph.HE].

60. R. Abbasi et al. "Searches for Neutrinos from Precursors and Afterglows of Gamma-Ray Bursts using the IceCube Neutrino Observatory". In: *PoS* ICRC2021 (2021), p. 1118. DOI: 10.22323/1.395.1118. arXiv: 2107.08870 [astro-ph.HE].

59. R. Abbasi et al. "IceCube Search for High-Energy Neutrinos from Ultra-Luminous Infrared Galaxies". In: *PoS* ICRC2021 (2021), p. 1115. DOI: 10.22323/1.395.1115. arXiv: 2107.08422 [astro-ph.HE].

58. R. Abbasi et al. "Search for high-energy neutrino emission from hard X-ray AGN with IceCube". In: *JINST* 16.09 (2021), p. C09013. DOI: 10.1088/1748-0221/16/09/C09013. arXiv: 2107.08366 [astro-ph.HE].

57. R. Abbasi et al. "Simulation and sensitivities for a phased IceCube-Gen2 deployment". In: *PoS* ICRC2021 (2021), p. 1186. DOI: 10.22323/1.395.1186. arXiv: 2107.08500 [astro-ph.HE].

56. A. Omeliukh et al. "Optimization of the optical array geometry for IceCube-Gen2". In: *PoS* ICRC2021 (2021), p. 1184. DOI: 10.22323/1.395.1184. arXiv: 2107.08527 [astro-ph.HE].

55. R. Abbasi et al. "Analysis framework for multi-messenger astronomy with IceCube". In: *PoS* ICRC2021 (2021), p. 1098. DOI: 10.22323/1.395.1098. arXiv: 2107.08254 [astro-ph.IM].

54. M. J. Larson et al. "Testing the AGN Radio and Neutrino correlation using the MOJAVE catalog and 10 years of IceCube Data". In: *PoS* ICRC2021 (2021), p. 949. DOI: 10.22323/1.395.0949. arXiv: 2107.08115 [astro-ph.HE].

53. V. Basu et al. "A next-generation optical sensor for IceCube-Gen2". In: *PoS* ICRC2021 (2021), p. 1062. DOI: 10.22323/1.395.1062. arXiv: 2107.08837 [astro-ph.IM].

52. R. Abbasi et al. "The IceCube-Gen2 Collaboration – Contributions to the 37th International Cosmic Ray Conference (ICRC2021)". In: (July 2021). arXiv: 2107.06968 [astro-ph.HE].

51. R. Abbasi et al. "The IceCube Collaboration – Contributions to the 37th International Cosmic Ray Conference (ICRC2021)". In: (July 2021). arXiv: 2107.06966 [astro-ph.HE].

50. R. Abbasi et al. "Search for High-energy Neutrinos from Ultraluminous Infrared Galaxies with IceCube". In: *Astrophys. J.* 926.1 (2022), p. 59. DOI: 10.3847/1538-4357/ac3cb6. arXiv: 2107.03149 [astro-ph.HE].

49. J. A. Aguilar et al. "Reconstructing the neutrino energy for in-ice radio detectors: A study for the Radio Neutrino Observatory Greenland (RNO-G)". In: *Eur. Phys. J. C* 82.2 (2022), p. 147. DOI: 10.1140/epjc/s10052-022-10034-4. arXiv: 2107.02604 [astro-ph.HE].

48. R. Abbasi et al. "All-flavor constraints on nonstandard neutrino interactions and generalized matter potential with three years of IceCube DeepCore data". In: *Phys. Rev. D* 104.7 (2021), p. 072006. DOI: 10.1103/PhysRevD.104.072006. arXiv: 2106.07755 [hep-ex].

47. R. Abbasi et al. "Probing neutrino emission at GeV energies from compact binary mergers with the IceCube Neutrino Observatory". In: (May 2021). arXiv: 2105.13160 [astro-ph.HE].

46. M. G. Aartsen et al. "Detection of a particle shower at the Glashow resonance with IceCube". In: *Nature* 591.7849 (2021). [Erratum: Nature 592, E11 (2021)], pp. 220–224. DOI: 10.1038/s41586-021-03256-1. arXiv: 2110.15051 [hep-ex].

