Gabriel Collin

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CURRENT POSITION

Ramsay Fellow at the Department of Physics at the University of Adelaide, Adelaide, SA; started 11/2021.

EDUCATION

Doctorate of Philosophy, in physics.
Massachusetts Institute of Technology, Cambridge, MA, USA

undertaken	08/2012 - 06/2018
concentration	Experimental nuclear and particle physics
dissertation	Neutrinos, Neurons and Neutron Stars: Applications of new statistical and analysis techniques to particle and astrophysics.
advisor	Prof. Janet Conrad

Bachelor of Philosophy, with first class honours in physics.
Australian National University, Canberra, ACT, Australia

undertaken	02/2008 - 11/2011
concentration	Physics
Honours thesis	Methodologies for the application of Total Absorption Gamma-ray Spectroscopy.
Honours advisor	Dr. Greg Lane

AWARDS

2016	Martin Deutsch Student Award for Excellence in Experimental Physics.
2016	American Australian Association Bechtel Fellowship.
2013	University Research Association Fermilab Fellowship.
2012	Laurie First Year Graduate Fellowship.
2011	University Medal in Physics.
2008	Bachelor of Philosophy Scholarship.

RESEARCH EXPERIENCE

Ramsay Fellow, University of Adelaide

undertaken	supervisor, topic
11/2021 – present	Develop new statistical point-source inference methods for application on the Fermi Gamma-ray telescope.

Postdoctoral Associate, MIT

09/2018 – 06/2021 Prof. Munther Dahleh, Institute for Data Systems and Society
Prof. Devavrat Shah, Statistics and Data Science Center

Identify and strengthen collaborations between statistics and data science faculty at IDSS and faculty in the physics department. Advised computer science Masters student Evan Tey on application of normalising flows to generative modelling of stellar spectra.

Assisted in the creation of the NSF AI Institute for Artificial Intelligence and Fundamental Interactions (IAIFI), and initiated the IDSS Interdisciplinary PhD in Physics and Statistics.

09/2018 – 06/2021 Prof. Kerstin Perez, Laboratory of Nuclear Science

Developed new general approach to parametric point-source inference which is appropriate for X-ray astronomy. Advised computer science Masters student John Heyer on application of probabilistic cataloguing to the NuSTAR telescope.

American-Australian Associatation Fellow, MIT

09/2016 - 08/2017 Prof. Janet Conrad, Laboratory of Nuclear Science.

Applied deep learning to event classification in the IceCube detector. Demonstrated competitive performance for identification of τ-neutrino events compared to traditional algorithms.

Research Assistant, M.I.T.

02/2014 - 08/2018 Prof. Janet Conrad, Laboratory of Nuclear Science.

Rewrote the group's global short baseline sterile neutrino fitting software in C++, with an affine invariant MCMC that is capable of being distributed on opportunistic computer clusters. Generated systematic atmospheric neutrino flux variations using the MCEq software package for IceCube. Performed a neutrino point source search on IceCube using the Non-Poissonian Template Fitting statistical method. Developed a path sampling approach to light propagation in ice.

URA Research Fellow, Fermilab

06/2013 - 01/2014 Prof. Janet Conrad, Laboratory of Nuclear Science.

Determined the magnitude of the capacitive coupling between the MicroBooNE PMTs and wire plane, and investigated mitigation techniques. Assisted in the assembly of the PMT system. Designed an antenna based diagnostic system for time projection chambers.

Honours student, ANU

07/2011 - 10/2011	Dr. Greg Lane, Department of Nuclear Physics. Explored the use of Total Absorption Gamma-ray Spectroscopy for measuring the feeding intensities in beta decay processes, and developed a method for application of this technique at the ANU and Argonne National Laboratory.

Undergraduate Researcher, ANU

08/2010 - 11/2010	Dr. Avi Shalav, Department of Electronic Materials Engineering. Extended the silica nanowire active oxidation technique for the production of Germanium oxide nanowires.
04/2010 - 06/2010	Prof. Andrew Stuchbery, Department of Nuclear Physics. Investigated a discrepancy in attenuation coefficients of Ge and Se that were measured while using the recoil in vacuum method to determine nuclear g-factors.
12/2009 - 03/2010	Dr. Boyd Blackwell, Plasma Research Laboratory. Investigated techniques for minimising and maximising the size of $\iota = 6/5$ magnetic island chains in the H-1NF stellerator.
04/2009 - 11/2009	Dr. Adrian Sheppard, Department of Applied Mathematics. Implemented the Feldkamp filtered back-projection algorithm using C for CUDA, for the purpose of reconstructing tomograms on General Purpose Graphical Processing Units. Investigated a novel technique for creating dynamic tomographic images using cone-beam tomography.
08/2008 - 11/2008	Dr. James Sullivan, Atomic and Molecular Physics Laboratory. Refined the resolution of a magnetically confined, electrostatic beam apparatus for the purpose of measuring electron scattering cross sections.

TEACHING EXPERIENCE

Postdoctoral Associate, MIT

undertaken	subject
01/2021 – 05/2021	MITx: 6.419x: Data Analysis: Statistical Modeling and Computation in Applications Developed course notes, exercises, and homework assignments for the data analysis course of IDSS's online MicroMasters Program in Statistics and Data Science. Teaching responsibilities also included assisting students on the course forum.

SKILLS

- Extensive knowledge of C/C++, Python, as well as general object oriented programming techniques.
- Familiar knowledge of C#, Java, Haskell, and Fortran, as well as functional and concurrent programming techniques.
- Experienced in using
  - Mathematica and MATLAB to solve numerical and analytical problems.
  - Tensorflow and JAX for machine learning.
- Experience with the CUDA GPGPU language and API.

- Administration of linux workstations and servers.

SOFTWARE

cpg_likelihood, `https://github.com/ghcollin/cpg_likelihood`
Implementation of the CPG parametric point source inference method (arXiv:2104.04529).

tftables, `https://github.com/ghcollin/tftables`
Software package for interfacing Google's TensorFlow deep learning library with HDF5 data.

multitables, `https://github.com/ghcollin/multitables`
Python library for high speed streaming and random read access of HDF5 files from disk using shared memory and multiprocessing.

