



Pablo Fernandez Menendez

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Summary of CV

This section describes briefly a summary of your career in science, academic and research; the main scientific and technological achievements and goals in your line of research in the medium -and long- term. It also includes other important aspects or peculiarities.

High energy physics researcher, mainly focused on neutrino physics. Working in leading Laboratories and Experiments worldwide.

1. Universidad Autonoma de Madrid (UAM) - Kamioka Observatory [2011-2013]: Study of impact of Gd-loading to water-Cherenkov detectors
 - Calibration of photomultiplier tubes for the EGADS prototype (Kamioka Observatory)
 - Analysis of radioactivity measurements done at Canfranc Lab. (LSC)
 - Study impact of radioactive contamination in the measurements of the SuperK-Gd experiment
2. UAM - Kamioka Observatory [2013-2017]: Study of neutrino oscillations and neutrino astrophysics with neutron tagging in water-Cherenkov detectors
 - Development of algorithm to efficiently tag neutrons
 - Sensitivity studies to the Diffuse Supernova Neutrino Background (DSNB) in SuperK-Gd
 - New oscillation analysis for atmospheric neutrinos in Super-Kamiokande (SK) and SuperK-Gd
 - + Improvement in neutrino-antineutrino classification
 - + Improvement of separation between CC and NC interactions
 - + Improvement of the neutrino energy reconstruction
 - Requirements of radioactivity contamination levels of Gd for solar neutrinos in SuperKd-Gd
 - Reactor neutrino sensitivity with neutron tagging in SuperK-G
 - Sensitivity studies for accelerator neutrinos in the context of the T2K experiment with neutron tagging in the far detector (SK and SuperK-Gd)
 - Sensitivity studies for the detection of the pre-supernova neutrinos of nearby stars
 - Study of capabilities of neutron tagging for neutrino oscillation analyses in the project Hyper-Kamiokande (HK)
 - Main author of the physics and radioactivity sections for the proposal of the SuperK-Gd experiment
 - Development of system to measure and remove the radon contamination in Gd-doped water
3. Instituto de Fisica Corpuscular (IFIC) [05/2017-08/2017]: Temperature monitoring devices for the ProtoDUNE-SP detector
 - Calibration of temperature sensors up to 3 mK precision



4. IFIC-CERN [2017-2018]: Neutrino physics with the experiment T2K, construction and operation of ProtoDUNE-SP and studies towards the DUNE experiment
 - Design, construction and installation of the temperature sensors for ProtoDUNE-SP
 - Participation in the overall installation of ProtoDUNE-SP
 - Neutron production studies with the T2K far detector

5. IFIC-CERN-UAM [2018-present]: Neutrino physics with the experiments T2K, SK and SuperK-Gd, construction and operation of ProtoDUNE-SP and working towards the DUNE experiment
 - Coordinator of the IFIC-UAM group to perform a joint neutrino oscillation analysis with SK, T2K and reactor experiments neutrino data
 - Coordination between the CERN SPS beam instrumentation and the ProtoDUNE analysis groups
 - Implementation of HighLAND to ProtoDUNE-SP data analysis
 - Data quality monitoring for ProtoDUNE-SP
 - Coordinator of the installation and integration for the cryogenic and calibration instrumentation at DUNE far detectors
 - Member of the VALOR group for the analysis of T2K data
 - Main researcher for the joint analysis of SK and T2K data within the VALOR framework
 - Main developer for the new (so-called hybrid) official neutrino oscillation analysis of atmospheric neutrinos in SK
 - Systematic error studies for the SK atmospheric neutrino analysis
 - Studies of future facilities at CERN to provide ancillary measurements for the international neutrino program (DUNE and HK)
 - Institutional representative for the WCTE experiment at CERN



General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

Publication of 58 scientific papers in the relevant journals of fundamental physics, publishing some of the most important results in the world about neutrinos and proton-decay, dark matter and other physics beyond the standard model searches, as well as several papers concerning the design and the physics studies of the two most important next-generation neutrino experiments.

Further, I have participated in the production of internal documents dealing with proposals and status for future and current experiments. (source <https://inspirehep.net/author/profile/P.F.Menendez.1>)

- H-index: 24
- Total number of citations: 2098 citations
- Most cited article: 258 citations
- Number of conference presentations: 10



Pablo Fernandez Menendez

Surname(s): **Fernandez Menendez**
Name: **Pablo**
ORCID: **0000-0001-9034-1930**
INSPIREID: **INSPIRE-00436248**
Personal web page: **<https://inspirehep.net/author/profile/P.F.Menendez.1> and https://www.researchgate.net/profile/Pablo_Fernandez16**

Current professional situation

Employing entity: Instituto de Física Corpuscular **Type of entity:** State agency

Professional category: PostDoc Juan de la Cierva Grant

Start date: 01/11/2018

Dedication regime: Full time

Primary (UNESCO code): 220000 - Physics

Secondary (UNESCO code): 220404 - Fluid mechanics

Tertiary (UNESCO code): 221209 - Leptons

Performed tasks: Neutrino physics, neutrino experiments, instrumentation, neutrino oscillation analysis

Identify key words: Experimental results; Future experiments; Extensions of standard model; Electroweak interaction; Data analysis methods; Instrumentations and detectors for experiments in physics, astrophysics, etc; Statistics and probability

Employing entity: Universidad Autónoma de Madrid **Type of entity:** University

Department: Física Teórica

Professional category: Collaborator

Start date: 01/08/2017

Dedication regime: Full time

Primary (UNESCO code): 220000 - Physics

Tertiary (UNESCO code): 221209 - Leptons

Performed tasks: Neutrino physics, neutrino experiments, instrumentation, neutrino oscillation analysis, neutrino astrophysics

Identify key words: Experimental results; Future experiments; Extensions of standard model; Electroweak interaction; Data analysis methods; Instrumentations and detectors for experiments in physics, astrophysics, etc; Statistics and probability

