

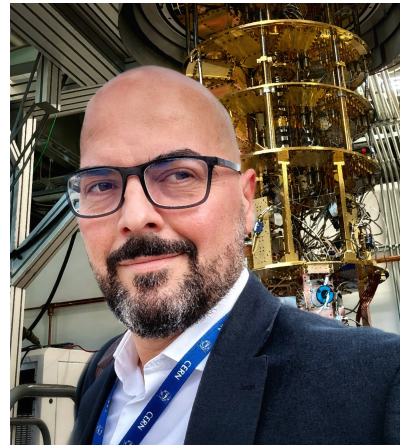
### Short biography

Professor Andreopoulos was born in Thessaloniki, Greece, in 1974. He attended the University of Athens receiving a BSc in Physics in 1996, a Master's degree in Nuclear and Particle Physics in 1998, and a PhD in Experimental Particle Physics in 2003. In 2003 he joined the Particle Physics Department of Rutherford Appleton Laboratory as a post-doctoral researcher, and in 2007 he was promoted to a Scientist position. In 2014 he joined the Physics Department of the University of Liverpool as a faculty member, in a joint appointment with Rutherford Appleton Laboratory. Since 2018 he holds a Chair in Experimental Particle Physics at the University of Liverpool.

Professor Andreopoulos has been working on accelerator-based neutrino physics for the past 30 years. Between 1996 and 2008, he worked on neutrino experiments at Fermilab in U.S., where he was involved in the first direct observation of the tau neutrino by the DONuT experiment and the confirmation of neutrino oscillations by the MINOS experiment. In the decade that followed, he played a key role in precision measurements of neutrino oscillations in the T2K experiment in Japan, leading an analysis group (VALOR) that contributed to all published oscillation results between 2010-2020. Currently, Professor Andreopoulos works at the SBND experiment in the Fermilab Short Baseline Neutrino program where he is involved in a broad neutrino physics exploitation program based on the LArTPC neutrino detection technology. He is also active in the JUNO experiment in China, where he is involved in atmospheric neutrino studies aiming to enhance the neutrino mass ordering sensitivity of the experiment. Professor Andreopoulos is renowned for his phenomenological work and contributions in computer simulations of neutrino interactions, and he is the spokesperson of the GENIE collaboration producing a well-known event generator used by all neutrino experiments. His work extends to the novel field of Quantum Computing where, in collaboration with scientists from the Fermilab Quantum Institute, he explores the use of quantum processors for neutrino interaction calculations.

Professor Andreopoulos has contributed to more than 150 scientific papers with over 20,000 citations, and he is a co-recipient (with the T2K collaboration) of the 2016 Breakthrough Prize in Fundamental Physics.

## Professor Costas Andreopoulos, *FHEA*



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Last updated: March 12<sup>th</sup>, 2025

**ACADEMIC APPOINTMENTS**

12/2018 - present	<b>Professor of Experimental Particle Physics</b> Department of Physics, University of Liverpool
06/2014 - 12/2018	Reader (Associate Professor) Department of Physics, University of Liverpool
02/2007 - 05/2022	Staff Scientist Particle Physics Department, STFC Rutherford Appleton Laboratory (between 06/2014-05/2022, in a joint appointment with the University of Liverpool)
06/2003 - 01/2007	Post-Doctoral Research Associate Particle Physics Department, STFC Rutherford Appleton Laboratory
09/1996 - 06/2003	Graduate Research Assistant Physics Department, National and Kapodistrian University of Athens

**EDUCATION**

03/1999 - 06/2003	<b>PhD</b> in Experimental Particle Physics Physics Department, National and Kapodistrian University of Athens Thesis: ‘ <i>Experimental Study of the Phenomenon of Neutrino Oscillations with the MINOS Experiment</i> ’, UA/PHYS/HEP/02-06-2003. Advisor: Prof. G. Tzanakos Supported by a Greek National Scholarship Foundation (IKY) award (1999-2002).
09/1996 - 11/1998	MSc in Nuclear and Particle Physics Physics Department, National and Kapodistrian University of Athens Thesis: ‘ <i>Calibration of a Prototype Electromagnetic Calorimeter for the COSMOS <math>\nu_\mu \leftrightarrow \nu_\tau</math> Neutrino Oscillation Experiment</i> ’, UA/PHYS/HEP/13-11-1998. Advisor: Prof. G. Tzanakos
09/1992 - 09/1996	BSc in Physics Physics Department, National and Kapodistrian University of Athens

**MAIN SCIENTIFIC LEADERSHIP ROLES**

2023-present	Liverpool JUNO PI.
2021-present	Liverpool SBN and SBND PI.
2023	SBN Results Approval Committee (RAC) member.
2020-2023	Member of the SBND Executive Committee.
2017-2023	SBND Physics Co-Coordinator.
2018-2022	SBN Systematics and Oscillation Sensitivities WG Co-Coordinator.
2014-2019	DUNE-UK Physics Coordinator
2014-2015	Member of the T2K Analysis Steering Group.
2010-present	Coordinator of the VALOR Fitting Group.
2014-present	co-Spokesperson of the GENIE Collaboration.
2014-present	Member of the GENIE Executive Board.
2006-2010	MINOS Physics Simulation WG Co-Coordinator.

**PRIZES**

2016	<b>Breakthrough Prize</b> (shared by Daya Bay, KamLAND, SNO, T2K, K2K and SuperK Collaborations).
2011	Le Prix La Recherche award (shared by T2K Collaboration).

**RESEARCH COLLABORATION / GROUP MEMBERSHIPS**

2023-present	Jiangmen Underground Neutrino Observatory ( <b>JUNO</b> ), China - <a href="http://juno.ihep.cas.cn">juno.ihep.cas.cn</a>
2014-present	Short-Baseline Neutrino Program ( <b>SBN</b> ), FNAL E1100, US - <a href="http://sbn.fnal.gov">sbn.fnal.gov</a>
2014-present	Short-Baseline Near Detector ( <b>SBND</b> ) - <a href="http://sbn-nd.fnal.gov">sbn-nd.fnal.gov</a>
2014-present	Deep Underground Neutrino Expt. ( <b>DUNE</b> ), FNAL E1071, US - <a href="http://www.dunescience.org">www.dunescience.org</a>
2007-2024	Tokai to Kamioka ( <b>T2K</b> ), Japan - <a href="http://t2k-experiment.org">http://t2k-experiment.org</a>
2010-present	<b>VALOR</b> Oscillation Analysis Fitting Group - <a href="http://valor.pp.rl.ac.uk">valor.pp.rl.ac.uk</a>
2002-present	<b>GENIE</b> Neutrino Generator & Global Analysis Group - ( <a href="http://www.genie-mc.org">www.genie-mc.org</a> )
1999-2010	Main Injector Neutrino Oscillation Search ( <b>MINOS</b> ), FNAL E875, US
1997-2003	Direct Observation of the Nu Tau ( <b>DONuT</b> ), FNAL E872, US
1997-1998	COsmologically Significant Mass Oscillation Search ( <b>COSMOS</b> ), FNAL E803, US

**PROFESSIONAL AFFILIATIONS**

2018-present	Fellow of the Higher Education Academy.
2010-present	Member of Institute Of Physics (IOP).

**RESEARCH INCOME**

Research funding in the UK is centralized. My current research is funded predominantly by the Science and Technology Facilities Council (STFC) through research grants awarded to the SBND and DUNE projects, and a *Consolidated Grant* awarded to the Liverpool Particle Physics group.