INVITED PRESENTATIONS

"Simulating light in large volume detectors using Metropolis Light Transport,"
MIT LNS Lunchtime Seminar, 2018
Harvard Astro-Statistics collaboration seminar, 2019

"The elusive sterile neutrino: A hunt for nu physics,"
Melbourne University Physics Colloqium, 2016

"Status of global sterile neutrino fits,"
PhyStat-ν conference, 2016

"Status of global sterile neutrino fits,"
Australian National University Department of Nuclear Physics Seminar, 2017
Los Alamos National Laboratory P-25 Seminar, 2016
MIT LNS Lunchtime Seminar, 2016
Harvard LPPC Seminar, 2016
Imperial College London HEP Seminar, 2015
Cambridge University HEP Seminar, 2015

"Searching for the origin of astrophysical neutrinos using non-Poissonian statistics,"
Columbia particle seminar, 2017
Tufts HEP seminar, 2017
Harvard Astro-Statistics collaboration seminar, 2017

CONTRIBUTED PRESENTATIONS

"Simulating light in large volume detectors using Metropolis Light Transport,"
PhyStat-ν conference, 2019
APS DPF conference, 2019

"Status of global sterile neutrino fits,"
INPC Conference, 2016 (with INPC student costs waiver)

"3+N sterile neutrino global fits,"
WIN Conference, 2015

"Status update on 3+N sterile neutrino fits,"
DNP Conference, 2014 (with MIT graduate student travel grant)

"MicroBooNE: Motivation, Concept, Construction,"
DNP Conference, 2014 (with MIT graduate student travel grant)

"A Capacitively Coupled Wire-plane Diagnostic System,"
April APS Meeting, 2014

POSTERS

"Artificial Intelligence and Neutrino Physics,"
MIT IQ initiative launch

"Artificial Intelligence and Particle Physics,"

American Australian Association Benefit dinner

""Sterile Neutrino Fits to Short Baseline Data,"
CPT Conference, 2016

Neutrino 2016 Conference

"3+N Fits to Short Baseline Oscillation Data,"
Neutrino 2014 Conference

SELECTED PUBLICATIONS

Gabriel H. Collin, Nicholas L. Rodd, Tyler Erjavec, and Kerstin Perez. "A Compound Poisson Generator approach to Point-Source Inference in Astrophysics". In: (Apr. 2021). arXiv: 2104.04529 [astro-ph.IM].

A. Diaz, C. A. Argüelles, G. H. Collin, J. M. Conrad, and M. H. Shaevitz. "Where Are We With Light Sterile Neutrinos?" In: Phys. Rept. 884 (2020), pp. 1–59. DOI: 10.1016/j.physrep.2020.08.005. arXiv: 1906.00045 [hep-ex].

M. H. Moulai, C. A. Argüelles, G. H. Collin, J. M. Conrad, A. Diaz, and M. H. Shaevitz. "Combining Sterile Neutrino Fits to Short Baseline Data with IceCube Data". In: Phys. Rev. D 101.5 (2020), p. 055020. DOI: 10.1103/PhysRevD.101.055020. arXiv: 1910.13456 [hep-ph].

Gabriel H. Collin. "Using path integrals for the propagation of light in a scattering dominated medium". In: (Nov. 2018). arXiv: 1811.04156 [hep-ex].

G. H. Collin, C. A. Argüelles, J. M. Conrad, and M. H. Shaevitz. "First Constraints on the Complete Neutrino Mixing Matrix with a Sterile Neutrino". In: Phys. Rev. Lett. 117.22 (2016), p. 221801. DOI: 10.1103/PhysRevLett.117.221801. arXiv: 1607.00011 [hep-ph].

G. H. Collin, C. A. Argüelles, J. M. Conrad, and M. H. Shaevitz. "Sterile Neutrino Fits to Short Baseline Data". In: Nucl. Phys. B 908 (2016), pp. 354–365. DOI: 10.1016/j.nuclphysb.2016.02.024. arXiv: 1602.00671 [hep-ph].

Z. Moss, M. Toups, L. Bugel, G. H. Collin, and J. M. Conrad. "Anode-Coupled Readout for Light Collection in Liquid Argon TPCs". In: JINST 11.03 (2016), P03020. DOI: 10.1088/1748-0221/11/03/P03020. arXiv: 1507.01997 [physics.ins-det].

S Axani, G Collin, JM Conrad, MH Shaevitz, J Spitz, and T Wongjirad. "Decisive disappearance search at high Δm^2 with monoenergetic muon neutrinos". In: Phys. Rev. D 92.9 (2015), p. 092010. DOI: 10.1103/PhysRevD.92.092010. arXiv: 1506.05811 [physics.ins-det].

Z. Moss, L. Bugel, G. Collin, J. M. Conrad, B. J. P. Jones, J. Moon, M. Toups, and T. Wongjirad. "Improved TPB-coated Light Guides for Liquid Argon TPC Light Detection Systems". In: JINST 10.08 (2015), P08017. DOI: 10.1088/1748-0221/10/08/P08017. arXiv: 1410.6256 [physics.ins-det].

B. J. P. Jones, T. Alexander, H. O. Back, G. Collin, J. M. Conrad, A. Greene, T. Katori, S. Pordes, and M. Toups. "The Effects of Dissolved Methane upon Liquid Argon Scintillation Light". In: JINST 8 (2013), P12015. DOI: 10.1088/1748-0221/8/12/P12015. arXiv: 1308.3658 [physics.ins-det].

Avi Shalav, Gabriel H. Collin, Yi Yang, Taehyun Kim, and Robert G. Elliman. "GeOx and SiOx nanowires grown via the active oxidation of Ge and Si substrates". In: Journal of Materials Research 26 (2011), pp 2240–2246. DOI: 10.1557/jmr.2011.150.

OTHER PUBLICATIONS AND PAPERS

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].

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].

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].

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].

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].

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].

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].

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].

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].

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].

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].

R. Abbasi et al. “Search for High-Energy Neutrinos from Ultra-Luminous Infrared Galaxies with IceCube”. In: (July 2021). arXiv: 2107.03149 [astro-ph.HE].

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].

R. Abbasi et al. “Search for Quantum Gravity Using Astrophysical Neutrino Flavour with IceCube”. In: (Nov. 2021). arXiv: 2111.04654 [hep-ex].

R. Abbasi et al. “Search for Relativistic Magnetic Monopoles with Eight Years of IceCube Data”. In: (Sept. 2021). arXiv: 2109.13719 [astro-ph.HE].

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].

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].

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].

Rasha Abbasi et al. “A calibration study of local ice and optical sensor properties in IceCube”. In: PoS ICRC2021 (2021), p. 1023. DOI: 10.22323/1.395.1023. arXiv: 2107.10435 [astro-ph.HE].

Rasha Abbasi et al. “A Combined Fit of the Diffuse Neutrino Spectrum using IceCube Muon Tracks and Cascades”. In: PoS ICRC2021 (2021), p. 1129. DOI: 10.22323/1.395.1129. arXiv: 2107.10003 [astro-ph.HE].

Rasha Abbasi et al. “A model-independent analysis of neutrino flares detected in IceCube from X-ray selected blazars”. In: PoS ICRC2021 (2021), p. 971. DOI: 10.22323/1.395.0971. arXiv: 2107.08159 [astro-ph.HE].

Rasha Abbasi et al. “A New Search for Neutrino Point Sources with IceCube”. In: PoS ICRC2021 (2021), p. 1138. DOI: 10.22323/1.395.1138. arXiv: 2107.08700 [astro-ph.HE].

Rasha Abbasi et al. “A novel microstructure based model to explain the IceCube ice anisotropy”. In: PoS ICRC2021 (2021), p. 1119. DOI: 10.22323/1.395.1119. arXiv: 2107.08692 [astro-ph.HE].

Rasha Abbasi et al. “A Search for Neutrinos from Decaying Dark Matter in Galaxy Clusters and Galaxies with IceCube”. In: PoS ICRC2021 (2021), p. 506. DOI: 10.22323/1.395.0506. arXiv: 2107.11527 [astro-ph.HE].