Previous positions and activities

	Employing entity	Professional category	Start date
1	CERN - EP-NU	Hired, Project Associated (PJAS)	01/08/2017
2	Instituto de Física Corpuscular	Hired, project associated	01/08/2017
3	Instituto de Física Corpuscular	Hired, project associated	15/05/2017

	Employing entity	Professional category	Start date
4	Universidad Autónoma de Madrid	Teaching assistant	04/12/2013
5	Self-employed	Researcher	01/06/2012
6	Self-employed	Researcher	01/06/2011

- 1 Employing entity:** CERN - EP-NU
Professional category: Hired, Project Associated (PJAS)
Start-End date: 01/08/2017 - 30/04/2019
Dedication regime: Full time
Performed tasks: Neutrino physics, neutrino experiments, instrumentation
Identify key words: Physics - High energies - Experiment; Extensions of standard model; Electroweak interaction; Physics - High energies -; Future experiments; Thermodynamics; Mhd and other fluid dynamics; Physics - Instrumentation and data analysis
Applicability in teaching and/or research: Guide of the CERN neutrino platform
- 2 Employing entity:** Instituto de Física Corpuscular
Professional category: Hired, project associated
Start-End date: 01/08/2017 - 30/10/2018
Dedication regime: Full time
Performed tasks: Neutrino physics, neutrino experiments, instrumentation, neutrino oscillation analysis
Identify key words: Physics - High energies - Experiment; Extensions of standard model; Electroweak interaction; Physics - High energies -; Future experiments; Phase transition; Thermodynamics; Mhd and other fluid dynamics; Physics - Instrumentation and data analysis
Applicability in teaching and/or research: Tutor of summer students
- 3 Employing entity:** Instituto de Física Corpuscular **Type of entity:** State agency
Professional category: Hired, project associated
Start-End date: 15/05/2017 - 11/07/2017
Performed tasks: Neutrino physics, neutrino experiments, instrumentation, neutrino oscillation analysis
Identify key words: Experimental results; Future experiments; Extensions of standard model; Electroweak interaction; Data analysis methods; Instrumentations and detectors for experiments in physics, astrophysics, etc; Statistics and probability
- 4 Employing entity:** Universidad Autónoma de Madrid **Type of entity:** University
Professional category: Teaching assistant
Start-End date: 04/12/2013 - 15/05/2017 **Duration:** 3 years - 5 months - 12 days
Identify key words: Physics - High energies - Experiment; Particles physics of primitive universe; Instrumentations and detectors for experiments in physics, astrophysics, etc
Applicability in teaching and/or research: Teaching during four courses the subject of Experimental Techniques in Physics
- 5 Employing entity:** Self-employed
Professional category: Researcher
Start-End date: 01/06/2012 - 01/07/2012
Performed tasks: Construction of the EGADS detector



- 6** **Employing entity:** Self-employed
Professional category: Researcher
Start-End date: 01/06/2011 - 01/07/2011
Performed tasks: Calibration of photomultipliers for the EGADS detector and calibration of the Super-Kamiokande detector at the Kamioka Observatory



Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

- 1 University degree:** Higher degree
Name of qualification: Second cycle of Physics degree
Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Date of qualification: 30/06/2012
- 2 University degree:** Higher degree
Name of qualification: First cycle of Physics degree
Degree awarding entity: Universidad de Oviedo **Type of entity:** University
Date of qualification: 30/06/2010

Doctorates

Doctorate programme: Official Doctorate in Theoretical physics
Degree awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Date of degree: 03/03/2017
European doctorate: Yes **Date of certificate:** 10/03/2017
Thesis title: Neutrino Physics in Present and Future Kamioka Water-Cherenkov Detectors with Neutron Tagging
Thesis director: Luis Labarga Echevarria
Obtained qualification: Sobresaliente Cum Laude / Mención internacional
Recognition of quality: Yes

Other postgraduate university studies

Postgraduate qualification: Master in Theoretical Physics
Degree awarding entity: Instituto de Física Teórica **Type of entity:** State agency
Date of qualification: 06/2013



Specialised, lifelong, technical, professional and refresher training (other than formal academic and healthcare studies)

- 1** **Training title:** Advanced algebra
Awarding entity: INSTITUTO DE CIENCIAS MATEMATICAS
End date: 06/2015
Type of entity: State agency
Duration in hours: 60 hours
- 2** **Training title:** Advanced analysis
Awarding entity: INSTITUTO DE CIENCIAS MATEMATICAS
End date: 06/2015
Type of entity: State agency
Duration in hours: 60 hours
- 3** **Training title:** Advanced geometry
Awarding entity: INSTITUTO DE CIENCIAS MATEMATICAS
End date: 06/2015
Type of entity: State agency
Duration in hours: 60 hours
- 4** **Training title:** Advanced supersymmetry
Awarding entity: Instituto de Física Teórica
End date: 02/2015
Type of entity: State agency
Duration in hours: 10 hours
- 5** **Training title:** Algebraic curves
Awarding entity: INSTITUTO DE CIENCIAS MATEMATICAS
End date: 02/2015
Type of entity: State agency
Duration in hours: 60 hours
- 6** **Training title:** Differential geometry
Awarding entity: INSTITUTO DE CIENCIAS MATEMATICAS
End date: 02/2015
Type of entity: State agency
Duration in hours: 60 hours
- 7** **Training title:** Functional analysis
Awarding entity: INSTITUTO DE CIENCIAS MATEMATICAS
End date: 02/2015
Type of entity: State agency
Duration in hours: 60 hours
- 8** **Training title:** Invisibles13 Physics school
Awarding entity: Durham University
End date: 07/2013
Duration in hours: 40 hours
- 9** **Training title:** Effective quantum field theories
Awarding entity: Instituto de Física Teórica
End date: 06/2013
Type of entity: State agency
Duration in hours: 60 hours
- 10** **Training title:** String theory
Awarding entity: Instituto de Física Teórica
End date: 06/2013
Type of entity: State agency
Duration in hours: 60 hours