Recent awards:

2024-2026	<b>Royal Society</b> International Exchanges grant, PI. (Total award ~£16k) Neutrino Interaction Modelling for JUNO. Grant reference: IES/R/233249.
2023-2026	<b>European Commission</b> (HORIZON-MSCA-RISE-2020) grant, Liverpool PI PROBES: Probes of new physics and technological advancements from particle and gravitational wave physics experiments. MSCA grant No 101003460.
2023-2025	<b>STFC</b> grant, co-Investigator. (Total award ~£864k) Liverpool Request for Post-Doctoral Research Assistants
2023-2027	<b>LIV.INNO</b> (Liverpool Centre for Doctoral Training for Innovation in Data Intensive Science) PhD studentship, co-funded by the <b>Fermilab SQMS Center</b> , Liverpool co-supervisor. Quantum Computing for Neutrino Scattering.
2023-2026	<b>UKRI</b> award through the UK guarantee for a grant awarded by the <b>European Commission</b> (HORIZON-MSCA-2021-SE-01). Liverpool PI (~£40k at UoL) SENSE: Search for new physics and technological advancement from neutrino experiments at the high intensity frontier. Grant reference EP/X039552/1; MSCA grant No 101081478.
2022-2024	<b>European Commission</b> (HORIZON-MSCA-RISE-2018) grant, Liverpool PI (~£88k at UoL) INTENSE: Particle physics experiments at the high intensity frontier, from new physics to spin-offs. A cooperative Europe - United States - Japan effort. MSCA grant No 822185.
2022-2025	<b>STFC</b> grant, Co-Investigator. (Total award ~£6.7M) Liverpool Particle Physics Consolidated Grant. Project reference ST/W000466/1.
2021-2025	<b>STFC</b> PhD studentship, Project supervisor. Sterile neutrino search at the Fermilab Short Baseline Neutrino Program. Grant reference 2601525.
2019-2023	<b>STFC</b> grant, Co-Investigator. (~£1M at UoL) DUNE-UK production project. Grant reference ST/S004696/1.

- 2019-2023 **STFC** PhD studentship, Project supervisor.  
Neutrino Charge-Parity (CP) Symmetry Violation Search at the T2K Experiment. Grant reference ST/T506266/1, 2275621.
- 2019-2022 **STFC** grant, Co-Investigator (Total award  $\sim$ £6.9M)  
Liverpool Particle Physics Consolidated Grant. Grant reference ST/S000879/1.
- 2018-2022 **STFC** PhD studentship, Project supervisor.  
Search for sterile neutrinos and measurement of neutrino-argon interactions at the SBN program. Grant reference ST/S505547/1, 2113282.
- 2018-2020 **European Space Agency** (ESA AO/1-9535/18/NL/MP) grant, Liverpool PI ( $\sim$ £82k at UoL)  
Positrino: Positioning, Navigation and Timing using Neutrinos.  
(Project in collaboration with GMV Innovating Solutions Ltd.)
- 2017-2019 **STFC** grant, WP1 Coordinator and Liverpool Co-Investigator ( $\sim$ £300k at UoL)  
DUNE-UK pre-construction project. Grant reference ST/R000107/1.
- 2017-2021 **LIV.DAT** (Liverpool Centre for Doctoral Training on Data Intensive Sciences) PhD studentship, Project supervisor.  
Physics Simulations to Underpin Discoveries in the Neutrino Sector, Grant reference ST/P006752/1, 2021488.
- 2016-2020 **STFC** PhD studentship, Project supervisor.  
Neutrino Charge-Parity (CP) Symmetry Violation Search at the T2K Experiment. (Project reference ST/N504142/1, 1796813.)
- 2015-2019 **STFC** grant, Co-Investigator. (Total award  $\sim$ £6.8M)  
Liverpool Particle Physics Consolidated Grant. (Grant reference ST/N000331/1.)
- 2015-2017 **Institute of Particle Physics Phenomenology** (IPPP), Associateship award.
- 2014-2018 **STFC** grant, WP1 Coordinator and Liverpool Co-Investigator. ( $\sim$ £160k at UoL)  
LBNE and the Fermilab LAr Detector Program. (Grant reference: ST/M002799/1.)
- 2009-2010 **Institute of Particle Physics Phenomenology** (IPPP), Associateship award.

## POST-DOC SUPERVISION

- 2023-now Dr. John-Komninos Plows (Liverpool).  
Plow's positions of responsibility: SBN Release Management and Validation co-Coordinator (2025-now).
- 2019-2021 Dr. Christopher Barry (Liverpool).
- 2016-now Dr. Marco Roda (Liverpool).  
Roda's positions of responsibility: GENIE Forum Coordinator (2019-now); SBN Neutrino Generators co-Coordinator (2018-2024); SBND Calibration and Simulation co-Coordinator (2021-2024).
- 2016-2019 Dr. Steve Dennis (Liverpool).  
Dennis' positions of responsibility: DUNE-UK WP1.1 (Near Detector Constraints and Oscillation Sensitivity) Coordinator (2017-19).

## STUDENT SUPERVISION

### Postgraduate research

- 2024-now Mr. Liam Jones, University of Liverpool, PhD candidate<sup>1</sup>.  
Thesis (tentative): '*Machine Learning Methods for Neutrino Event Reconstruction in Large Volume Neutrino Detectors.*'

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<sup>1</sup> Co-supervised by Prof. Xianguo Lu, Warwick

- 2023-now Mrs. Marina Esther Maneyro Questa, University of Liverpool, PhD candidate<sup>2</sup>.  
Thesis (tentative): ‘*Quantum Computing for Neutrino Interaction Simulations.*’
- 2023-now Mr. Samuel Godwood, University of Liverpool, PhD candidate<sup>3</sup>.  
Thesis (tentative): ‘*Quantum Computing for Neutrino Interaction Simulations.*’
- 2023-now Mr. Yaoqi Cao, University of Warwick, PhD candidate.<sup>4</sup>  
Thesis (tentative): ‘*AtmpspHERic Neutrino Oscillations in JUNO.*’
- 2023-now Mr. Ziou He, University of Warwick, PhD candidate.<sup>5</sup>  
Thesis (tentative): ‘*AtmpspHERic Neutrino Oscillations in JUNO.*’
- 2021-now Ms. Bethany Slater, University of Liverpool, PhD candidate<sup>6</sup>.  
Thesis (tentative): ‘*Neutrino Flux and Interaction Systematic Constraints for the SBN Sterile Neutrino Oscillation Search from a Joint Analysis of Exclusive Topological Event Samples on SBND and the Utilization of the SBND PRISM Capabilities.*’
- 2019-2024 **Dr. Jaiden Parlone**, University of Liverpool, PhD 2024<sup>7</sup>.  
Thesis: ‘*Exploring Neutrino Oscillations with T2K: Integrating Updated Interaction Models and New Topological Event Sample for a Precision 3-Flavour Framework Analysis at  $3.1 \times 10^{21}$  Protons on Target.*’
- 2018-2023 **Dr. Thomas Frank Ham**, University of Liverpool, PhD 2023.  
Thesis: ‘*Electron shower energy reconstruction in Liquid Argon Time Projection Chambers and Electron Neutrino Appearance and Disappearance Studies the Fermilab Short Baseline Neutrino Program.*’  
Present position: Senior Technologist with NSG Group.
- 2017-2022 **Dr. Julia Tena Vidal**, University of Liverpool, PhD 2022<sup>8</sup>.  
Thesis: ‘*Global Analysis of Muon-Neutrino Charged-Current Data for the Characterization and Tuning of Cross-Section and Hadronization Models in the GENIE Neutrino Event Generator.*’  
Recipient of the 2018 Leo Carrol (Liverpool HEP) award for outstanding post-graduate research.  
Present position: Post-Doctoral Research Associate at Tel Aviv University.
- 2017-2022 **Dr. Jaggar Henzerling**, University of Liverpool, PhD 2022.  
Thesis: ‘*Multi-plane Neutral Networks for Event Reconstruction in Liquid Argon Time Projection Chambers*’, DOI: 10.17638/03157242  
Present position: Data Scientist at AXA.
- 2016-2021 **Dr. Francis Bench**, University of Liverpool, PhD 2021.  
Thesis: ‘*Study of Neutrino and Antineutrino Oscillations in the Three-Flavour PMNS Paradigm at the T2K Experiment: Determination of the CP-Violating Phase and the Search for  $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$  Oscillations.*’  
Recipient of the 2019 John G. Rutherglen memorial prize.  
Present position: Data Scientist at Eleven-i.
- 2016-2021 **Dr. Rhiannon Jones**, University of Liverpool, PhD 2021<sup>9</sup>.  
Thesis: ‘*Muon Neutrino Disappearance with Multiple Liquid Argon Time Projection Chambers in the Fermilab Booster Neutrino Beam*’, DOI: 10.17638/03143192.  
Present position: Lecturer in Particle Physics at the University of Sheffield.
- 2014-2018 **Dr. Christopher Barry**, University of Liverpool, PhD 2018.  
Thesis: ‘*Joint Analysis of Neutrino and Antineutrino Data from the T2K Experiment and Indications for Charge-Parity (CP) Violation*’, T2K-THESIS-108.