Rasha Abbasi et al. “A time-independent search for neutrinos from galaxy clusters with IceCube”. In: PoS ICRC2021 (2021), p. 1133. DOI: 10.22323/1.395.1133. arXiv: 2107.10080 [astro-ph.HE].

Rasha Abbasi et al. “A Time-Variability Test for Candidate Neutrino Sources Observed with IceCube”. In: PoS ICRC2021 (2021), p. 1141. DOI: 10.22323/1.395.1141. arXiv: 2110.06294 [astro-ph.HE].

Rasha Abbasi et al. “An End-to-End Test of the Sensitivity of IceCube to the Neutrino Burst from a Core-Collapse Supernova”. In: PoS ICRC2021 (2021), p. 1085. DOI: 10.22323/1.395.1085. arXiv: 2107.08098 [astro-ph.HE].

Rasha 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].

Rasha Abbasi et al. “Camera Calibration for the IceCube Upgrade and Gen2”. In: PoS ICRC2021 (2021), p. 1064. DOI: 10.22323/1.395.1064. arXiv: 2107.12186 [astro-ph.IM].

Rasha Abbasi et al. “Concept Study of a Radio Array Embedded in a Deep Gen2-like Optical Array”. In: PoS ICRC2021 (2021), p. 1182. DOI: 10.22323/1.395.1182.

Rasha Abbasi et al. “Constraining non-standard Dark Matter-Nucleon Interactions with IceCube”. In: PoS ICRC2021 (2021), p. 522. DOI: 10.22323/1.395.0522. arXiv: 2108.05203 [hep-ex].

Rasha Abbasi et al. “Density of GeV Muons Measured with IceTop”. In: PoS ICRC2021 (2021), p. 342. DOI: 10.22323/1.395.0342. arXiv: 2107.09583 [astro-ph.HE].

Rasha Abbasi et al. “Design and performance of the multi-PMT optical module for IceCube Upgrade”. In: PoS ICRC2021 (2021), p. 1070. DOI: 10.22323/1.395.1070. arXiv: 2107.11383 [astro-ph.IM].

Rasha Abbasi et al. “Development of a scintillation and radio hybrid detector array at the South Pole”. In: PoS ICRC2021 (2021), p. 225. DOI: 10.22323/1.395.0225. arXiv: 2107.09983 [astro-ph.HE].

Rasha 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].

Rasha Abbasi et al. “Every Flare, Everywhere: An All-Sky Untriggered Search for Astrophysical Neutrino Transients Using IceCube Data”. In: PoS ICRC2021 (2021), p. 1128. DOI: 10.22323/1.395.1128. arXiv: 2107.12134 [astro-ph.HE].

Rasha 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].

Rasha 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].

Rasha Abbasi et al. “Hybrid cosmic ray measurements using the IceAct telescopes in coincidence with the IceCube and IceTop detectors”. In: PoS ICRC2021 (2021), p. 276. DOI: 10.22323/1.395.0276. arXiv: 2108.05572 [astro-ph.HE].

Rasha Abbasi et al. “IceCube Search for Earth-traversing ultra-high energy Neutrinos”. In: PoS ICRC2021 (2021), p. 1170. DOI: 10.22323/1.395.1170.

Rasha 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].

Rasha Abbasi et al. “Indirect search for dark matter in the Galactic Centre with IceCube”. In: 37th International Cosmic Ray Conference. July 2021. arXiv: 2107.11224 [astro-ph.HE].

Rasha Abbasi et al. “Indirect search for dark matter in the Galactic Centre with IceCube”. In: PoS ICRC2021 (2021), p. 524. DOI: 10.22323/1.395.0524.

Rasha Abbasi et al. “Measuring the Neutrino Cross Section Using 8 years of Upgoing Muon Neutrinos Observed with IceCube”. In: PoS ICRC2021 (2021), p. 1158. DOI: 10.22323/1.395.1158. arXiv: 2108.04965 [astro-ph.HE].

Rasha 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].

Rasha 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].

Rasha Abbasi et al. “Observation of Cosmic Ray Anisotropy with Nine Years of IceCube Data”. In: PoS ICRC2021 (2021), p. 320. DOI: 10.22323/1.395.0320. arXiv: 2107.11454 [astro-ph.HE].

Rasha 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].

Rasha Abbasi et al. “Reconstruction of Neutrino Events in IceCube using Graph Neural Networks”. In: PoS ICRC2021 (2021), p. 1044. DOI: 10.22323/1.395.1044. arXiv: 2107.12187 [astro-ph.IM].

Rasha 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.

Rasha Abbasi et al. “Search for high-energy neutrino emission from hard X-ray AGN with IceCube”. In: PoS ICRC2021 (2021), p. 1142. DOI: 10.22323/1.395.1142. arXiv: 2107.08366 [astro-ph.HE].

Rasha Abbasi et al. “Search for high-energy neutrino sources from the direction of IceCube alert events”. In: PoS ICRC2021 (2021), p. 940. DOI: 10.22323/1.395.0940. arXiv: 2107.08853 [astro-ph.HE].

Rasha Abbasi et al. “Searches for and Characterization of Astrophysical Neutrinos using Starting Track Events in IceCube”. In: PoS ICRC2021 (2021), p. 1130. DOI: 10.22323/1.395.1130. arXiv: 2107.09811 [astro-ph.HE].

Rasha 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].

Rasha Abbasi et al. “Searching for High Energy Neutrinos from Magnetars with IceCube”. In: PoS ICRC2021 (2021), p. 1135. DOI: 10.22323/1.395.1135. arXiv: 2107.08322 [astro-ph.HE].

Rasha 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].

Rasha 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].

Rasha 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].

Rasha 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].

Rasha 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].

Rasha Abbasi et al. “Simulation Study of the Observed Radio Emission of Air Showers by the IceTop Surface Extension”. In: PoS ICRC2021 (2021), p. 317. DOI: 10.22323/1.395.0317. arXiv: 2107.09666 [astro-ph.IM].

Rasha Abbasi et al. “Studies of systematic uncertainty effects on IceCube’s real-time angular uncertainty”. In: PoS ICRC2021 (2021), p. 1045. DOI: 10.22323/1.395.1045. arXiv: 2107.08670 [astro-ph.HE].

Rasha 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].

Rasha Abbasi et al. “Testing the Pointing of IceCube Using the Moon Shadow in Cosmic-Ray-Induced Muons”. In: PoS ICRC2021 (2021), p. 1087. DOI: 10.22323/1.395.1087.

Rasha Abbasi et al. “The Acoustic Module for the IceCube Upgrade”. In: PoS ICRC2021 (2021), p. 1059. DOI: 10.22323/1.395.1059. arXiv: 2108.05631 [astro-ph.IM].

Rasha Abbasi et al. “The SkyLLH framework for IceCube point-source search”. In: PoS ICRC2021 (2021), p. 1073. DOI: 10.22323/1.395.1073. arXiv: 2107.08934 [astro-ph.IM].

P. Abratenko et al. “Search for an anomalous excess of charged-current quasi-elastic ν_e interactions with the MicroBooNE experiment using Deep-Learning-based reconstruction”. In: (Oct. 2021). arXiv: 2110.14080 [hep-ex].