- 11 Training title:** Advanced quantum field theory
Awarding entity: Instituto de Física Teórica
End date: 03/2013
Type of entity: State agency
Duration in hours: 60 hours
- 12 Training title:** Initialitation to reasearch in physics
Awarding entity: Consejo Superior de Investigaciones Científicas
End date: 03/2011
Type of entity: State agency
Duration in hours: 16 hours

Language skills

Language	Listening skills	Reading skills	Spoken interaction	Speaking skills	Writing skills
Italian	A2	A2	A1	A1	A1
Catalan	A2	A2	A2	A2	A1
French	B1	B2	B1	B1	B1
German	B2	C1	B2	B2	B2
English	C2	C2	C2	C2	C2
Spanish	C2	C2	C2	C2	C2

Teaching experience

General teaching experience

- 1 Name of the course:** Experimental techniques in Physics I
University degree: Biology degree
Start date: 26/09/2016
End date: 22/05/2017
Entity: Universidad Autónoma de Madrid
Type of entity: University
Faculty, institute or centre: Facultad de Ciencias
- 2 Name of the course:** Experimental techniques in Physics I
University degree: Environmental sciences degree
Start date: 21/09/2015
End date: 01/09/2016
Entity: Universidad Autónoma de Madrid
Type of entity: University
Faculty, institute or centre: Facultad de Ciencias
- 3 Name of the course:** Experimental techniques in Physics I
University degree: Physics degree
Start date: 23/09/2013
End date: 01/09/2015
Entity: Universidad Autónoma de Madrid
Type of entity: University
Faculty, institute or centre: Facultad de Ciencias



Student tutorials

- 1 **Name of the programme:** Educational aid
City of entity: Oviedo, Principality of Asturias, Spain
Frequency of the activity: 30
Number of tutored students: 1
- 2 **Name of the programme:** Doctorate
Entity: Tokyo Institute of Technology **Type of entity:** University Research Institute
City of entity: Japan
Number of tutored students: 1
- 3 **Name of the programme:** Doctorate
Entity: Instituto de Física Corpuscular **Type of entity:** State agency
City of entity: Spain
Number of tutored students: 1
- 4 **Name of the programme:** Summer student supervisor
Entity: Universidad Autónoma de Madrid **Type of entity:** University
- 5 **Name of the programme:** Summer student supervisor
Entity: Instituto de Física Corpuscular **Type of entity:** State agency
- 6 **Name of the programme:** Tutor of postdoc researcher
Entity: Universidad Autónoma de Madrid **Type of entity:** University

Scientific and technological experience

Research and development groups/teams

- 1 **Name of the group:** Official Joint SK+T2K analysis
Aims of the group: Análisis conjunto de datos de SK y T2K
Type of collaboration: Co-authorship of international collaboration
Affiliation entity: Instituto de Física Corpuscular (CSIC) **Type of entity:** Public Research Body
Start date: 30/12/2019
- 2 **Name of the group:** Water Cherenkov Test Experiment
Aims of the group: Institutional representative for the WCTE experiment at CERN
Type of collaboration: Co-authorship of international collaboration
Affiliation entity: Instituto de Física Corpuscular (CSIC) **Type of entity:** Public Research Body
Start date: 18/11/2019
- 3 **Name of the group:** Gd-doped water-Cherenkov detector for DUNE fourth module
Aims of the group: I+D para la tecnología del cuarto módulo de DUNE
Type of collaboration: Co-authorship of international collaboration



Affiliation entity: Instituto de Física Corpuscular (CSIC) **Type of entity:** Public Research Body
Start date: 07/10/2019

4 Name of the group: VALOR group

Aims of the group: Análisis conjunto de SK y T2K utilizando el software VALOR

Type of collaboration: Co-authorship of international collaboration

Affiliation entity: Instituto de Física Corpuscular (CSIC) & University of Valencia, University Autonoma of Madrid, CERN

Start date: 28/01/2019

5 Name of the group: CERN-ND

Aims of the group: Estudios con partículas de baja energía para detectores de neutrinos cercanos

Type of collaboration: Co-authorship of international collaboration

Affiliation entity: Instituto de Física Corpuscular (CSIC) & CERN

Start date: 28/01/2019

6 Name of the group: DUNE collaboration: DUNE far detector instrumentation

Aims of the group: Coordinador de la instalación e integración para el experimento DUNE

Type of collaboration: Co-authorship of international collaboration

Affiliation entity: Instituto de Física Corpuscular (CSIC) **Type of entity:** University Research Institute & University of Valencia

Start date: 18/09/2018

7 Name of the group: DUNE collaboration: Cryogenics Instrumentation and DCS group

Aims of the group: Instrumentación criogénica del detector lejano de DUNE

Type of collaboration: Co-authorship of international collaboration

Affiliation entity: Instituto de Física Corpuscular (CSIC) **Type of entity:** University Research Institute & University of Valencia

Start date: 18/09/2018

8 Name of the group: ProtoDUNE-SP collaboration

Aims of the group: Data Quality Monitor expert for ProtoDUNE-SP

Type of collaboration: Co-authorship of international collaboration

Affiliation entity: Instituto de Física Corpuscular (CSIC) , CERN& University of Valencia

Start date: 07/2018

9 Name of the group: T2K+SK+reactors joint analysis

Aims of the group: Análisis conjunto de oscilaciones de neutrino de T2K, SK y reactores

Type of collaboration: Co-authorship of international collaboration

Affiliation entity: Instituto de Física Corpuscular (CSIC) & University of Valencia, University Autonoma of Madrid

Start date: 10/01/2018

10 Name of the group: protoDUNE-SP collaboration: Simulation, Reconstruction and Analysis group

Aims of the group: Desarrollo de software para el análisis de datos de protoDUNE-SP

Type of collaboration: Co-authorship of international collaboration

Affiliation entity: Instituto de Física Corpuscular (CSIC) **Type of entity:** University Research Institute & University of Valencia