<sup>2</sup> Co-supervised by Dr. Gabriel Perdue and Dr. Doğa Kürkçüoğlu, Fermilab Quantum Institute

<sup>3</sup> Co-supervised by Dr. Gabriel Perdue and Dr. Doğa Kürkçüoğlu, Fermilab Quantum Institute

<sup>4</sup> Co-supervised by Prof. Xianguo Lu, Warwick.

<sup>5</sup> Co-supervised by Prof. Xianguo Lu, Warwick.

<sup>6</sup> Co-supervised by Dr. Rhiannon Jones, Sheffield

<sup>7</sup> Co-supervised by Prof. Davide Sgalaberna, ETHZ

<sup>8</sup> Co-supervised by Prof. Hugh Gallagher, Tufts, and Dr. Marco Roda, Liverpool

<sup>9</sup> Co-supervised by Prof. Christos Touramanis, Liverpool.

- 2011-2015 **Dr. Steve Dennis**, STFC/RAL & University of Warwick, PhD 2015<sup>10</sup>.  
Thesis: ‘*Muon-Antineutrino Disappearance and Non-Standard Interactions at the T2K Experiment*’, T2K-THESIS-069.  
Present position: Post-Doctoral Research Associate at the University of Cambridge.
- 2011-2014 **Dr. Lorena Escudero Sanchez**, CSIC and University of Valencia, PhD 2014<sup>11</sup>.  
Thesis: ‘*Joint Analysis of Three Flavour Neutrino Oscillations Combining the Electron-Neutrino Appearance and Muon-Neutrino Disappearance Channels in the T2K Experiment*’, T2K-THESIS-070.  
Recipient of the IFIC outstanding PhD thesis award.  
Present position: Post-Doctoral Research Associate at the University of Cambridge and Fellow of the Turing Institute.
- 2010-2014 **Dr. Thomas Dealtry**, STFC/RAL & University of Oxford, PhD 2014.<sup>12</sup>  
Thesis: ‘*Muon-Neutrino Disappearance with the T2K Beam*’, T2K-THESIS-057.  
Present position: Post-Doctoral Research Associate at Lancaster University.
- 2008-2011 **Dr. James Dobson**, Imperial College London, PhD 2012.<sup>13</sup>  
Thesis: ‘*Neutrino-Induced Charged-Current Production of Charged Pions at the T2K Near Detector*’, T2K-THESIS-019  
Present position: Lecturer in Particle Physics, Kings College London.

### Undergraduate research

- 2023-2024 Mr. Liam Jones, University of Liverpool, MPHYS Project.  
Thesis: ‘*Quantum Machine Learning*’.
- 2022-2023 Mr. Cameron Cook, University of Liverpool, MPHYS Project.  
Thesis: ‘*Mock Data Studies at the Short Baseline Neutrino Program at Fermilab*’.
- 2019-2020 Mr. Jack Wells, University of Liverpool, MPHYS Project.  
Thesis: ‘*Deep Learning Applications in Neutrino Physics*’.
- 2019-2020 Mr. Alex Barat, University of Liverpool, BSc Project.  
Thesis: ‘*Investigation into the Possibility of Submarine Neutrino Communication*’.
- 2017-2018 Mr. Reece Shaw, University of Liverpool, MPHYS Project.  
Thesis: ‘*Deep Learning Techniques for Neutrino Event Reconstruction and Identification in SBND*’.
- 2017-2018 Mr. Josh Warren, University of Liverpool, MPHYS Project.  
Thesis: ‘*Deep Learning Techniques for Neutrino Event Reconstruction and Identification in SBND*’.
- 2016-2017 Mr. Jake Jackson, University of Liverpool, MPHYS Project.  
Thesis: ‘*Sensitivity of Sterile Neutrino Searches at the Fermilab Short Baseline Neutrino Programme*’.
- 2016-2017 Mr. Jack Ringwood, University of Liverpool, MPHYS Project.  
Thesis: ‘*Effects of Neutrino Interaction Uncertainties in Accelerator-Based Searches for Neutrino CPV*’.
- 2016-2017 Mr. Jonathan Stott, University of Liverpool, MPHYS Project.  
Thesis: ‘*Effects of Neutrino Interaction Uncertainties in Accelerator-Based Sterile Neutrino Searches*’.
- 2016-2017 Mr. James Taylor, University of Liverpool, MPHYS Project.  
Thesis: ‘*Statistical Issues in Precision Oscillation Measurements in Accelerator-Based Experiments*’.

### RESEARCH ACTIVITIES

Main contributions to neutrino interaction phenomenology

- Founder and co-spokesperson of the international GENIE collaboration.
- Lead co-author of the GENIE framework, experimental interfaces and analysis-related tools, as well as of the GENIE neutrino, charged lepton and BSM event generator physics modules. Main author of Nucl.Instrum.Meth. A614 (2010) 87-104 (topcite 1000+). Contributed to novel phenomenological work, including the Andreopoulos-Gallagher-Kehayias-Yang (AGKY) neutrino-induced hadronization model published in Eur.Phys.J. C63 (2009) 1-10.

<sup>10</sup> Co-supervised by Prof. Gary Barker and Prof. Steve Boyd, Warwick.

<sup>11</sup> Co-supervised by Dr. Anselmo Cervera, IFIC.

<sup>12</sup> Co-supervised by Prof. Alfons Weber, RAL & University of Oxford.

<sup>13</sup> Co-supervised by Prof. Yoshi Uchida, Imperial College London.

- I oversaw the development of an advanced analysis of neutrino scattering data and consolidated the dual role I envisioned for GENIE: an event generator group responsible for a leading open-source simulation, and a global fitting group focussing on the construction, characterization and tuning of state-of-the-art proprietary comprehensive interaction models published through its generator platform. I co-authored the first publications produced using the GENIE global analysis, including a cross-section model construction and tune in the resonance transition region published in Phys.Rev.D 104 (2021) 7, 072009 [*Tena-Vidal PhD*], a neutrino-induced hadronization model tune published in Phys.Rev.D 105 (2022) 1, 012009 [*Tena-Vidal PhD*], and a CC0 $\pi$  tune published in Phys.Rev.D 106 (2022) 11, 112001 [*Tena-Vidal PhD*].
- Organised the GENIE Incubator, through which GENIE provides an open platform and central coordination of community-wide generator development efforts, with over a hundred of contributors over the past few years.