P. Abratenko et al. “Search for an Excess of Electron Neutrino Interactions in MicroBooNE Using Multiple Final State Topologies”. In: (Oct. 2021). arXiv: 2110.14054 [hep-ex].

Victor 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].

Hugo 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].

Vedant 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].

Ellen 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].

Brian 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].

Robert Halliday et al. “Design of a Robust Fiber Optic Communications System for Future IceCube Detectors”. In: PoS ICRC2021 (2021), p. 1079. DOI: 10.22323/1.395.1079. arXiv: 2107.11427 [astro-ph.IM].

Lasse 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].

Andreas Haungs et al. “Cosmic-Ray Studies with the Surface Instrumentation of IceCube”. In: PoS ICRC2021 (2021), p. 336. DOI: 10.22323/1.395.0336. arXiv: 2108.07164 [astro-ph.HE].

Colton Hill et al. “Performance of the D-Egg optical sensor for the IceCube-Upgrade”. In: PoS ICRC2021 (2021), p. 1042. DOI: 10.22323/1.395.1042.

Mirco Huennefeld et al. “Combining Maximum-Likelihood with Deep Learning for Event Reconstruction in IceCube”. In: PoS ICRC2021 (2021), p. 1065. DOI: 10.22323/1.395.1065. arXiv: 2107.12110 [astro-ph.HE].

Karolin Hymon et al. “Seasonal Variations of the Unfolded Atmospheric Neutrino Spectrum with IceCube”. In: PoS ICRC2021 (2021), p. 1159. DOI: 10.22323/1.395.1159. arXiv: 2107.09349 [astro-ph.HE].

Donghwa Kang et al. “Studies of a muon-based mass sensitive parameter for the IceTop surface array”. In: PoS ICRC2021 (2021), p. 312. DOI: 10.22323/1.395.0312. arXiv: 2109.02506 [astro-ph.HE].

Michael 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].

Jim Madsen et al. “Completing Aganta Kairos: Capturing Metaphysical Time on the Seventh Continent”. In: PoS ICRC2021 (2021), p. 1381. DOI: 10.22323/1.395.1381. arXiv: 2108.01687 [physics.pop-ph].

Adam McMullen et al. “Searching for Dark Matter Neutrino Scattering in the Galactic Centre with IceCube”. In: PoS ICRC2021 (2021), p. 569. DOI: 10.22323/1.395.0569.

Jannis 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].

Madeleine O’Keefe et al. “Neutrino Education, Outreach, and Communications Activities: Captivating Examples from IceCube”. In: PoS ICRC2021 (2021), p. 1382. DOI: 10.22323/1.395.1382. arXiv: 2107.12176 [physics.ed-ph].

Anastasiia 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].

Alex 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].

John Rack-Helleis et al. “The Wavelength-shifting Optical Module (WOM) for the IceCube Upgrade”. In: PoS ICRC2021 (2021), p. 1038. DOI: 10.22323/1.395.1038. arXiv: 2107.10194 [astro-ph.HE].

Jan-Henrik Schmidt-Dencker et al. “Stau Search in IceCube”. In: PoS ICRC2021 (2021), p. 1117. DOI: 10.22323/1.395.1117.

Frank 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].

Steve Sclafani et al. “A Search for Neutrino Sources with Cascade Events in IceCube”. In: PoS ICRC2021 (2021), p. 1150. DOI: 10.22323/1.395.1150. arXiv: 2107.09103 [astro-ph.HE].

Nobuhiro Shimizu et al. “Performance studies for a next-generation optical sensor for IceCube-Gen2”. In: PoS ICRC2021 (2021), p. 1041. DOI: 10.22323/1.395.1041. arXiv: 2108.05548 [astro-ph.IM].

Wei Tian et al. “A Posterior Analysis on IceCube Double Pulse Tau Neutrino Candidates”. In: PoS ICRC2021 (2021), p. 1146. DOI: 10.22323/1.395.1146.

Christoph Toennis et al. “Deployment of the IceCube Upgrade Camera System in the SPICEcore hole”. In: PoS ICRC2021 (2021), p. 1047. DOI: 10.22323/1.395.1047. arXiv: 2107.10786 [astro-ph.HE].

Stef 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].

Doğa 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].

Joshua Villarreal et al. “Recent Progress in Solar Atmospheric Neutrino Searches with IceCube”. In: PoS ICRC2021 (2021), p. 1174. DOI: 10.22323/1.395.1174. arXiv: 2107.13696 [astro-ph.HE].

Shiqi Yu et al. “Direction Reconstruction using a CNN for GeV-Scale Neutrinos in IceCube”. In: PoS ICRC2021 (2021), p. 1054. DOI: 10.22323/1.395.1054. arXiv: 2107.02122 [astro-ph.HE].

M. G. Aartsen et al. “A search for IceCube events in the direction of ANITA neutrino candidates”. In: (Jan. 2020). DOI: 10.3847/1538-4357/ab791d. arXiv: 2001.01737 [astro-ph.HE].

M. G. Aartsen et al. “A Search for MeV to TeV Neutrinos from Fast Radio Bursts with IceCube”. In: Astrophys. J. 890.2 (2020), p. 111. DOI: 10.3847/1538-4357/ab564b. arXiv: 1908.09997 [astro-ph.HE].

M. G. Aartsen et al. “A Search for Neutrino Point-source Populations in 7 yr of IceCube Data with Neutrino-count Statistics”. In: Astrophys. J. 893.2 (2020), p. 102. DOI: 10.3847/1538-4357/ab7af9. arXiv: 1909.08623 [astro-ph.HE].

M. G. Aartsen et al. “Characteristics of the diffuse astrophysical electron and tau neutrino flux with six years of IceCube high energy cascade data”. In: Phys. Rev. Lett. 125.12 (2020), p. 121104. DOI: 10.1103/PhysRevLett.125.121104. arXiv: 2001.09520 [astro-ph.HE].

M. G. Aartsen et al. “Combined sensitivity to the neutrino mass ordering with JUNO, the IceCube Upgrade, and PINGU”. In: Phys. Rev. D 101.3 (2020), p. 032006. DOI: 10.1103/PhysRevD.101.032006. arXiv: 1911.06745 [hep-ex].

M. G. Aartsen et al. “Computational techniques for the analysis of small signals in high-statistics neutrino oscillation experiments”. In: Nucl. Instrum. Meth. A 977 (2020), p. 164332. DOI: 10.1016/j.nima.2020.164332. arXiv: 1803.05390 [physics.data-an].

M. G. Aartsen et al. “Constraints on neutrino emission from nearby galaxies using the 2MASS redshift survey and IceCube”. In: JCAP 07 (2020), p. 042. DOI: 10.1088/1475-7516/2020/07/042. arXiv: 1911.11809 [astro-ph.HE].

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].

M. G. Aartsen et al. “Design and Performance of the first IceAct Demonstrator at the South Pole”. In: JINST 15.02 (2020), T02002. DOI: 10.1088/1748-0221/15/02/T02002. arXiv: 1910.06945 [astro-ph.IM].