Start date: 11/2017



- 11 Name of the group:** DUNE collaboration
Aims of the group: Construcción y desarrollo del experimento futuro DUNE
Type of collaboration: Co-authorship of international collaboration
Affiliation entity: Instituto de Física Corpuscular (CSIC) **Type of entity:** University Research Institute & University of Valencia
Start date: 22/05/2017
- 12 Name of the group:** protoDUNE-SP collaboration: Cryogenics Instrumentation and DCS group
Aims of the group: Instrumentación criogénica de protoDUNE-SP, prototipo para el experimento de neutrinos DUNE.
Type of collaboration: Co-authorship of international collaboration
Affiliation entity: Instituto de Física Corpuscular (CSIC) **Type of entity:** University Research Institute & University of Valencia
Start date: 22/05/2017
- 13 Name of the group:** T2K collaboration
Aims of the group: Análisis de neutrinos de aceleradores en el detector lejano
Type of collaboration: Co-authorship of projects and their development
Affiliation entity: Universidad Autónoma de Madrid **Type of entity:** University
Start date: 04/2016
- 14 Name of the group:** Super-Kamiokande collaboration: Atmospheric and proton decay group
Aims of the group: Análisis de neutrinos atmosféricos con el experimento Super-Kamiokande
Type of collaboration: Co-authorship of publications
Affiliation entity: Universidad Autónoma de Madrid **Type of entity:** University
Start date: 04/2014 **Duration:** 6 years - 2 months
- 15 Name of the group:** Hyper-Kamiokande collaboration
Aims of the group: Construcción e I+D para Hyper-Kamiokande
Type of collaboration: Co-authorship of international collaboration
Affiliation entity: Universidad Autónoma de Madrid **Type of entity:** University
Start date: 03/2014
- 16 Name of the group:** EGADS
Aims of the group: Desarrollo de la tecnología para incluir la detección de neutrones a través de gadolinio en detectores agua-Cherenkov
Type of collaboration: Co-authorship of projects and their development
Affiliation entity: Universidad Autónoma de Madrid **Type of entity:** University
Start date: 04/2011 **Duration:** 6 years - 2 months
- 17 Name of the group:** Super-Kamiokande collaboration: Low energy group
Aims of the group: Estudio de neutrinos de baja energía con el experimento Super Kamoikande
Type of collaboration: Co-authorship of publications
Affiliation entity: Universidad Autónoma de Madrid **Type of entity:** University
Start date: 04/2011 **Duration:** 6 years - 2 months

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

- 1 Name of the project:** Juan de la Cierva Formacion
Identify key words: Experimental results; Future experiments
Entity where project took place: Instituto de Física Corpuscular **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Anselmo Cervera Villanueva; Luis Labarga Echevarria
Funding entity or bodies: Ministerio de Economía y Competitividad **Type of entity:** State agency
Code according to the funding entity: FJCI-2017-32075
Start-End date: 01/11/2018 - 31/10/2020
Total amount: 54.000 €
- 2 Name of the project:** Elusives
Entity where project took place: Universitat de València **Type of entity:** University
Name principal investigator (PI, Co-PI....): Pilar Hernandez
Nº of researchers: 10
Funding entity or bodies: E.U. H2020-MSCA-ITN-2015 **Type of entity:** Public Research Body
Code according to the funding entity: 674896
Start-End date: 01/04/2016 - 31/03/2020
Total amount: 431.122 €
- 3 Name of the project:** InvisiblesPlus
Entity where project took place: Universitat de València **Type of entity:** University
Name principal investigator (PI, Co-PI....): Pilar Hernandez
Nº of researchers: 7
Funding entity or bodies: E.U. H2020-MSCA-RISE-2015 **Type of entity:** Public Research Body
Code according to the funding entity: 690575
Start-End date: 01/02/2016 - 31/01/2020
Total amount: 301.500 €
- 4 Name of the project:** Neutrino Oscillation Physics en IFIC y UAM
Identify key words: Experimental results; Future experiments
Entity where project took place: Instituto de Física Corpuscular **Type of entity:** State agency
Name principal investigator (PI, Co-PI....): Anselmo Cervera Villanueva; Luis Labarga Echevarria
Funding entity or bodies: Ministerio de Economía y Competitividad **Type of entity:** State agency
Code according to the funding entity: FPA2016-78417-C2-1-P
Start-End date: 01/01/2017 - 31/12/2019
Total amount: 195.000 €



- 5** **Name of the project:** Super-Kamiokande plus
Degree of contribution: Researcher
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Luis Labarga Echevarria; Takaaki Kajita; Piotr Mijakowski; M. Dziewiecki
Funding entity or bodies: E.U. H2020-MSCA-RISE-2014 **Type of entity:** Public Research Body
Code according to the funding entity: 641540
Start-End date: 01/01/2015 - 31/12/2018
Total amount: 310.500 €
- 6** **Name of the project:** Agreement on Academic Cooperation Between the Faculty of Sciences, Autonomous University of Madrid and the Institute for Cosmic Ray Research, the University of Tokyo
Identify key words: Experimental results
Entity where project took place: Universidad Autónoma de Madrid **Type of entity:** University
Name principal investigator (PI, Co-PI....): Luis Labarga Echevarria; Takaaki Kajita
Nº of researchers: 3
Funding entity or bodies: Institute for Cosmic Ray Research **Type of entity:** University Research Institute
City funding entity: Tokyo, Japan
Name of the programme: Framework agreement
Code according to the funding entity: ICRR-UAM
Start-End date: 01/12/2012 - 30/11/2017
Total amount: 15.000 €

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

- 1** Search for Astronomical Neutrinos from Blazar TXS0506+056 in Super-Kamiokande. *Astrophys.J.* 887 (2019) no.1, L6. 16/10/2019.
Type of production: Scientific paper **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: No
Impact source: SCOPUS **Category:** Astronomy and Astrophysics
Impact index in year of publication: 6.98
Relevant publication: Yes
- 2** Constraint on the Matter-Antimatter Symmetry-Violating Phase in Neutrino Oscillations. *Nature* 580 (2020) 7803, 339-344. 09/10/2019.
Type of production: Scientific paper **Format:** Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: No