Main contributions to the SBND Experiment and to the overall SBN project

- Member of the SBND Executive Board (2020-2023).
- Member of the SBN Results Approval Committee (2023).
- SBN Oscillation Sensitivity and Systematics WG co-Coordinator (2018-2022).
- SBND Physics co-Coordinator (2017-2023). on automated event reconstruction [*Jones PhD*].
- Development of VALOR-based  $\nu_\mu$  disappearance analysis [*Jones PhD*].
- Development of VALOR-based  $\nu_e$  (dis)appearance analyses [*Ham PhD*].
- Development of the SBND-PRISM concept for improved data-driven flux and neutrino interaction systematics constraints and enhanced sterile neutrino oscillation sensitivity [*Slater PhD*].
- Development of Deep Learning methods for cosmic background rejection and neutrino event characterization [*Henzerling PhD*].
- Chair of the Editorial Board for SBND paper on Cosmic Background Removal with Deep Neural Networks in SBND published in Frontiers in Artificial Intelligence, Vol 4 (2021), 42.
- Leading the development of the default SBN neutrino interaction physics simulation (GENIE).

Main contributions to the DUNE Experiment

- DUNE Near Detector Evaluation WG Coordinator (2015-2017).
- DUNE-UK WP.1 (Physics) co-Coordinator (2014-2019) in the period leading up to the publication of the DUNE Physics TDR and CD-2 approval.
- Led the development of an advanced VALOR-based joint 3-flavour oscillation and systematics constraint fit. This produced the first DUNE sensitivities incorporating simulated data from both Near and Far detectors, and informed the DUNE Near Detector task force report (2015).
- Leading the development of the default DUNE neutrino interaction physics simulation (GENIE).

Main contributions to the T2K Experiment

- Chair of the review committee of the first T2K Near detector  $\nu_e$  disappearance (sterile) analysis (2013).
- Member of the  $\nu_\mu$  disappearance contour (statistics) committee (2011).
- Member of the paper committee for the first T2K Near detector  $\nu_e$  disappearance paper (2014) published in Phys.Rev. D91 (2015) 051102.
- Member of the paper committee for the first T2K  $\nu_\mu$  disappearance paper (2011) published in PRD 85:031103 (2012).
- Both through personal analysis efforts and coordination of the VALOR fitting group, I delivered several official T2K oscillation analysis results:
  - Performed  $\nu_\mu$ -disappearance analyses of the T2K Run 1, Run 1-2, Run 1-3 and Run 1-4 [*Dealtry PhD*] datasets. The Run 1-2 result, published in PRD 85:031103 (2012), is the first ever published study of  $\nu_\mu$ -disappearance in an off-axis experiment. The subsequent results published in PRL 111:211803 (2013) and PRL 112:181801 (2014) were, at the time of publication, the world's most stringent constraint on the  $\nu_\mu$ -disappearance parameters.

- Performed the first T2K full 3-flavour oscillation analysis by combining the  $\nu_\mu$ -disappearance and  $\nu_e$ -appearance analyses and performing a simultaneous measurement of  $\Delta m_{32}^2$ ,  $\theta_{23}$ ,  $\theta_{13}$  and  $\delta_{CP}$ . Full 3-flavour oscillation analyses were performed with the Run 1-3 and Run 1-4 datasets [*Escudero PhD*]. Our Run 1-4 results were published in PRD 91:072010 (2015).
- Performed the first T2K  $\bar{\nu}_\mu$ -disappearance analysis with Run 5-6 data [*Dennis PhD*]. This result was published in PRL 116:181801 (2016).
- Performed a 3-flavour oscillation analysis combining all neutrino and antineutrino event samples with Run 1-8 data [*Barry PhD*]. This work, published in Phys.Rev. D96 (2017) no.9, 092006 and Phys. Rev. Lett. 121, 171802 (2018), produced first hints for leptonic CP violation.
- Performed the first T2K  $\bar{\nu}_e$ -appearance analysis with Run 1-9 data [*Bench PhD*], published in Phys. Rev. Lett. 124, 161802 (2020).
- Performed the 3-flavour oscillation analysis combining all neutrino and antineutrino event samples with Run 1-9 data [*Bench PhD*], published in Nature 580, 3390344 (2020) and Phys. Rev. D 103, 112008 (2021), as well as as statistics update with Run 1-10 data [*Bench PhD*]. These analyses produced the first strong indication for leptonic CP violation.
- Measured the rate of charged-current  $\pi^+$  production in the T2K off-axis near detector [*Dobson PhD*].
- Developed event generation applications integrating the GENIE simulation engine with the JPARC neutrino beam-line simulations and T2K detector geometry descriptions.
- Developed methods for propagating neutrino interaction physics uncertainties in T2K physics analyses.
- Designed, prototyped, developed and commissioned the light-injection DAQ control software for the T2K off-axis near detector electromagnetic calorimeters.

#### Main contributions to the MINOS Experiment

- Physics Simulations Working Group co-convener (2006 - 2010): Made major intellectual contributions on the physics model and uncertainty evaluations used for all published MINOS results.
- Assembly and commissioning of Fully-Automated Stations (at Athens and UTA) for the Hamamatsu M16 multi-anode photo-multipliers (PMTs) used at the MINOS Far detector. Was responsible for the operation of the Athens Station and the full characterization of the PMTs tested there. Between November 2001 and December 2002, I tested and characterized almost half of all Far detector PMTs.
- Commissioning and data-taking operations of the MINOS 4 Plane Prototype (4PP), the first full integration of all MINOS Far detector sub-systems at Fermilab (June - August 2000). Developed all offline software, analyzed the cosmic-ray and light-injection data, calibrated the prototype detector and characterized the prototype performance.
- Assembly and commissioning of the MINOS far detector in Soudan mine (September - December 2002).

#### Main contributions to the DONUT Experiment

- Participation in the data-taking operations (July - October 1997).
- Calibration of the electromagnetic calorimeter.

#### Main contributions to the COSMOS Experiment

- Exposure of a prototype electromagnetic calorimeter at a Fermilab test-beam (July - October 1997).
- Calibration of a prototype electromagnetic calorimeter.

### TEACHING

#### Higher Education teaching qualifications

- Fellow of the Higher Education Academy (FHEA). Skills, competences and professional practices were successfully benchmarked against the criteria (Descriptor 2) of the UK Professional Standards Framework (UKPSF) for teaching and support of learning in Higher Education.

#### Undergraduate teaching experience

- 2024-2025, Module co-leader, PHYS 305 (Computational Modeling).



- 2014-2022, Module leader and lecturer, PHYS 201 (Electromagnetism).
- 2015-2020, Tutor, PHYS 480 (Advanced Quantum Physics).
- 2017-2022, Tutor, PHYS 370 (Advanced Electromagnetism).
- 2016-present, Project supervisor, PHYS 498 (MPHYS Project) and PHYS 379 (BSc Project).
- 2014-present, Moderator and/or monitor for several modules.

### Postgraduate research supervision experience

- 2008-present, Supervised 17 PhD theses (6 in progress, 11 completed). Please see above for details.

### Postgraduate teaching experience

- 2019-present, Delivered postgraduate lectures in Neutrino Physics at the University of Liverpool.
- 2017, Lecturer (Simulation of Neutrino Interaction Physics), MCnet Summer School, Lund, Sweden.
- 2014, Tutor, UK High Energy Physics Summer School, University of Warwick.
- 2014, Lecturer, NuSTEC Neutrino Generator School, Liverpool.
- 2013, Tutor, UK High Energy Physics Summer School, University of Warwick.
- 2012, Tutor, UK High Energy Physics Summer School, Sommerville College, Oxford.
- 2009, Lecturer, 45th Karpacz Winter School in Theoretical Physics, Ladek-Zdroj, Poland.
- 2009, Lecturer, GENIE course, Fermilab.
- 2008, Lecturer, GENIE course, TRIUMF.
- 2007, Lecturer, GENIE course, Rutherford Appleton Lab.

### PROFESSIONAL SERVICE

#### Project

2013-2021 Budget holder for T2K-UK STFC project.