45. R. Abbasi et al. "A muon-track reconstruction exploiting stochastic losses for large-scale Cherenkov detectors". In: *JINST* 16.08 (2021), P08034. DOI: 10.1088/1748-0221/16/08/P08034. arXiv: 2103.16931 [hep-ex].

44. J. A. Aguilar et al. "Triboelectric Backgrounds to radio-based UHE Neutrino Exeperiments". In: (Mar. 2021). arXiv: 2103.06079 [astro-ph.IM].

43. R. Abbasi et al. "A Convolutional Neural Network based Cascade Reconstruction for the IceCube Neutrino Observatory". In: *JINST* 16 (2021), P07041. DOI: 10.1088/1748-0221/16/07/P07041. arXiv: 2101.11589 [hep-ex].

42. R. Abbasi et al. "IceCube Data for Neutrino Point-Source Searches Years 2008-2018". In: (Jan. 2021). DOI: 10.21234/CPKQ-K003. arXiv: 2101.09836 [astro-ph.HE].

41. R. Abbasi et al. "Search for GeV neutrino emission during intense gamma-ray solar flares with the IceCube Neutrino Observatory". In: *Phys. Rev. D* 103.10 (2021), p. 102001. DOI: 10.1103/PhysRevD.103.102001. arXiv: 2101.00610 [astro-ph.HE].

40. K. Hughes et al. "Implementing a Low-Threshold Analysis with the Askaryan Radio Array (ARA)". In: *PoS* ICRC2021 (2021), p. 1153. DOI: 10.22323/1.395.1153.

39. M. Kim et al. "A Template-based UHE Neutrino Search Strategy for the Askaryan Radio Array (ARA)". In: *PoS* ICRC2021 (2021), p. 1147. DOI: 10.22323/1.395.1147.

38. P. Dasgupta et al. "The Calibration of the Geometry and Antenna Delay in Askaryan Radio Array Station 4 and 5". In: *PoS* ICRC2021 (2021), p. 1086. DOI: 10.22323/1.395.1086.

37. J. A. Aguilar et al. "Hardware Development for the Radio Neutrino Observatory in Greenland (RNO-G)". In: *PoS* ICRC2021 (2021), p. 1058. DOI: 10.22323/1.395.1058.

36. R. Abbasi et al. "Search for dark matter from the center of the Earth with 8 years of IceCube data". In: *PoS* ICRC2021 (2021), p. 526. DOI: 10.22323/1.395.0526.

35. J. A. Aguilar et al. "Energy reconstruction with the Radio Neutrino Observatory Greenland (RNO-G)". In: *PoS* ICRC2021 (2021), p. 1033. DOI: 10.22323/1.395.1033.

34. Y. Pan et al. "A neural network based UHE neutrino reconstruction method for the Askaryan Radio Array (ARA)". In: *PoS* ICRC2021 (2021), p. 1157. DOI: 10.22323/1.395.1157.

33. J. A. Aguilar et al. "Direction Reconstruction for the Radio Neutrino Observatory Greenland (RNO-G)". In: *PoS* ICRC2021 (2021), p. 1026. DOI: 10.22323/1.395.1026.

32. J. A. Aguilar et al. "The Radio Neutrino Observatory Greenland (RNO-G)". In: *PoS* ICRC2021 (2021), p. 001. DOI: 10.22323/1.395.0001.

31. R. Abbasi et al. "LeptonInjector and LeptonWeighter: A neutrino event generator and weighter for neutrino observatories". In: *Comput. Phys. Commun.* 266 (2021), p. 108018. DOI: 10.1016/j.cpc.2021.108018. arXiv: 2012.10449 [physics.comp-ph].

30. R. Abbasi et al. "Follow-up of Astrophysical Transients in Real Time with the IceCube Neutrino Observatory". In: *Astrophys. J.* 910.1 (2021), p. 4. DOI: 10.3847/1538-4357/abe123. arXiv: 2012.04577 [astro-ph.HE].