Source of citations: INSPIRE-HEP

Citations: 7

Relevant publication: Yes

- 3** Measurement of the muon neutrino charged-current single π^+ production on hydrocarbon % C₈H₈ using the T2K off-axis near detector ND280. Phys.Rev.D 101 (2020) 1, 012007. 09/09/2019.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: Yes

Source of citations: INSPIRE-HEP

Citations: 1

Relevant publication: Yes

- 4** First Measurement of the Charged Current $\nu^- \mu$ Double Differential Cross Section on a Water Target without Pions in the final state. arXiv:1908.10249 [hep-ex]. 27/08/2019.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: Yes

Relevant publication: Yes

- 5** Sensitivity of Super-Kamiokande with Gadolinium to Low Energy Anti-neutrinos from Pre-supernova Emission. Astrophys.J. 885 (2019) 133. 20/08/2019.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: Yes

Impact source: SCOPUS

Category: Astronomy and Astrophysics

Impact index in year of publication: 6.98

Relevant publication: Yes

- 6** Search for CP violation in Neutrino and Antineutrino Oscillations by the T2K experiment with 2.2×10^{21} protons on target. Physics Review Letters. 10/2018.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 8.64

Source of citations: INSPIRE-HEP

Citations: 103

Relevant publication: Yes

- 7** Search for Neutrinos in Super-Kamiokande Associated with the GW170817 Neutron-star Merger. Astrophysics Journal. 857 - 1, 01/2018.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Astronomy and Astrophysics

Impact index in year of publication: 5.1

Source of citations: INSPIRE-HEP

Citations: 17



Relevant publication: Yes

- 8** A Measurement of the Tau Neutrino Cross Section in Atmospheric Neutrino Oscillations with Super-Kamiokande. Phys. Rev. D. 1711 - 09436, 11/2017. Available on-line at: <<https://arxiv.org/abs/1711.09436>>.

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 4.394

Source of citations: INSPIRE-HEP

Citations: 16

Relevant results: Computation of systematic errors tau neutrino selection. Provide the atmospheric neutrino oscillation results from SK data.

Relevant publication: Yes

- 9** Search for Boosted Dark Matter Interacting with Electrons in Super-Kamiokande. Phys. Rev. Lett. 120, 11/2017.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 8.64

Source of citations: INSPIRE-HEP

Citations: 20

Relevant publication: Yes

- 10** Atmospheric neutrino oscillation analysis with external constraints in Super-Kamiokande I-IV. Phys. Rev. D. 10/2017. Available on-line at: <<http://inspirehep.net/record/1632446/#>>.

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Relevant results: Implementation of part of the analysis software. Computation of the SK-IV systematic errors used in the analysis. Neutrino oscillation analysis using SK atmospheric data. Statistical interpretation of the obtained results.

Relevant publication: Yes

- 11** The Single-Phase ProtoDUNE Technical Design Report. FERMILAB-DESIGN. 07/2017. Available on-line at: <<http://inspirehep.net/record/1606328?ln=fr#>>.

Type of production: Scientific paper

Relevant publication: Yes

- 12** Solar neutrino measurements in Super-Kamiokande-IV. Phys. Rev. D. 94 - 5, 09/2016.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 4.364

Source of citations: INSPIRE-HEP

Citations: 107

Relevant publication: Yes

- 13** Search for Neutrinos in Super-Kamiokande associated with Gravitational Wave Events GW150914 and GW151226. Astrophysics Journal. 830 - 1, 08/2016.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Astronomy and Astrophysics

Impact index in year of publication: 5.1

Source of citations: INSPIRE-HEP

Citations: 26

Relevant publication: Yes

14 Limits on Sterile Neutrino Mixing using Atmospheric Neutrinos in Super-Kamiokande. Phys. Rev. D. 91 - 5, 10/2014.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 4.364

Source of citations: INSPIRE-HEP

Citations: 117

Relevant publication: Yes

15 Test of Lorentz Invariance with Atmospheric Neutrinos. Phys. Rev. D. 91 - 5, 10/2014.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 4.364

Source of citations: INSPIRE-HEP

Citations: 50

Relevant publication: Yes

16 Search for Trilepton Nucleon Decay via $p \rightarrow e^+ \pi^+$ and $p \rightarrow \mu^+ \pi^+$ in the Super-Kamiokande Experiment. Phys. Rev. Letters. 113, 09/2014.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 8.64

Source of citations: INSPIRE-HEP

Citations: 22

Relevant publication: Yes

17 Long-baseline neutrino oscillation physics potential of the DUNE experiment. arXiv: 2006.16043 [hep-ex]. 26/06/2020.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: No

Relevant publication: No

18 Neutrino interaction classification with a convolutional neural network in the DUNE far detector. arXiv: 2006.15052 [hep-inst]. 26/06/2020.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: No

Relevant publication: No

- 19** Indirect Search for Dark Matter from the Galactic Center and Halo with the Super-Kamiokande Detector. arXiv: 2005.05109 [hep-inst]. 11/05/2020.
Type of production: Scientific paper **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: No
Relevant publication: No
- 20** Measurements of $\bar{\nu}_\mu \bar{\nu}_\mu$ and $\bar{\nu}_\mu + \nu_\mu$ charged-current cross-sections without detected pions nor protons on water and hydrocarbon at mean antineutrino energy of 0.86 GeV. arXiv: 2004.13989 [hep-ex]. 29/04/2020.
Type of production: Scientific paper **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: No
Relevant publication: No
- 21** Measurement of the charged-current electron (anti-)neutrino inclusive cross-sections at the T2K off-axis near detector ND280. arXiv:2002.11986 [hep-ex]. 27/02/2020.
Type of production: Scientific paper **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: No
Relevant publication: No
- 22** First combined measurement of the muon neutrino and antineutrino charged-current cross section without pions in the final state at T2K. Phys.Rev.D 101 (2020) 11, 112001. 21/02/2020.
Type of production: Scientific paper **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: No
Relevant publication: No
- 23** Deep Underground Neutrino Experiment (DUNE), Far Detector Technical Design Report, Volume III DUNE Far Detector Technical Coordination. arXiv:2002.03008 [physics.ins-det]. 07/02/2020.
Type of production: Scientific paper **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: No
Relevant publication: No
- 24** Deep Underground Neutrino Experiment (DUNE), Far Detector Technical Design Report, Volume I Introduction to DUNE. arXiv:2002.02967 [physics.ins-det]. 07/02/2020.
Type of production: Scientific paper **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: No
Relevant publication: No
- 25** Deep Underground Neutrino Experiment (DUNE), Far Detector Technical Design Report, Volume II DUNE Physics. arXiv:2002.03005 [hep-ex]. 07/02/2020.
Type of production: Scientific paper **Format:** Scientific and technical document or report



Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: No

Relevant publication: No

- 26** Deep Underground Neutrino Experiment (DUNE), Far Detector Technical Design Report, Volume IV Far Detector Single-phase Technology. arXiv:2002.03010 [physics.ins-det]. 07/02/2020.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: No

Relevant publication: No

- 27** Search for proton decay into three charged leptons in 0.37 megaton-years exposure of the Super-Kamiokande. Phys.Rev.D 101 (2020) 5, 052011. 22/01/2020.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: No

Relevant publication: No

- 28** Search for Electron Antineutrino Appearance in a Long-baseline Muon Antineutrino Beam. Phys.Rev.Lett. 124 (2020) 16, 161802. 14/11/2019.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: No

Relevant publication: No

- 29** Measurement of neutrino and antineutrino neutral-current quasielastic-like interactions on oxygen by detecting nuclear de-excitation γ -rays. Phys.Rev. D100 (2019) no.11, 112009. 21/10/2019.

Type of production: Scientific paper

Format: Scientific and technical document or report

Degree of contribution: Author or co-author of article in journal without external admissions assessment committee

Corresponding author: No

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 4.12

Relevant publication: No

- 30** Measurement of the ν_{μ} charged-current cross sections on water, hydrocarbon, iron, and their ratios with the T2K on-axis detectors. Prog Theor Exp Phys (2019). 21/04/2019.

Type of production: Scientific paper

Format: Journal

Impact source: SCOPUS

Category: Science Edition - PHYSICS, MATHEMATICAL

Impact index in year of publication: 2.022

Source of citations: INSPIRE-HEP

Citations: 3

- 31** Search for heavy neutrinos with the T2K near detector ND280. Phys.Rev. D100 (2019) no.5, 052006. 20/02/2019.
Type of production: Scientific paper **Format:** Journal
Impact source: SCOPUS **Category:** Science Edition - PHYSICS, PARTICLES & FIELDS
Impact index in year of publication: 3.57
Source of citations: INSPIRE-HEP **Citations:** 15
- 32** Search for light sterile neutrinos with the T2K far detector Super-Kamiokande at a baseline of 295 km. Phys.Rev.D 99 (2019) 7, 071103. 18/02/2019.
Type of production: Scientific paper **Format:** Journal
- 33** Measurement of the neutrino-oxygen neutral-current quasielastic cross section using atmospheric neutrinos at Super-Kamiokande. Phys. Rev. D 99, 032005 (2019). 15/02/2019.
Type of production: Scientific paper **Format:** Journal
- 34** Search for neutral-current induced single photon production at the ND280 near detector in T2K. J.Phys.G 46 (2019) 8, 08LT01. 11/02/2019.
Type of production: Scientific paper **Format:** Journal
Source of citations: INSPIRE-HEP **Citations:** 4
- 35** Input from the CENF-ND Forum to the 2020 Update of the European Strategy for Particle Physics Research and Development for Near Detector Systems Towards Long Term Evolution of Ultra-precise Long-baseline Neutrino Experiments. arXiv:1901.04346. 14/01/2019.
Type of production: Scientific paper **Format:** Scientific and technical document or report
- 36** Research and Development for Near Detector Systems Towards Long Term Evolution of Ultra-precise Long-baseline Neutrino Experiments. arXiv:1901.04346v1. 14/01/2019.
Type of production: Scientific paper **Format:** Scientific and technical document or report
- 37** T2K ND280 Upgrade - Technical Design Report. arXiv:1901.03750. 11/01/2019.
Type of production: Scientific paper **Format:** Journal
Source of citations: INSPIRE-HEP **Citations:** 9
- 38** Atmospheric Neutrino Oscillation Analysis With Improved Event Reconstruction in Super-Kamiokande IV. PTEP 2019 (2019) no.5, 053F01. 10/01/2019.
Type of production: Scientific paper **Format:** Journal
Impact source: SCOPUS **Category:** Science Edition - PHYSICS, PARTICLES & FIELDS
Impact index in year of publication: 2.022
Source of citations: INSPIRE-HEP **Citations:** 9
- 39** Future Opportunities in Accelerator-based Neutrino Physics. arXiv:1812.06739v1. 17/12/2018.
Type of production: Scientific paper **Format:** Scientific and technical document or report
- 40** Dinucleon and Nucleon Decay to Two-Body Final States with no Hadrons in Super-Kamiokande. arXiv:1811.12430v1. 29/11/2018.
Type of production: Scientific paper **Format:** Journal
Source of citations: INSPIRE-HEP **Citations:** 10