#### Departmental

2019-2023 Particle Physics Seminar Series co-Organizer, Physics Dept., University of Liverpool.  
 2018-2022 Equality and Diversity Deputy Director, Physics Dept., University of Liverpool.  
 2014-2017 Member of the Departmental Research Excellence Framework (REF) Coordination Committee, Physics Dept., University of Liverpool.

#### PhD examinations

2024 External PhD examiner for Federico Battisti, University of Oxford.  
 2023 Internal PhD examiner for Sean Hughes, University of Liverpool.  
 2021 Internal PhD examiner for Alex Byrnes, University of Liverpool.  
 2019 External PhD examiner for Colton Hill, University of Manchester.  
 2019 Internal PhD examiner for James Hunt, University of Liverpool.  
 2015 Internal PhD examiner for Thomas Stainer, University of Liverpool.

#### Reviewing and editorial roles

- Referee for Europhysics Letters, European Physical Journal Plus, Advances in High Energy Physics, Nuclear Instruments & Methods in Physics Research A, Particle Data Group.
- Reviewer for Department of Energy (DOE), USA; Research Foundation Flanders, Belgium; National Science Center, Poland; STFC Ernest Rutherford Fellowship, UK; Royal Society University Research Fellowship, UK; University of Chinese Academy of Sciences (UCAS), Chiha; French National Research Agency (ANR), France.

#### Conference and school organization

- 2024, Convener (program on ‘Neutrinos and their interactions with matter’), 23rd International Conference on Few-Body Problems in Physics (FB23), Beijing, September 22-27.

- 2016, Member of the Scientific Organizing Committee, PHYSTAT- $\nu$  workshop, Fermilab, September 19-21.
- 2016, Chair, International Workshop on Global Fits to Neutrino Scattering Data and Generator Tuning (NuTune2016), Liverpool, July 11-15.
- 2015, Member of the Organizing Committee, NuSTEC Training in Neutrino Nucleus Scattering Physics, Okayama University, November 8-14.
- 2014, Member of the Organizing Committee, NuSTEC Training in Neutrino Nucleus Scattering Physics, Fermilab, October 16-27.
- 2014, Member of the Scientific Programme Committee, NuINT14 workshop, London, May 19-24 (co-Organized ‘Neutrino Interaction Systematics for Oscillation Experiments’ session).
- 2014, Co-Chair of the Organizing Committee, NuSTEC MC Generator School, Liverpool, May 14-16.

#### Mentoring

- 2015 - present, Academic advisor for over 20 undergraduate students at the University of Liverpool.

#### Other

- 2018 - 2022, SBND Speakers Committee (Member, 2018 - 2019; Chair, 2019 - 2022).

#### TALKS AT INTERNATIONAL PHYSICS WORKSHOPS, SYMPOSIA AND CONFERENCES

- ‘Recent Developments in GENIE’ (Invited talk), 24th International Workshop on Neutrinos from Accelerators (NuFact2023), 20-26 August 2023, Seoul, South Korea.
- ‘GENIE Status Update’ (Invited talk), Neutrino-Nucleus Interactions in the Standard Model and Beyond, 17-21 January 2022, CERN.
- ‘Systematics: The Neutrino Experiment Experience’ (Invited talk), PHYSTAT- $\nu$  2019, 22-25 January 2019, CERN.
- ‘GENIE Status and Prospects’ (Invited talk), H2020 Oscillation Physics Workshop, 28-29 November 2018, Valencia, Spain.
- ‘The AGKY Hadronization Model’ (Invited talk), NuSTEC Workshop on Shallow- and Deep-Inelastic Scattering, 11-13 October 2018, Gran Sasso Science Institute (GSSI), L’Aquila, Italy.
- ‘Simulations of Neutrino Interaction Physics’, MCnet School, 2-7 July 2017, Lund, Sweden.
- ‘The Short-Baseline Neutrino Detector (SBND)’ (Invited talk), 11th International Workshop on Neutrino-Nucleus Interactions (NuINT17), 25-30 June 2017, Toronto, Canada.
- ‘Neutrino-Nucleus Interaction Cross-Sections’ (Invited talk), Conference on Science at the Sanford Underground Research Facility (CoSSURF) 2017, 12-16 May 2017, Rapid City, SD, USA.
- ‘The VALOR Oscillation Analysis in T2K/HK, DUNE and SBN’ (Invited talk), Topical Meeting on Neutrino-Nucleus Scattering, 18-20 April 2017, Durham, UK.
- ‘Neutrino-Nucleus Interaction Measurements at the few-GeV Energy Scale: Relevance, Present Status and Future Prospects’ (Invited Talk), 25th International Workshop on Deep Inelastic Scattering and Related Topics (DIS17), 3-7 April 2017, Birmingham, UK.
- ‘GENIE Status and Prospects’ (Invited talk), International Workshop on Frontiers in Electroweak Interactions of Leptons and Hadrons (EILH16), 2-6 November 2016, Aligarh, India.
- ‘GENIE Update’ (Invited talk), 10th International Workshop on Neutrino-Nucleus Interactions (NuINT15), 16-21 November 2015, Osaka, Japan.
- ‘Experimental Neutrino Physics’ (Invited lecture), CORFU14 Summer School and Workshop on the Standard Model and Beyond, 3-14 September 2014, Mon-Repos, Corfu, Greece.
- ‘LBNE Flux and Cross-Section Systematic Constraints for 3-Flavour Oscillation Sensitivity Simulation’, CETUP\*14, 10-31 July 2014, Lead, SD, USA.

- ‘GENIE Update’ (Invited talk), 9th International Workshop on Neutrino-Nucleus Interactions (NuINT14), 19-24 May 2014, London, UK.
- ‘T2K Status and Prospects’ (Invited talk), International Committee for Future Accelerators (ICFA) - European Neutrino Town Meeting, 8-10 January 2014, Paris Diderot University, France.
- ‘Electron scattering data and its use in constraining neutrino models’ (Invited review talk), 6th International Workshop on Neutrino-Nucleus Interactions (NuINT09), 18-22 May 2009, Sitges, Spain.
- ‘The path forward: Monte Carlo convergence’ (Invited talk), 6th International Workshop on Neutrino-Nucleus Interactions (NuINT09), 18-22 May 2009, Sitges, Spain.
- ‘The GENIE Universal Neutrino MC Generator’, 45th Karpacz Winter School in Theoretical Physics (Neutrino interactions: from theory to MC simulations), 2-11 February, 2009, Łądek-Zdrój, Poland.
- ‘Recent Results from the MINOS Experiment’ (Invited talk), International Nuclear Physics Conference 2007 (INPC-2007), 3-8 June 2007, Tokyo, Japan.
- ‘Recent Results from the MINOS Experiment’ (Invited talk), International Workshop on Double Beta Decay & Neutrinos (DBD-2007), 11-13 June 2007, Osaka, Japan.
- ‘Overview of Progress in Neutrino Simulation Codes’ (Invited review talk), 5th International Workshop on Neutrino-Nucleus Interactions (NuINT07), 31 May - 3 June 2007, Fermilab, Chicago IL, USA.
- ‘The GENIE Universal Neutrino MC Generator’ (Invited talk), 3rd Neutrino Factory International Scoping Study’, 24-28 April 2006, Rutherford Appleton Lab, UK.
- ‘Neutrino MC Generators and Nuclear Effects’ (Invited talk), 20th Max Born Symposium (Nuclear Effects in Neutrino Interactions), 7-11 December 2005, Wrocław, Poland.
- ‘The GENIE Universal Neutrino MC Generator’, 4th International Workshop on Neutrino-Nucleus Interactions (NuINT05), 26-29 September 2005, Okayama University, Okayama, Japan.
- ‘Neutrino Interaction Physics and Neutrino MC Event Generators’ (Invited talk), Next Generation of Nucleon Decay and Neutrino Detectors (NNN05), 7-9 April 2005, Aussois, Savoie, France.
- ‘Neutrino Interaction Model Validation’, 3rd International Workshop on Neutrino-Nucleus Interactions (NuINT04), 17-21 March 2004, Laboratori Nazionali del Gran Sasso, Assergi, Italy.
- ‘The MINOS Experiment: Current Status and Atmospheric Neutrino Studies’, Recent Advances in High Energy Physics (HEP2003), Annual Meeting of the Hellenic Society for the Study of High Energy Physics, 17-29 April 2003, Athens, Greece.
- ‘MINOS Experiment: Characterization of multi-anode PMTs for the MINOS detectors’, Recent Advances in High Energy Physics (HEP2002), Annual Meeting of the Hellenic Society for the Study of High Energy Physics, 25-27 April, 2002, Patra, Greece.
- ‘Development of the MINOS detectors’, Recent Advances in High Energy Physics (HEP2001), Annual Meeting of the Hellenic Society for the Study of High Energy Physics, 6-8 April 2001, Heraklion, Greece.
- ‘MINOS: Prototype Detector and Toroidal Magnetic Field’, Recent Advances in High Energy Physics (HEP2000), Annual Meeting of the Hellenic Society for the Study of High Energy Physics, April 2000, Ioannina, Greece.