29. R. Abbasi et al. "A Search for Time-dependent Astrophysical Neutrino Emission with IceCube Data from 2012 to 2017". In: *Astrophys. J.* 911.1 (2021), p. 67. DOI: 10.3847/1538-4357/abe7e6. arXiv: 2012.01079 [astro-ph.HE].

28. R. Abbasi et al. "First all-flavor search for transient neutrino emission using 3-years of IceCube DeepCore data". In: *JCAP* 01 (2022), p. 027. DOI: 10.1088/1475-7516/2022/01/027. arXiv: 2011.05096 [astro-ph.HE].

27. R. Abbasi et al. "The IceCube high-energy starting event sample: Description and flux characterization with 7.5 years of data". In: *Phys. Rev. D* 104 (2021), p. 022002. DOI: 10.1103/PhysRevD.104.022002. arXiv: 2011.03545 [astro-ph.HE].

26. R. Abbasi et al. "Measurement of the high-energy all-flavor neutrino-nucleon cross section with IceCube". In: (Nov. 2020). DOI: 10.1103/PhysRevD.104.022001. arXiv: 2011.03560 [hep-ex].

25. R. Abbasi et al. "Detection of astrophysical tau neutrino candidates in IceCube". In: *Eur. Phys. J. C* 82.11 (2022), p. 1031. DOI: 10.1140/epjc/s10052-022-10795-y. arXiv: 2011.03561 [hep-ex].

24. J. A. Aguilar et al. "Design and Sensitivity of the Radio Neutrino Observatory in Greenland (RNO-G)". In: *JINST* 16.03 (2021). [Erratum: JINST 18, E03001 (2023)], P03025. DOI: 10.1088/1748-0221/16/03/P03025. arXiv: 2010.12279 [astro-ph.IM].

23. H. A. Ayala Solares et al. "Multimessenger Gamma-Ray and Neutrino Coincidence Alerts Using HAWC and IceCube Subthreshold Data". In: *Astrophys. J.* 906 (2021), p. 63. DOI: 10.3847/1538-4357/abcaa4. arXiv: 2008.10616 [astro-ph.HE].

22. M. G. Aartsen et al. "IceCube-Gen2: the window to the extreme Universe". In: *J. Phys. G* 48.6 (2021), p. 060501. DOI: 10.1088/1361-6471/abbd48. arXiv: 2008.04323 [astro-ph.HE].

21. M. G. Aartsen et al. "Measurements of the time-dependent cosmic-ray Sun shadow with seven years of IceCube data: Comparison with the Solar cycle and magnetic field models". In: *Phys. Rev. D* 103.4 (2021), p. 042005. DOI: 10.1103/PhysRevD.103.042005. arXiv: 2006.16298 [astro-ph.HE].

20. M. G. Aartsen et al. "Cosmic ray spectrum from 250 TeV to 10 PeV using IceTop". In: *Phys. Rev. D* 102 (2020), p. 122001. DOI: 10.1103/PhysRevD.102.122001. arXiv: 2006.05215 [astro-ph.HE].

19. M. G. Aartsen et al. "Searching for eV-scale sterile neutrinos with eight years of atmospheric neutrinos at the IceCube Neutrino Telescope". In: *Phys. Rev. D* 102.5 (2020), p. 052009. DOI: 10.1103/PhysRevD.102.052009. arXiv: 2005.12943 [hep-ex].

18. M. G. Aartsen et al. "eV-Scale Sterile Neutrino Search Using Eight Years of Atmospheric Muon Neutrino Data from the IceCube Neutrino Observatory". In: *Phys. Rev. Lett.* 125.14 (2020), p. 141801. DOI: 10.1103/PhysRevLett.125.141801. arXiv: 2005.12942 [hep-ex].

17. J. A. Rolla et al. "Evolving Antennas for Ultra-High Energy Neutrino Detection". In: *PoS* ICRC2019 (2021), p. 992. DOI: 10.22323/1.358.0992. arXiv: 2005.07772 [astro-ph.IM].

16. M. G. Aartsen et al. "IceCube Search for Neutrinos Coincident with Compact Binary Mergers from LIGO-Virgo's First Gravitational-wave Transient Catalog". In: *Astrophys. J. Lett.* 898.1 (2020), p. L10. DOI: 10.3847/2041-8213/ab9d24. arXiv: 2004.02910 [astro-ph.HE].