- 41** Recent results from long baseline neutrino experiments. Proceedings of The 15th International Workshop on Tau Lepton Physics. SciPost, 03/11/2018.
Type of production: Scientific paper
Impact source: Sci. Post. **Category:** Science Edition - PHYSICS, PARTICLES & FIELDS
Impact index in year of publication: 5.25
- 42** The DUNE Far Detector Interim Design Report Volume 1: Physics, Technology and Strategies. FERMILAB-DESIGN-2018-02. 06/2018.
Type of production: Scientific paper **Format:** Scientific and technical document or report
- 43** The DUNE Far Detector Interim Design Report, Volume 2: Single-Phase Module. FERMILAB-DESIGN-2018-02. 06/2018.
Type of production: Scientific paper **Format:** Scientific and technical document or report
- 44** The DUNE Far Detector Interim Design Report, Volume 3: Dual-Phase Module. FERMILAB-DESIGN-2018-02. 06/2018.
Type of production: Scientific paper **Format:** Scientific and technical document or report
- 45** Search for an excess of events in the Super-Kamiokande detector in the directions of the astrophysical neutrinos reported by the IceCube Collaboration. Astrophysics Journal. 850 - 2, 07/2017. Available on-line at: <<https://inspirehep.net/record/1613296>>.
Type of production: Scientific paper
Impact source: SCOPUS **Category:** Science Edition - PHYSICS, PARTICLES & FIELDS
Impact index in year of publication: 5.1
Source of citations: INSPIRE-HEP **Citations:** 4
- 46** Search for nucleon decay into charged antilepton plus meson in 0.316 megaton · years exposure of the Super-Kamiokande water Cherenkov detector. Phys. Rev. D. 96 - 1, 05/2017. Available on-line at: <<http://inspirehep.net/record/1600785>>.
Type of production: Scientific paper
Impact source: SCOPUS **Category:** Science Edition - PHYSICS, PARTICLES & FIELDS
Impact index in year of publication: 4.364
Source of citations: INSPIRE-HEP **Citations:** 25
- 47** Physics Potentials with the Second Hyper-Kamiokande Detector in Korea. arXiv. 1611 - 06118, 11/2016.
Type of production: Scientific paper
- 48** Proposal for an Extended Run of T2K to 20×10^{21} POT. arXiv:1609.04111. 14/10/2016.
Type of production: Scientific paper
Source of citations: INSPIRE-HEP **Citations:** 51
- 49** Search for proton decay via $p \rightarrow e + \gamma$ and $p \rightarrow \pi^0 + \gamma$ in 0.31 megaton · years exposure of the Super-Kamiokande water Cherenkov detector. Phys. Rev. D. 95 - 1, 10/2016. Available on-line at: <<http://inspirehep.net/record/1600785>>.



Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 4.364

Source of citations: INSPIRE-HEP

Citations: 148

50 Benefits of Gd for High Energy Neutrinos in SuperK-Gd. J.Phys.Conf.Ser. 888 (2017) no.1, 012054. 07/2016.

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 0.51

51 Real-Time Supernova Neutrino Burst Monitor at Super-Kamiokande. Astroparticle Phys.81, pp. 39 - 48. 01/2016.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Astronomy and Astrophysics

Impact index in year of publication: 5.1

Source of citations: INSPIRE-HEP

Citations: 22

52 Measurements of the atmospheric neutrino flux by Super-Kamiokande: Energy spectra, geomagnetic effects, and solar modulation. Phys. Rev. D. 94 - 5, 10/2015. Available on-line at: <<http://inspirehep.net/record/1401192#>>.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 4.364

Source of citations: INSPIRE-HEP

Citations: 23

53 GADZOOKS! (SuperK-Gd): status and physics potential. PoS ICRC15. 08/2015.

Type of production: Scientific paper

Degree of contribution: Author or co-author of article in journal with external admissions assessment committee

Corresponding author: Yes

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 0.03

Source of citations: INSPIRE-HEP

Citations: 3

54 Search for Nucleon and Di-nucleon Decays with an Invisible Particle and a Charged Lepton in the Final State at the Super-Kamiokande Experiment. Phys. Rev. Letters. 11 - 5, 08/2015.

Type of production: Scientific paper

Impact source: SCOPUS

Category: Science Edition - PHYSICS, PARTICLES & FIELDS

Impact index in year of publication: 5.64

Source of citations: INSPIRE-HEP

Citations: 18



- 55** Physics Potential of a Long Baseline Neutrino Oscillation Experiment Using J-PARC Neutrino Beam and Hyper-Kamiokande. PTEP. 053C02, 05/2015.
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 2.022
Source of citations: INSPIRE-HEP
Category: Science Edition - PHYSICS, PARTICLES & FIELDS
Citations: 33
- 56** Search for dinucleon decay into pions at Super-Kamiokande. Phys. Rev. D. 91 - 7, 04/2015.
Type of production: Scientific paper
Impact source: SCOPUS
Impact index in year of publication: 4.364
Source of citations: INSPIRE-HEP
Category: Science Edition - PHYSICS, PARTICLES & FIELDS
Citations: 33
- 57** Status of GADZOOKS!: Neutron tagging in Super-Kamiokande. ICHEP14 conference. 04/2014.
Type of production: Scientific paper
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
- 58** Pablo Fernandez Menendez. Neutrinos: les pantasmes del universu. Cartafueyos Asturianos de Ciencia y Teunoloxía. Universidad de Oviedo, 11/2017.
Type of production: Popular science article
Degree of contribution: Author or co-author of educational publication
Corresponding author: Yes
- 59** Neutrino Physics in Present and Future Kamioka Water-Cherenkov Detectors with Neutron Tagging. Springer Theses. 2018. ISBN 3319950851
Type of production: Scientific book or monograph
- 60** Evaluation of Gadolinium's Action on Water Cherenkov Detector Systems with EGADS. Nucl.Instrum.Meth.A 959 (2020) 163549. 30/08/2019.
Type of production: Scientific-technical report
Format: Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: Yes
Source of citations: INSPIRE-HEP
Citations: 1
Relevant publication: Yes
- 61** J-PARC Neutrino Beamline Upgrade Technical Design Report. arXiv:1908.05141 [physics.ins-det]. 14/08/2019.
Type of production: Scientific-technical report
Format: Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: Yes
Source of citations: INSPIRE-HEP
Citations: 2
Relevant publication: Yes