#### SEMINARS AND COLLOQUIA

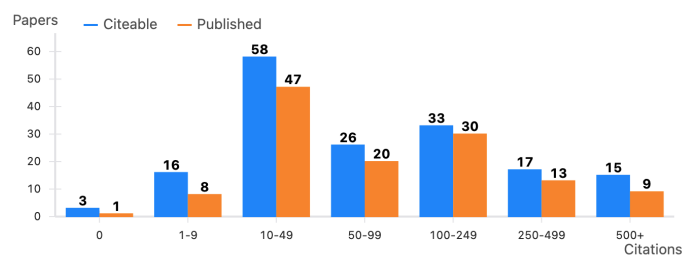
- ‘Neutrino Oscillations: Past, Present and Future’, Jeremiah Horrocks Public Lecture, UCLan, 07/06/22
- ‘Neutrino-Nucleus Interactions at the few-GeV Energy Scale’, CERN-TH Colloquium, 05/02/2020.
- ‘Neutrino-Nucleus Interaction Simulations’, University of Surrey, 01/05/2018.
- ‘Recent results from the T2K experiment on CP violation’, Cambridge University, 07/03/2017.
- ‘Neutrino Oscillation Results from T2K’, Manchester University, 19/01/2012.
- ‘Neutrino Oscillation Results from T2K’, Birmingham University, 19/10/2011.
- ‘First Neutrino Oscillation Results from T2K’, University College London, 27/05/2011.

- ‘First Neutrino Oscillation Results from T2K’, Rutherford Appleton Lab, 25/05/2011.
- ‘First Neutrino Oscillation Results from T2K’, Sussex University, 12/05/2011.
- ‘First Neutrino Oscillation Results from T2K’, Cambridge University, 10/05/2011.
- ‘First Neutrino Oscillation Results from T2K’, Bristol University, 04/05/2011.
- ‘Neutrino Interaction Modeling and Systematic Uncertainties’, IPPP Durham, 25/01/2010.
- ‘Neutrino Interaction Modeling and Systematic Uncertainties’, Paris LPNHE, GDR Neutrino, 27-28/04/2009.
- ‘The GENIE Neutrino MC Generator’, Imperial College London, 18/03/2008.
- ‘Feedback from the NuINT07, INPC07 and DBD07 conferences’, Rutherford Appleton Lab, 08/08/2007.
- ‘Neutrino Interaction Phenomenology’, Rutherford Appleton Lab, 03/03/2006.
- ‘The GENIE Neutrino MC Generator’, Strasbourg IReS, GDR Neutrino, 02-03/02/2006.
- ‘The MINOS Experiment: First Beam Data and Neutrino-Interaction Modeling’, Imperial College London, 17/11/2005.
- ‘Feedback from the NuINT05 conference’, Rutherford Appleton Lab, 02/11/2005.
- ‘Neutrino Oscillations & Interactions: A Review’, Rutherford Appleton Lab, 22/10/2004.
- ‘The MINOS Experiment’, University College London, 27/05/2004.
- ‘Feedback from the NuINT04 conference’, Rutherford Appleton Lab, 28/04/2004.
- ‘MINOS: Detector Development and Data Exploitation’, Rutherford Appleton Lab, 15/10/2003.

## PUBLICATIONS

Citations Summary		
	Citeable	Published
Number of papers	168	128
Number of citations	28,249	21,280
Citations per paper	168.1	163.3
h-index	78	65

Source: INSPIRE HEP, Updated March 12, 2024



## Peer-reviewed journal papers (Neutrino interaction phenomenology)

- Luis Alvarez Ruso et al., Theoretical tools for neutrino scattering: interplay between lattice QCD, EFTs, nuclear physics, phenomenology, and neutrino event generators. January 2025, J.Phys.G (2025)  
The GENIE Collaboration (W. Li et al.), First combined tuning on transverse kinematic imbalance data with and without pion production constraints. 01 October 2024, Phys.Rev.D 110 (2024) 7, 072016.
- The GENIE Collaboration (J. Tena Vidal et al.), Neutrino-nucleus  $CC0\pi$  cross-section tuning in GENIE v3. 02 December 2022, Phys.Rev.D 106 (2022) 11, 112001.
- The GENIE Collaboration (L. Alvarez-Ruso et al.), Recent highlights from GENIE v3. 08 December 2021, Eur.Phys.J.ST 230 (2021) 24, 4449-4467.
- The GENIE Collaboration (J. Tena Vidal et al.), Hadronization model tuning in GENIE v3. 01 January 2022. Phys.Rev.D 105 (2022) 1, 012009.
- The GENIE Collaboration (J. Tena Vidal et al.), Neutrino-nucleon cross-section model tuning in GENIE v3. 01 October 2021, Phys.Rev.D 104 (2021) 7, 072009.
- C. Wilkinson et al., Testing CCQE and 2p2h models in the NEUT neutrino interaction generator with published datasets from the MiniBooNE and MINERvA experiments. 21 April 2016, Phys. Rev. D93, 072010 (2016).
- The GENIE Collaboration (C. Andreopoulos et al.), The GENIE Neutrino Monte Carlo Generator. 21 February 2010, Nucl.Instrum.Meth. A614 (2010) 87-104. (**Topcite 1000+**)

- T.Yang, C.Andreopoulos, H.Gallagher, K.Hoffmann and P.Kehayias, A Hadronization Model for few-GeV Neutrino Interactions. 01 August 2009, Eur.Phys.J. C63 (2009) 1-10.

#### Peer-reviewed journal papers (JUNO experiment)

- The JUNO Collaboration (T. Adam et al.), Simulation of the Background from  $^{13}\text{C}(\alpha, n)^{16}\text{O}$  Reaction in the JUNO Scintillator. Submitted to EPJC (e-print: 2503.00968 [physics.ins-det]).