M. G. Aartsen et al. “Development of an analysis to probe the neutrino mass ordering with atmospheric neutrinos using three years of IceCube DeepCore data”. In: Eur. Phys. J. C 80.1 (2020), p. 9. DOI: 10.1140/epjc/s10052-019-7555-0. arXiv: 1902.07771 [hep-ex].

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].

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].

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].

M. G. Aartsen et al. “In-situ calibration of the single-photoelectron charge response of the IceCube photomultiplier tubes”. In: JINST 15.06 (2020), P06032. DOI: 10.1088/1748-0221/15/06/P06032. arXiv: 2002.00997 [physics.ins-det].

M. G. Aartsen et al. “Neutrinos below 100 TeV from the southern sky employing refined veto techniques to IceCube data”. In: Astropart. Phys. 116 (2020), p. 102392. DOI: 10.1016/j.astropartphys.2019.102392. arXiv: 1902.05792 [astro-ph.HE].

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].

M. G. Aartsen et al. “Time-Integrated Neutrino Source Searches with 10 Years of IceCube Data”. In: Phys. Rev. Lett. 124.5 (2020), p. 051103. DOI: 10.1103/PhysRevLett.124.051103. arXiv: 1910.08488 [astro-ph.HE].

M. G. Aartsen et al. “Velocity Independent Constraints on Spin-Dependent DM-Nucleon Interactions from IceCube and PICO”. In: Eur. Phys. J. C 80.9 (2020), p. 819. DOI: 10.1140/epjc/s10052-020-8069-5. arXiv: 1907.12509 [astro-ph.HE].

R. Abbasi et al. “Measurement of Astrophysical Tau Neutrinos in IceCube’s High-Energy Starting Events”. In: (Nov. 2020). arXiv: 2011.03561 [hep-ex].

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].

R. Abbasi et al. “Search for sub-TeV neutrino emission from transient sources with three years of IceCube data”. In: (Nov. 2020). arXiv: 2011.05096 [astro-ph.HE].

Rasha 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].

A. Albert et al. “ANTARES and IceCube Combined Search for Neutrino Point-like and Extended Sources in the Southern Sky”. In: Astrophys. J. 892 (2020), p. 92. DOI: 10.3847/1538-4357/ab7afb. arXiv: 2001.04412 [astro-ph.HE].

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].

H. A. Ayala Solares et al. “Multimessenger Gamma-Ray and Neutrino Coincidence Alerts Using HAWC and IceCube Subthreshold Data”. In: (Aug. 2020). DOI: 10.3847/1538-4357/abcaa4. arXiv: 2008.10616 [astro-ph.HE].

M. G. Aartsen et al. “Constraints on minute-scale transient astrophysical neutrino sources”. In: Phys. Rev. Lett. 122.5 (2019), p. 051102. DOI: 10.1103/PhysRevLett.122.051102. arXiv: 1807.11492 [astro-ph.HE].

M. G. Aartsen et al. “Cosmic ray spectrum and composition from PeV to EeV using 3 years of data from IceTop and IceCube”. In: Phys. Rev. D 100.8 (2019), p. 082002. DOI: 10.1103/PhysRevD.100.082002. arXiv: 1906.04317 [astro-ph.HE].

M. G. Aartsen et al. “Detection of the Temporal Variation of the Sun’s Cosmic Ray Shadow with the IceCube Detector”. In: Astrophys. J. 872.2 (2019), p. 133. DOI: 10.3847/1538-4357/aaffd1. arXiv: 1811.02015 [astro-ph.HE].

M. G. Aartsen et al. “Efficient propagation of systematic uncertainties from calibration to analysis with the SnowStorm method in IceCube”. In: JCAP 10 (2019), p. 048. DOI: 10.1088/1475-7516/2019/10/048. arXiv: 1909.01530 [hep-ex].

M. G. Aartsen et al. “Measurement of Atmospheric Tau Neutrino Appearance with IceCube DeepCore”. In: Phys. Rev. D 99.3 (2019), p. 032007. DOI: 10.1103/PhysRevD.99.032007. arXiv: 1901.05366 [hep-ex].

M. G. Aartsen et al. “Measurements using the inelasticity distribution of multi-TeV neutrino interactions in IceCube”. In: Phys. Rev. D 99.3 (2019), p. 032004. DOI: 10.1103/PhysRevD.99.032004. arXiv: 1808.07629 [hep-ex].

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

M. G. Aartsen et al. “Search for PeV Gamma-Ray Emission from the Southern Hemisphere with 5 Years of Data from the IceCube Observatory”. In: Astrophys. J. 891 (Aug. 2019), p. 9. DOI: 10.3847/1538-4357/ab6d67. arXiv: 1908.09918 [astro-ph.HE].

M. G. Aartsen et al. “Search for Sources of Astrophysical Neutrinos Using Seven Years of IceCube Cascade Events”. In: Astrophys. J. 886 (2019), p. 12. DOI: 10.3847/1538-4357/ab4ae2. arXiv: 1907.06714 [astro-ph.HE].

M. G. Aartsen et al. “Search for steady point-like sources in the astrophysical muon neutrino flux with 8 years of IceCube data”. In: Eur. Phys. J. C 79.3 (2019), p. 234. DOI: 10.1140/epjc/s10052-019-6680-0. arXiv: 1811.07979 [hep-ph].

M. G. Aartsen et al. “Searches for neutrinos from cosmic-ray interactions in the Sun using seven years of IceCube data”. In: (Dec. 2019). arXiv: 1912.13135 [astro-ph.HE].

The IceCube Neutrino Observatory – Contributions to the 36th International Cosmic Ray Conference (ICRC2019). July 2019. arXiv: 1907.11699 [astro-ph.HE].

A. U. Abeysekara et al. “All-Sky Measurement of the Anisotropy of Cosmic Rays at 10 TeV and Mapping of the Local Interstellar Magnetic Field”. In: Astrophys. J. 871.1 (2019), p. 96. DOI: 10.3847/1538-4357/aaf5cc. arXiv: 1812.05682 [astro-ph.HE].

P. Abratenko et al. “First Measurement of Inclusive Muon Neutrino Charged Current Differential Cross Sections on Argon at E_ν ∼0.8 GeV with the MicroBooNE Detector”. In: Phys. Rev. Lett. 123.13 (2019), p. 131801. DOI: 10.1103/PhysRevLett.123.131801. arXiv: 1905.09694 [hep-ex].

C. Adams et al. “Comparison of ν_μ-Ar multiplicity distributions observed by MicroBooNE to GENIE model predictions”. In: Eur. Phys. J. C 79.3 (2019), p. 248. DOI: 10.1140/epjc/s10052-019-6742-3. arXiv: 1805.06887 [hep-ex].

C. Adams et al. “Deep neural network for pixel-level electromagnetic particle identification in the MicroBooNE liquid argon time projection chamber”. In: Phys. Rev. D 99.9 (2019), p. 092001. DOI: 10.1103/PhysRevD.99.092001. arXiv: 1808.07269 [hep-ex].

C. Adams et al. “Design and construction of the MicroBooNE Cosmic Ray Tagger system”. In: JINST 14.04 (2019), P04004. DOI: 10.1088/1748-0221/14/04/P04004. arXiv: 1901.02862 [physics.ins-det].