15. M. G. Aartsen et al. "IceCube Search for High-Energy Neutrino Emission from TeV Pulsar Wind Nebulae". In: *Astrophys. J.* 898.2 (2020), p. 117. DOI: 10.3847/1538-4357/ab9fa0. arXiv: 2003.12071 [astro-ph.HE].

14. A. Albert et al. "Combined search for neutrinos from dark matter self-annihilation in the Galactic Center with ANTARES and IceCube". In: *Phys. Rev. D* 102.8 (2020), p. 082002. DOI: 10.1103/PhysRevD.102.082002. arXiv: 2003.06614 [astro-ph.HE].

13. R. Abbasi et al. "Search for dark matter annihilation in the center of the Earth with 8 years of IceCube data". In: *PoS* ICRC2019 (2020), p. 541. DOI: 10.22323/1.358.0541. arXiv: 1908.07255 [astro-ph.HE].

12. D. García-Fernández et al. "NuRadioMC - Simulation Code for the Next Generation of Radio Neutrino Detectors". In: *PoS* ICRC2019 (2020), p. 896. DOI: 10.22323/1.358.0896.

11. P. Allison et al. "Constraints on the diffuse flux of ultrahigh energy neutrinos from four years of Askaryan Radio Array data in two stations". In: *Phys. Rev. D* 102.4 (2020), p. 043021. DOI: 10.1103/PhysRevD.102.043021. arXiv: 1912.00987 [astro-ph.HE].

10. M. G. Aartsen et al. "Neutrino astronomy with the next generation IceCube Neutrino Observatory". In: (Nov. 2019). arXiv: 1911.02561 [astro-ph.HE].

9. P. Allison et al. "Long-baseline horizontal radio-frequency transmission through polar ice". In: *JCAP* 12 (2020), p. 009. DOI: 10.1088/1475-7516/2020/12/009. arXiv: 1908.10689 [astro-ph.IM].

8. J. A. Aguilar et al. "The Next-Generation Radio Neutrino Observatory – Multi-Messenger Neutrino Astrophysics at Extreme Energies". In: (July 2019). arXiv: 1907.12526 [astro-ph.HE].

7. A. Connolly et al. "Recent Results from The Askaryan Radio Array". In: *PoS* ICRC2019 (2021), p. 858. DOI: 10.22323/1.358.0858. arXiv: 1907.11125 [astro-ph.HE].

6. C. Glaser et al. "NuRadioMC: Simulating the radio emission of neutrinos from interaction to detector". In: *Eur. Phys. J. C* 80.2 (2020), p. 77. DOI: 10.1140/epjc/s10052-020-7612-8. arXiv: 1906.01670 [astro-ph.IM].

5. B. A. Clark. "Optimization of a Search for Ultra-High Energy Neutrinos in Four Years of Data of ARA Station 2". PhD thesis. The Ohio State University, Ohio State U., 2019.

4. P. Allison et al. "Design and performance of an interferometric trigger array for radio detection of high-energy neutrinos". In: *Nucl. Instrum. Meth. A* 930 (2019), pp. 112–125. DOI: 10.1016/j.nima.2019.01.067. arXiv: 1809.04573 [astro-ph.IM].

3. P. Allison et al. "Observation of Reconstructable Radio Emission Coincident with an X-Class Solar Flare in the Askaryan Radio Array Prototype Station". In: (July 2018). arXiv: 1807.03335 [astro-ph.HE].

2. P. Allison et al. "Measurement of the real dielectric permittivity ϵ_r of glacial ice". In: *Astropart. Phys.* 108 (2019), pp. 63–73. DOI: 10.1016/j.astropartphys.2019.01.004. arXiv: 1712.03301 [astro-ph.IM].

1. F. Kislat, B. Clark, M. Beilicke, and H. Krawczynski. "Analyzing the data from X-ray polarimeters with Stokes parameters". In: *Astropart. Phys.* 68 (2015), pp. 45–51. DOI: 10.1016/j.astropartphys.2015.02.007. arXiv: 1409.6214 [astro-ph.IM].