#### Peer-reviewed journal papers (DUNE experiment)

- The DUNE Collaboration (A. Abed Abud et al.), Neutrino Interaction Vertex Reconstruction in DUNE with Pandora Deep Learning. Submitted to a journal (e-print: 2502.06637 [hep-ex]).
- The DUNE Collaboration (A. Abed Abud et al.), The track-length extension fitting algorithm for energy measurement of interacting particles in liquid argon TPCs and its performance with ProtoDUNE-SP data. 25 February 2025, JINST 20 (2025) 02, P02021.
- The DUNE Collaboration (A. Abed Abud et al.), DUNE Phase II: scientific opportunities, detector concepts, technological solutions. 6 December 2024, JINST 19 (2024) 12, P12005.
- The DUNE Collaboration (A. Abed Abud et al.), First measurement of the total inelastic cross section of positively charged kaons on argon at energies between 5.0 and 7.5 GeV. 1 November 2024, Phys.Rev.D 110 (2024) 9, 092011
- The DUNE Collaboration (A. Abed Abud et al.), Supernova Pointing Capabilities of DUNE. Submitted to a journal (e-print: 2407.10339 [hep-ex]).
- The DUNE Collaboration (A. Abed Abud et al.), Performance of a Modular Ton-Scale Pixel-Readout Liquid Argon Time Projection Chamber. 11 September 2024, Instruments 8 (2024) 3, 41.
- The DUNE Collaboration (A. Abed Abud et al.), Doping liquid argon with xenon in ProtoDUNE Single-Phase: effects on scintillation light. 5 August 2024, JINST 19 (2024) 08, P08005.
- The DUNE Collaboration (A. Abed Abud et al.), The DUNE Far Detector Vertical Drift Technology. Technical Design Report. 9 August 2024, JINST 19 (2024) 08, T08004.
- The DUNE Collaboration (A. Abed Abud et al.), Impact of cross-section uncertainties on supernova neutrino spectral parameter fitting in the Deep Underground Neutrino Experiment. 1 June 2023, Phys.Rev.D 107 (2023) 11, 112012.
- The DUNE Collaboration (A. Abed Abud et al.), Highly-parallelized simulation of a pixelated LArTPC on a GPU. 26 April 2023, JINST 18 (2023) 04, P04034.
- The DUNE Collaboration (A. Abed Abud et al.), Identification and reconstruction of low-energy electrons in the ProtoDUNE-SP detector. 1 May 2023, Phys.Rev.D 107 (2023) 9, 092012.
- The DUNE Collaboration (A. Abed Abud et al.), Reconstruction of interactions in the ProtoDUNE-SP detector with Pandora. 14 July 2023, Eur.Phys.J.C 83 (2023) 7, 618.
- The DUNE Collaboration (A. Abed Abud et al.), Separation of track- and shower-like energy deposits in ProtoDUNE-SP using a convolutional neural network. 12 October 2023, Eur.Phys.J.C 82 (2022) 10, 903.
- The DUNE Collaboration (A. Abed Abud et al.), Scintillation light detection in the 6-m drift-length ProtoDUNE Dual Phase liquid argon TPC. 16 July 2022, Eur.Phys.J.C 82 (2022) 7, 618.
- The DUNE Collaboration (A. Abed Abud et al.), Low exposure long-baseline neutrino oscillation sensitivity of the DUNE experiment. 01 April 2022, Phys.Rev.D 105 (2022) 7, 072006.
- The DUNE Collaboration (A. Abed Abud et al.), Design, Construction and Operation of the ProtoDUNE-SP Liquid Argon TPC, 04 January 2022, JINST 17 (2022) 01, P01005.
- The DUNE Collaboration (A. Abed Abud et al.), Searching for Solar KDAR with DUNE. 22 October 2021, JCAP 10 (2021) 065.
- The DUNE Collaboration (B. Abi et al.), Prospects for beyond the Standard Model physics searches at the Deep Underground Neutrino Experiment. 16 April 2021, Eur.Phys.J.C 81 (2021) 4, 322.

- The DUNE Collaboration (B. Abi et al.), Supernova neutrino burst detection with the Deep Underground Neutrino Experiment. Published 15 May 2021, Eur.Phys.J.C 81 (2021) 5, 423.
- The DUNE Collaboration (B. Abi et al.), First results on ProtoDUNE-SP liquid argon time projection chamber performance from a beam test at the CERN Neutrino Platform. 3 December 2020, JINST 15 (2020) 12, P12004.
- The DUNE Collaboration (B. Abi et al.), Neutrino interaction classification with a convolutional neural network in the DUNE far detector. 9 November 2020, Phys.Rev.D 102 (2020) 9, 092003.
- The DUNE Collaboration (B. Abi et al.), Long-baseline neutrino oscillation physics potential of the DUNE experiment. 22 October 2020, Eur.Phys.J.C 80 (2020) 10, 978.

#### Peer-reviewed journal papers (SBND experiment)

- The SBND Collaboration (P. Abratenko et al.), Scintillation Light in SBND: Simulation, Reconstruction, and Expected Performance of the Photon Detection System. Published 10 October 2024, Eur.Phys.J.C 84 (2024) 1046.
- The SBND Collaboration (R. Acciarri et al.), Cosmic Background Removal with Deep Neural Networks in SBND. Published 24 August 2021, Frontiers in Artificial Intelligence, Vol 4 (2021), 42.
- The SBND Collaboration (R. Acciarri et al.), Construction of Precision Wire Readout Planes for the Short-Baseline Near Detector (SBND). Published 30 June 2020, JINST 15 (2020) 06, P06033.

#### Peer-reviewed journal papers (T2K experiment)

- The T2K and Super-Kamiokande Collaborations (K. Abe et al.), First Joint Oscillation Analysis of Super-Kamiokande Atmospheric and T2K Accelerator Neutrino Data. Published: Jan 2, 2025, Phys.Rev.Lett. 134 (2025) 1, 011801.
- The T2K Collaboration (K. Abe et al.), Measurements of the  $\nu_\mu$  and  $\bar{\nu}_\mu$ -induced coherent charged pion production cross sections on C12 by the T2K experiment. Published: Nov 1, 2023, Phys.Rev.D 108 (2023) 9, 9.
- The T2K Collaboration (K. Abe et al.), Updated T2K measurements of muon neutrino and antineutrino disappearance using  $3.6 \times 10^{21}$  protons on target. Published: Oct 1, 2023, Phys.Rev.D 108 (2023) 7, 072011.
- The T2K Collaboration (K. Abe et al.), First measurement of muon neutrino charged-current interactions on hydrocarbon without pions in the final state using multiple detectors with correlated energy spectra at T2K. Published: Dec 1, 2023, Phys.Rev.D 108 (2023) 11, 112009.
- The T2K Collaboration (K. Abe et al.), Measurements of neutrino oscillation parameters from the T2K experiment using  $3.6 \times 10^{21}$  protons on target. Published: Sep 5, 2023, Eur.Phys.J.C 83 (2023) 9, 782.
- The T2K Collaboration (K. Abe et al.), Scintillator ageing of the T2K near detectors from 2010 to 2021. Published: Oct 17, 2022, JINST 17 (2022) 10, P10028.
- The T2K Collaboration (K. Abe et al.), First T2K measurement of transverse kinematic imbalance in the muon-neutrino charged-current single- $\pi^+$  production channel containing at least one proton. Published 21 June 2021, Phys. Rev. D 103 (2021) 11, 112009.
- The T2K Collaboration (K. Abe et al.), Improved constraints on neutrino mixing from the T2K experiment with  $3.13 \times 10^{21}$  proton on target. Published 16 June 2021, Phys.Rev.D 103 (2021) 11, 112008.
- The T2K Collaboration (K. Abe et al.), T2K measurements of muon neutrino and antineutrino disappearance using  $3.13 \times 10^{21}$  proton on target. Published 26 January 2021, Phys.Rev.D 103 (2021) 1, L011101.
- The T2K Collaboration (K. Abe et al.), Measurements of  $\bar{\nu}_\mu$  and  $\bar{\nu}_\mu + \nu_\mu$  charged-current cross-sections without detected pions nor protons on water and hydrocarbon at mean neutrino energy of 0.86 GeV. Published 02 March 2021, PTEP 2021 (2021) 4, 043C01.
- The T2K Collaboration (K. Abe et al.), Simultaneous measurement of the muon neutrino charged-current cross section on oxygen and carbon without pions in the final state at T2K. Published 16 June 2020, Phys. Rev. D 101 (2020), 11, 112004.