C. Adams et al. “First measurement of ν_μ charged-current π^0 production on argon with the MicroBooNE detector”. In: Phys. Rev. D 99.9 (2019), p. 091102. DOI: 10.1103/PhysRevD.99.091102. arXiv: 1811.02700 [hep-ex].

C. Adams et al. “Rejecting cosmic background for exclusive charged current quasi elastic neutrino interaction studies with Liquid Argon TPCs; a case study with the MicroBooNE detector”. In: Eur. Phys. J. C 79.8 (2019), p. 673. DOI: 10.1140/epjc/s10052-019-7184-7. arXiv: 1812.05679 [physics.ins-det].

A. Albert et al. “Search for Multimessenger Sources of Gravitational Waves and High-energy Neutrinos with Advanced LIGO during Its First Observing Run, ANTARES, and IceCube”. In: Astrophys. J. 870.2 (2019), p. 134. DOI: 10.3847/1538-4357/aaf21d. arXiv: 1810.10693 [astro-ph.HE].

S. Garrappa et al. “Investigation of two Fermi-LAT gamma-ray blazars coincident with high-energy neutrinos detected by IceCube”. In: Astrophys. J. 880.2 (2019), 880:103. DOI: 10.3847/1538-4357/ab2ada. arXiv: 1901.10806 [astro-ph.HE].

E. Kankare et al. “Search for transient optical counterparts to high-energy IceCube neutrinos with Pan-STARRS1”. In: Astron. Astrophys. 626 (2019), A117. DOI: 10.1051/0004-6361/201935171. arXiv: 1901.11080 [astro-ph.HE].

M. G. Aartsen et al. “A Search for Neutrino Emission from Fast Radio Bursts with Six Years of IceCube Data”. In: Astrophys. J. 857.2 (2018), p. 117. DOI: 10.3847/1538-4357/aab4f8. arXiv: 1712.06277 [astro-ph.HE].

M. G. Aartsen et al. “Astrophysical neutrinos and cosmic rays observed by IceCube”. In: Adv. Space Res. 62 (2018), pp. 2902–2930. DOI: 10.1016/j.asr.2017.05.030. arXiv: 1701.03731 [astro-ph.HE].

M. G. Aartsen et al. “Differential limit on the extremely-high-energy cosmic neutrino flux in the presence of astrophysical background from nine years of IceCube data”. In: Phys. Rev. D 98.6 (2018), p. 062003. DOI: 10.1103/PhysRevD.98.062003. arXiv: 1807.01820 [astro-ph.HE].

M. G. Aartsen et al. “Measurement of Atmospheric Neutrino Oscillations at 6–56 GeV with IceCube DeepCore”. In: Phys. Rev. Lett. 120.7 (2018), p. 071801. DOI: 10.1103/PhysRevLett.120.071801. arXiv: 1707.07081 [hep-ex].

M. G. Aartsen et al. “Multimessenger observations of a flaring blazar coincident with high-energy neutrino IceCube-170922A”. In: Science 361.6398 (2018), eaat1378. DOI: 10.1126/science.aat1378. arXiv: 1807.08816 [astro-ph.HE].

M. G. Aartsen et al. “Neutrino emission from the direction of the blazar TXS 0506+056 prior to the IceCube-170922A alert”. In: Science 361.6398 (2018), pp. 147–151. DOI: 10.1126/science.aat2890. arXiv: 1807.08794 [astro-ph.HE].

M. G. Aartsen et al. “Neutrino Interferometry for High-Precision Tests of Lorentz Symmetry with IceCube”. In: Nature Phys. 14.9 (2018), pp. 961–966. DOI: 10.1038/s41567-018-0172-2. arXiv: 1709.03434 [hep-ex].

M. G. Aartsen et al. “Search for neutrinos from decaying dark matter with IceCube”. In: Eur. Phys. J. C 78.10 (2018), p. 831. DOI: 10.1140/epjc/s10052-018-6273-3. arXiv: 1804.03848 [astro-ph.HE].

M. G. Aartsen et al. “Search for Nonstandard Neutrino Interactions with IceCube DeepCore”. In: Phys. Rev. D 97.7 (2018), p. 072009. DOI: 10.1103/PhysRevD.97.072009. arXiv: 1709.07079 [hep-ex].

B. Abi et al. “The DUNE Far Detector Interim Design Report Volume 1: Physics, Technology and Strategies”. In: (July 2018). arXiv: 1807.10334 [physics.ins-det].

B. Abi et al. “The DUNE Far Detector Interim Design Report, Volume 2: Single-Phase Module”. In: (July 2018). arXiv: 1807.10327 [physics.ins-det].

B. Abi et al. “The DUNE Far Detector Interim Design Report, Volume 3: Dual-Phase Module”. In: (July 2018). arXiv: 1807.10340 [physics.ins-det].

R. Acciarri et al. “The Pandora multi-algorithm approach to automated pattern recognition of cosmic-ray muon and neutrino events in the MicroBooNE detector”. In: Eur. Phys. J. C 78.1 (2018), p. 82. DOI: 10.1140/epjc/s10052-017-5481-6. arXiv: 1708.03135 [hep-ex].

C. Adams et al. “Ionization electron signal processing in single phase LArTPCs. Part I. Algorithm Description and quantitative evaluation with MicroBooNE simulation”. In: JINST 13.07 (2018), P07006. DOI: 10.1088/1748-0221/13/07/P07006. arXiv: 1802.08709 [physics.ins-det].

C. Adams et al. “Ionization electron signal processing in single phase LArTPCs. Part II. Data/simulation comparison and performance in MicroBooNE”. In: JINST 13.07 (2018), P07007. DOI: 10.1088/1748-0221/13/07/P07007. arXiv: 1804.02583 [physics.ins-det].

A. Albert et al. “Joint Constraints on Galactic Diffuse Neutrino Emission from the ANTARES and IceCube Neutrino Telescopes”. In: Astrophys. J. Lett. 868.2 (2018), p. L20. DOI: 10.3847/2041-8213/aaeecf. arXiv: 1808.03531 [astro-ph.HE].

Juan Carlos Diaz Velez et al. “Combined Analysis of Cosmic-Ray Anisotropy with IceCube and HAWC”. In: PoS ICRC2017 (2018), p. 539. DOI: 10.22323/1.301.0539. arXiv: 1708.03005 [astro-ph.HE].

M. G. Aartsen et al. “All-sky Search for Time-integrated Neutrino Emission from Astrophysical Sources with 7 yr of IceCube Data”. In: Astrophys. J. 835.2 (2017), p. 151. DOI: 10.3847/1538-4357/835/2/151. arXiv: 1609.04981 [astro-ph.HE].

M. G. Aartsen et al. “Constraints on Galactic Neutrino Emission with Seven Years of IceCube Data”. In: Astrophys. J. 849.1 (2017), p. 67. DOI: 10.3847/1538-4357/aa8dfb. arXiv: 1707.03416 [astro-ph.HE].

M. G. Aartsen et al. “Extending the search for muon neutrinos coincident with gamma-ray bursts in IceCube data”. In: Astrophys. J. 843.2 (2017), p. 112. DOI: 10.3847/1538-4357/aa7569. arXiv: 1702.06868 [astro-ph.HE].

M. G. Aartsen et al. “First search for dark matter annihilations in the Earth with the IceCube Detector”. In: Eur. Phys. J. C 77.2 (2017), p. 82. DOI: 10.1140/epjc/s10052-016-4582-y. arXiv: 1609.01492 [astro-ph.HE].

M. G. Aartsen et al. “Measurement of the multi-TeV neutrino cross section with IceCube using Earth absorption”. In: Nature 551 (2017), pp. 596–600. DOI: 10.1038/nature24459. arXiv: 1711.08119 [hep-ex].

M. G. Aartsen et al. “Measurement of the ν_μ energy spectrum with IceCube-79”. In: Eur. Phys. J. C 77.10 (2017), p. 692. DOI: 10.1140/epjc/s10052-017-5261-3. arXiv: 1705.07780 [astro-ph.HE].

M. G. Aartsen et al. “Multiwavelength follow-up of a rare IceCube neutrino multiplet”. In: Astron. Astrophys. 607 (2017), A115. DOI: 10.1051/0004-6361/201730620. arXiv: 1702.06131 [astro-ph.HE].

M. G. Aartsen et al. “PINGU: A Vision for Neutrino and Particle Physics at the South Pole”. In: J. Phys. G 44.5 (2017), p. 054006. DOI: 10.1088/1361-6471/44/5/054006. arXiv: 1607.02671 [hep-ex].

M. G. Aartsen et al. “Search for annihilating dark matter in the Sun with 3 years of IceCube data”. In: Eur. Phys. J. C 77.3 (2017). [Erratum: Eur.Phys.J.C 79, 214 (2019)], p. 146. DOI: 10.1140/epjc/s10052-017-4689-9. arXiv: 1612.05949 [astro-ph.HE].

M. G. Aartsen et al. “Search for astrophysical sources of neutrinos using cascade events in IceCube”. In: Astrophys. J. 846.2 (2017), p. 136. DOI: 10.3847/1538-4357/aa8508. arXiv: 1705.02383 [astro-ph.HE].

M. G. Aartsen et al. “Search for Neutrinos from Dark Matter Self-Annihilations in the center of the Milky Way with 3 years of IceCube/DeepCore”. In: Eur. Phys. J. C 77.9 (2017), p. 627. DOI: 10.1140/epjc/s10052-017-5213-y. arXiv: 1705.08103 [hep-ex].

M. G. Aartsen et al. “Search for sterile neutrino mixing using three years of IceCube DeepCore data”. In: Phys. Rev. D 95.11 (2017), p. 112002. DOI: 10.1103/PhysRevD.95.112002. arXiv: 1702.05160 [hep-ex].

M. G. Aartsen et al. “The contribution of Fermi-2LAC blazars to the diffuse TeV-PeV neutrino flux”. In: Astrophys. J. 835.1 (2017), p. 45. DOI: 10.3847/1538-4357/835/1/45. arXiv: 1611.03874 [astro-ph.HE].

M. G. Aartsen et al. “The IceCube Neutrino Observatory - Contributions to ICRC 2017 Part I: Searches for the Sources of Astrophysical Neutrinos”. In: (Oct. 2017). arXiv: 1710.01179 [astro-ph.HE].

M. G. Aartsen et al. “The IceCube Neutrino Observatory - Contributions to ICRC 2017 Part II: Properties of the Atmospheric and Astrophysical Neutrino Flux”. In: (Oct. 2017). arXiv: 1710.01191 [astro-ph.HE].

M. G. Aartsen et al. “The IceCube Neutrino Observatory - Contributions to ICRC 2017 Part III: Cosmic Rays”. In: (Oct. 2017). arXiv: 1710.01194 [astro-ph.HE].

M. G. Aartsen et al. “The IceCube Neutrino Observatory - Contributions to ICRC 2017 Part IV: Searches for Beyond the Standard Model Physics”. In: (Oct. 2017). arXiv: 1710.01197 [astro-ph.HE].

M. G. Aartsen et al. “The IceCube Neutrino Observatory: Instrumentation and Online Systems”. In: JINST 12.03 (2017), P03012. DOI: 10.1088/1748-0221/12/03/P03012. arXiv: 1612.05093 [astro-ph.IM].

M. G. Aartsen et al. “The IceCube Realtime Alert System”. In: Astropart. Phys. 92 (2017), pp. 30–41. DOI: 10.1016/j.astropartphys.2017.05.002. arXiv: 1612.06028 [astro-ph.HE].

B. P. Abbott et al. “Multi-messenger Observations of a Binary Neutron Star Merger”. In: Astrophys. J. Lett. 848.2 (2017), p. L12. DOI: 10.3847/2041-8213/aa91c9. arXiv: 1710.05833 [astro-ph.HE].

B. Abi et al. “The Single-Phase ProtoDUNE Technical Design Report”. In: (June 2017). arXiv: 1706.07081 [physics.ins-det].

P. Abratenko et al. “Determination of muon momentum in the MicroBooNE LArTPC using an improved model of multiple Coulomb scattering”. In: JINST 12.10 (2017), P10010. DOI: 10.1088/1748-0221/12/10/P10010. arXiv: 1703.06187 [physics.ins-det].

R. Acciarri et al. “Convolutional Neural Networks Applied to Neutrino Events in a Liquid Argon Time Projection Chamber”. In: JINST 12.03 (2017), P03011. DOI: 10.1088/1748-0221/12/03/P03011. arXiv: 1611.05531 [physics.ins-det].

R. Acciarri et al. “Design and Construction of the MicroBooNE Detector”. In: JINST 12.02 (2017), P02017. DOI: 10.1088/1748-0221/12/02/P02017. arXiv: 1612.05824 [physics.ins-det].

R. Acciarri et al. “Measurement of cosmic-ray reconstruction efficiencies in the MicroBooNE LArTPC using a small external cosmic-ray counter”. In: JINST 12.12 (2017), P12030. DOI: 10.1088/1748-0221/12/12/P12030. arXiv: 1707.09903 [hep-ex].

R. Acciarri et al. “Michel Electron Reconstruction Using Cosmic-Ray Data from the MicroBooNE LArTPC”. In: JINST 12.09 (2017), P09014. DOI: 10.1088/1748-0221/12/09/P09014. arXiv: 1704.02927 [physics.ins-det].

R. Acciarri et al. “Noise Characterization and Filtering in the MicroBooNE Liquid Argon TPC”. In: JINST 12.08 (2017), P08003. DOI: 10.1088/1748-0221/12/08/P08003. arXiv: 1705.07341 [physics.ins-det].

A. Albert et al. “Search for High-energy Neutrinos from Binary Neutron Star Merger GW170817 with ANTARES, IceCube, and the Pierre Auger Observatory”. In: Astrophys. J. Lett. 850.2 (2017), p. L35. DOI: 10.3847/2041-8213/aa9aed. arXiv: 1710.05839 [astro-ph.HE].

A. Albert et al. “Search for High-energy Neutrinos from Gravitational Wave Event GW151226 and Candidate LVT151012 with ANTARES and IceCube”. In: Phys. Rev. D 96.2 (2017), p. 022005. DOI: 10.1103/PhysRevD.96.022005. arXiv: 1703.06298 [astro-ph.HE].