- The T2K Collaboration (K. Abe et al.), Measurement of the charged-current electron (anti-)neutrino inclusive cross-sections at the T2K off-axis near detector ND280. Published 19 October 2020, JHEP 10 (2020) 114.
- The T2K Collaboration (K. Abe et al.), First combined measurement of the muon neutrino and antineutrino charged-current cross-section without pions in the final state at T2K. Published 2 June 2020, Phys.Rev.D 101 (2020) 11, 112001.
- The T2K Collaboration (K. Abe et al.), Search for Electron Antineutrino Appearance in a Long-baseline Muon Antineutrino Beam. Published 21 April 2020, Phys.Rev.Lett. 124 (2020) 16, 161802.
- The T2K Collaboration (K. Abe et al.), Measurement of Neutrino and Antineutrino Neutral-Current Quasielastic-like Interactions on Oxygen by Detecting Nuclear Deexcitation  $\gamma$  rays. Published 30 December 2019, Phys.Rev. D100 (2019) no.11, 112009.
- The T2K Collaboration (K. Abe et al.), Constraint on the Matter-Antimatter Symmetry-Violating Phase in Neutrino Oscillations. Published 15 April 2020, Nature 580 (2020) 7803, 339-344. (**Topcite 500+**)
- The T2K Collaboration (K. Abe et al.), Measurement of the Muon Neutrino Charged-Current Single  $\pi^+$  Production on Hydrocarbon using the T2K Off-Axis Near Detector ND280. Published 10 September 2019, Phys.Rev. D101 (2020) no.1, 012007.
- The T2K Collaboration (K. Abe et al.), First Measurement of the Charged Current  $\bar{\nu}_\mu$  Double Differential Cross Section on a Water Target Without Pions in the Final State. Published 21 July 2020, Phys.Rev.D 102 (2020) 1, 012007.
- The T2K Collaboration (K. Abe et al.), Measurement of the  $\nu_\mu$  Charged-Current Cross Sections on Water, Hydrocarbon, Iron, and their Ratios with the T2K On-Axis Detectors. Published 26 September 2019, Progress of Theoretical and Experimental Physics, Volume 2019, Issue 9, September 2019, 093C02.
- The T2K Collaboration (K. Abe et al.), Search for heavy neutrinos with the T2K near detector ND280. Published 10 September 2019, Phys. Rev. D 100 (2019), 052006.
- The T2K Collaboration (K. Abe et al.), Search for light sterile neutrinos with the T2K far detector Super-Kamiokande at a baseline of 295 km. Published 30 April 2019, Phys. Rev. D 99, 071103(R).
- The T2K Collaboration (K. Abe et al.), Search for neutral-current induced single photon production at the ND280 near detector in T2K. Published 20 June 2019, J.Phys. G46 (2019) no.8, 08LT01.
- The T2K Collaboration (K. Abe et al.), Search for CP Violation in Neutrino and Antineutrino Oscillations by the T2K Experiment with  $2.2 \times 10^{21}$  protons on target. Published 24 October 2018, Phys.Rev.Lett. 121 (2018) no.17, 171802.
- The T2K Collaboration (K. Abe et al.), Characterisation of nuclear effects in  $\nu_\mu$  scattering on hydrocarbon with a measurement of final-state kinematics and correlations in charged-current pionless interactions in T2K. Published 09 August 2018, Phys.Rev. D98 (2018) no.3, 032003.
- The T2K Collaboration (K. Abe et al.), Measurement of inclusive double-differential  $\nu_\mu$  charged-current cross section with improved acceptance in the T2K off-axis near detector. Published 30 July 2018, Phys.Rev. D98 (2018) 012004.
- The Hyper-Kamiokande Collaboration (K. Abe et al.), Physics potentials with the second Hyper-Kamiokande detector in Korea. Published 20 June 2018, PTEP 2018 (2018) no.6, 063C01.
- The T2K Collaboration (K. Abe et al.), Measurement of the single  $\pi^0$  production rate in neutral current neutrino interactions on water. Published 02 February 2018, Phys.Rev. D97 (2018) no.3, 032002.
- The T2K Collaboration (K. Abe et al.), First measurement of the  $\nu_\mu$  charged-current cross section on a water target without pions in the final state. Published 08 January 2018, Phys.Rev. D97 (2018) no.1, 012001.
- The T2K Collaboration (K. Abe et al.), Measurement of neutrino and antineutrino oscillations by the T2K experiment including a new additional sample of  $\nu_e$  interactions at the far detector. Published 21 November 2017, Phys.Rev. D96 (2017) no.9, 092006. Erratum Phys. Rev. D98 (2018) no.1, 019902.

- The T2K Collaboration (K. Abe et al.), Measurement of  $\nu_\mu$  and  $\bar{\nu}_\mu$  charged current inclusive cross sections and their ratio with the T2K off-axis near detector. Published 05 September 2017, Phys. Rev. D96 (2017) no. 5, 052001.
- The T2K Collaboration (K. Abe et al.), Updated T2K measurements of muon neutrino and antineutrino disappearance using  $1.5 \times 10^{21}$  protons on target. Published 31 July 2017, Phys. Rev. D96 (2017) no. 1, 011102.
- The T2K Collaboration (K. Abe et al.), Search for Lorentz and CPT violation using sidereal time dependence of neutrino flavor transitions over a short baseline. Published 29 June 2017, Phys.Rev. D95 (2017) no.11, 111101.
- The T2K Collaboration (K. Abe et al.), Combined Analysis of Neutrino and Antineutrino Oscillations at T2K. Published 10 April 2017, Phys. Rev. Lett 118 (2017) no. 15, 151801.
- The T2K Collaboration (K. Abe et al.), First measurement of the muon neutrino charged current single pion production cross section on water with the T2K near detector. Published 26 January 2017, Phys.Rev. D95 (2017) no. 1, 012010.
- The T2K Collaboration (K. Abe et al.), Measurement of Coherent  $\pi^+$  Production in Low Energy Neutrino-Carbon Scattering. Published 04 November 2016, Phys.Rev.Lett. 117 (2016) no.19, 192501.
- The T2K Collaboration (K. Abe et al.), Measurement of Double-Differential Muon Neutrino Charged-Current Interactions on  $C_8H_8$  Without Pions in the Final State using the T2K Off-axis Beam. Published 21 June 2016, Phys.Rev. D93 (2016) 112012.
- The T2K Collaboration (K. Abe et al.), Measurement of muon anti-neutrino oscillations with an accelerator-produced off-axis beam. Published 05 May 2016, Phys.Rev.Lett. 116, 181801 (2016).
- The T2K Collaboration (K. Abe et al.), Measurement of the Muon Neutrino Inclusive Charged-Current Cross Section in the Energy Range of 1-3 GeV with the T2K INGRID Detector. Published 05 April 2016, Phys. Rev. D93 (2016) 072002.
- The T2K Collaboration (K. Abe et al.), Upper bound on neutrino mass based on T2K neutrino timing measurements. Published 27 January 2016, Phys.Rev. D93 (2016), 012006.
- The T2K Collaboration (K. Abe et al.), Measurement of the  $\nu_\mu$  charged-current quasielastic cross-section on carbon with the ND280 detector at T2K. Published 11 December 2015, Phys.Rev. D92 (2015) 112003.
- The T2K Collaboration (K. Abe et al.), Measurement of the Electron Neutrino Charged-Current Interaction Rate on Water with the T2K ND280  $\pi^0$  Detector. Published 19 June 2015, Phys.Rev. D91 112010 (2015).
- The Hyper-Kamiokande Proto-Collaboration (K. Abe et al.), Physics potential of a long-baseline neutrino oscillation experiment using a J-PARC neutrino beam and Hyper-Kamiokande. Published 19 May 2015, PTEP 2015 (2015) 053C02.
- The T2K Collaboration (K. Abe et al.), Measurement of the  $\nu_\mu$  charged current quasielastic cross section on carbon with the T2K on-axis neutrino beam. Published 04 June 2015, Phys.Rev. D91,112002 (2015).
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