C. A. Argüelles, G. H. Collin, J. M. Conrad, T. Katori, and A. Kheirandish. “Search for Lorentz Violation in km^3-Scale Neutrino Telescopes”. In: 7th Meeting on CPT and Lorentz Symmetry. 2017, pp. 153–156. DOI: 10.1142/9789813148505_0039. arXiv: 1608.02946 [hep-ph].

M. G. Aartsen et al. “All-flavour Search for Neutrinos from Dark Matter Annihilations in the Milky Way with IceCube/DeepCore”. In: Eur. Phys. J. C 76.10 (2016), p. 531. DOI: 10.1140/epjc/s10052-016-4375-3. arXiv: 1606.00209 [astro-ph.HE].

M. G. Aartsen et al. “An All-Sky Search for Three Flavors of Neutrinos from Gamma-Ray Bursts with the IceCube Neutrino Observatory”. In: Astrophys. J. 824.2 (2016), p. 115. DOI: 10.3847/0004-637X/824/2/115. arXiv: 1601.06484 [astro-ph.HE].

M. G. Aartsen et al. “Anisotropy in Cosmic-ray Arrival Directions in the Southern Hemisphere Based on six Years of Data From the Icecube Detector”. In: Astrophys. J. 826.2 (2016), p. 220. DOI: 10.3847/0004-637X/826/2/220. arXiv: 1603.01227 [astro-ph.HE].

M. G. Aartsen et al. “Constraints on Ultrahigh-Energy Cosmic-Ray Sources from a Search for Neutrinos above 10 PeV with IceCube”. In: Phys. Rev. Lett. 117.24 (2016). [Erratum: Phys.Rev.Lett. 119, 259902 (2017)], p. 241101. DOI: 10.1103/PhysRevLett.117.241101. arXiv: 1607.05886 [astro-ph.HE].

M. G. Aartsen et al. “Improved limits on dark matter annihilation in the Sun with the 79-string IceCube detector and implications for supersymmetry”. In: JCAP 04 (2016), p. 022. DOI: 10.1088/1475-7516/2016/04/022. arXiv: 1601.00653 [hep-ph].

M. G. Aartsen et al. “Lowering IceCube’s Energy Threshold for Point Source Searches in the Southern Sky”. In: Astrophys. J. Lett. 824.2 (2016), p. L28. DOI: 10.3847/2041-8205/824/2/L28. arXiv: 1605.00163 [astro-ph.HE].

M. G. Aartsen et al. “Neutrino oscillation studies with IceCube-DeepCore”. In: Nucl. Phys. B 908 (2016), pp. 161–177. DOI: 10.1016/j.nuclphysb.2016.03.028.

M. G. Aartsen et al. “Observation and Characterization of a Cosmic Muon Neutrino Flux from the Northern Hemisphere using six years of IceCube data”. In: Astrophys. J. 833.1 (2016), p. 3. DOI: 10.3847/0004-637X/833/1/3. arXiv: 1607.08006 [astro-ph.HE].

M. G. Aartsen et al. “Search for Sources of High-Energy Neutrons with four Years of Data from the IceTop Detector”. In: Astrophys. J. 830.2 (2016), p. 129. DOI: 10.3847/0004-637X/830/2/129. arXiv: 1607.05614 [astro-ph.HE].

M. G. Aartsen et al. “Searches for Sterile Neutrinos with the IceCube Detector”. In: Phys. Rev. Lett. 117.7 (2016), p. 071801. DOI: 10.1103/PhysRevLett.117.071801. arXiv: 1605.01990 [hep-ex].

M. G. Aartsen et al. “Very High-Energy Gamma-Ray Follow-Up Program Using Neutrino Triggers from IceCube”. In: JINST 11.11 (2016), P11009. DOI: 10.1088/1748-0221/11/11/P11009. arXiv: 1610.01814 [hep-ex].

R. Acciarri et al. “Long-Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE): Conceptual Design Report, Volume 1: The LBNF and DUNE Projects”. In: (Jan. 2016). arXiv: 1601.05471 [physics.ins-det].

R. Acciarri et al. “Long-Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE): Conceptual Design Report, Volume 4 The DUNE Detectors at LBNF”. In: (Jan. 2016). arXiv: 1601.02984 [physics.ins-det].

S. Adrian-Martinez et al. “High-energy Neutrino follow-up search of Gravitational Wave Event GW150914 with ANTARES and IceCube”. In: Phys. Rev. D 93.12 (2016), p. 122010. DOI: 10.1103/PhysRevD.93.122010. arXiv: 1602.05411 [astro-ph.HE].

M. G. Aartsen et al. “IceCube-Gen2 - The Next Generation Neutrino Observatory at the South Pole: Contributions to ICRC 2015”. In: (Oct. 2015). arXiv: 1510.05228 [astro-ph.IM].

M. Abs et al. “IsoDAR@KamLAND: A Conceptual Design Report for the Technical Facility”. In: (Nov. 2015). arXiv: 1511.05130 [physics.acc-ph].

R. Acciarri et al. “Long-Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE): Conceptual Design Report, Volume 2: The Physics Program for DUNE at LBNF”. In: (Dec. 2015). arXiv: 1512.06148 [physics.ins-det].

C. Adams et al. “The Intermediate Neutrino Program”. In: Workshop on the Intermediate Neutrino Program. Mar. 2015. arXiv: 1503.06637 [hep-ex].

M. Antonello et al. “A Proposal for a Three Detector Short-Baseline Neutrino Oscillation Program in the Fermilab Booster Neutrino Beam”. In: (Mar. 2015). arXiv: 1503.01520 [physics.ins-det].

Spencer N. Axani, Gabriel Collin, Janet M. Conrad, Mike H. Shaevitz, Josh Spitz, Taritree Wongjirad, and J. Spitz. “KPipe: a decisive test for muon neutrino disappearance”. In: Meeting of the APS Division of Particles and Fields. Oct. 2015. arXiv: 1510.06994 [physics.ins-det].

M. G. Aartsen et al. “IceCube-Gen2: A Vision for the Future of Neutrino Astronomy in Antarctica”. In: (Dec. 2014). arXiv: 1412.5106 [astro-ph.HE].

C. Aberle et al. “Whitepaper on the DAEdALUS Program”. In: Community Summer Study 2013: Snowmass on the Mississippi. July 2013. arXiv: 1307.2949 [physics.acc-ph].

C. Adams et al. “LAr1-ND: Testing Neutrino Anomalies with Multiple LAr TPC Detectors at Fermilab”. In: (Dec. 2013). DOI: 10.2172/1156551.

C. Adams et al. “LAr1-ND: Testing Neutrino Anomalies with Multiple LArTPC Detectors at Fermilab”. In: Community Summer Study 2013: Snowmass on the Mississippi. Sept. 2013. arXiv: 1309.7987 [physics.ins-det].

Gabriel H. Collin, Avi Shalav, and Robert G. Elliman. “SiOx/GeOx Nanowires Grown via the Active Oxidation of Si/Ge Substrates.” In: Materials Science Forum 700 (2011), pp 133–136. DOI: 10.4028/www.scientific.net/MSF.700.133.