- 62** Expression of interest for a sub-GeV low Energy beamline at the CERN North Area. CERN. 06/2019.
Type of production: Scientific-technical report **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: Yes
Relevant results: Sub-GeV low energy beamline at CERN for future studies related to next generation neutrino experiments: DUNE, Hyper-Kamiokande, ENUBET, ESSnuSB.
Relevant publication: Yes
- 63** Overview of the ProtoDUNE-SP Data Readiness Status. FERMILAB. 06/2018.
Type of production: Scientific-technical report **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: Yes
Relevant results: Preparation for the data analysis and data taking of the ProtoDUNE-SP experiment.
Relevant publication: Yes
- 64** Proposal for adding gadolinium into Super-Kamiokande experiment, T2K far detector. 03/2016.
Type of production: Scientific-technical report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: Yes
Relevant results: Compilation of results concerning the EGADS gadolinium-doped water-Cherenkov experiment. Proposal for implementing this technology into Super-Kamiokande. Key document for the approval of the future experiment SuperK-Gd by the T2K collaboration.
Relevant publication: Yes
- 65** Proposal for adding gadolinium into Super-Kamiokande experiment. 02/2015.
Type of production: Scientific-technical report **Format:** Scientific and technical document or report
Degree of contribution: Author or co-author of article in journal without external admissions assessment committee
Corresponding author: Yes
Relevant results: Compilation of results concerning the EGADS gadolinium-doped water-Cherenkov experiment. Proposal for implementing this technology into Super-Kamiokande. Key document for the approval of the future experiment SuperK-Gd by the Kamioka Observatory.
Relevant publication: Yes

Works submitted to national or international conferences

- 1** **Title of the work:** Gd-doped water-Cherenkov detector at DUNE
Name of the conference: DUNE Module of Opportunity Workshop
Type of event: Conference
Type of participation: Participatory - Plenary session
City of event: Brookhaven, New York, United States of America
Date of event: 19/11/2019
End date: 21/11/2019
Organising entity: Brookhaven National Lab. **Type of entity:** R&D Centre
City organizing entity: Brookhaven, United States of America



- 2** **Title of the work:** Super-Kamiokande Atmospheric Neutrino Oscillation Analysis
Name of the conference: H2020 Oscillation Physics Workshop
Type of event: Conference
Type of participation: Participatory - Plenary session
City of event: Valencia, Spain
Date of event: 28/11/2018
End date: 29/11/2018
Organising entity: Instituto de Física Corpuscular, uropean H2020 - InfraDeV KM3NeT 2.0 project
City organizing entity: Valencia,
Type of contribution: Review
- 3** **Title of the work:** ProtoDUNE-SP
Name of the conference: X CPAN Days: RENATA
Type of event: Conference
Type of participation: Participatory - Plenary session
City of event: Salamanca, Spain
Date of event: 29/10/2018
End date: 31/10/2018
Organising entity: Centro nacional de fisica de particulas, astroparticulas y nuclear
Type of entity: Public Research Body
Type of contribution: Review
- 4** **Title of the work:** Recent results from long baseline neutrino experiments
Name of the conference: The 15th International Workshop on Tau Lepton Physics
Type of event: Conference
Type of participation: Participatory - Plenary session
City of event: Amsterdam, Holland
Date of event: 24/09/2018
End date: 28/04/2018
Organising entity: NIKHEF
Type of contribution: Review
- 5** **Title of the work:** Gd-doping and the impact on Super-Kamiokande and T2K
Name of the conference: NNN16, International Workshop on Next Generation Nucleon Decay and Neutrino Detectors
Type of event: Conference
Type of participation: Participatory - Plenary session
City of event: Beijing, China
Date of event: 11/2016
Organising entity: IHEP
Type of entity: R&D Centre
- 6** **Title of the work:** Benefits of Gd for High Energy Neutrinos in SuperK-Gd
Name of the conference: Neutrino2016, 27th International Conference on Neutrino Physics and Astrophysics
Type of event: Conference
Geographical area: Non EU International
Type of participation: 'Participatory - poster
City of event: Londres, United Kingdom
Date of event: 07/2016
Organising entity: Imperial College London
Type of entity: University



- 7** **Title of the work:** GADZOOKS! (SuperK-Gd): status and physics potential
Name of the conference: ICRC2015, 34th International Cosmic Ray Conference
Type of event: Conference **Geographical area:** Non EU International
Type of participation: 'Participatory - poster **Reasons for participation:** Representing
City of event: The Hague, Holland
Date of event: 08/2015
Organising entity: IUPAP **Type of entity:** Public Research Body
- 8** **Title of the work:** Status of GADZOOKS!: Neutron tagging in Super-Kamiokande
Name of the conference: ICHEP2014, 37th International Conference on High Energy Physics
Type of event: Conference **Geographical area:** Non EU International
Type of participation: Participatory - oral communication
City of event: Valencia, Valencian Community, Spain
Date of event: 07/2014
Organising entity: IUPAP **Type of entity:** Public Research Body
- 9** **Title of the work:** Identifying antineutrinos with Super-Kamiokande: GADZOOKS!
Name of the conference: Invisibles13 Workshop
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Durham, United Kingdom
Date of event: 07/2013
Organising entity: Invisibles **Type of entity:** Innovation and Technology Centres
- 10** **Title of the work:** Identifying antineutrinos with Super-Kamiokande: GADZOOKS!
Name of the conference: IMFP13 XLI, International Meeting on Fundamental Physics XLI
Type of event: Conference
Type of participation: Participatory - oral communication
City of event: Santander, Cantabria, Spain
Date of event: 05/2013
Organising entity: Consejo Superior de Investigaciones Científicas **Type of entity:** State agency

Other dissemination activities

- 1** **Title of the work:** Interview on "La Nueva España" newspaper on the occasion of the T2K paper in Nature "Constraint on the Matter-Antimatter Symmetry-Violating Phase in Neutrino"
City of event: Oviedo, Spain
Date of event: 04/2020
- 2** **Title of the work:** Outreach article on "La Nueva España" newspaper on the occasion of the T2K paper in Nature "Constraint on the Matter-Antimatter Symmetry-Violating Phase in Neutrino"
City of event: Oviedo, Spain
Date of event: 04/2020
- 3** **Title of the work:** Interview on "La Nueva España" in the occasion of the Physics Nobel Prize in 2015
City of event: Oviedo, Spain
Date of event: 11/2015



R&D management and participation in scientific committees

Scientific, technical and/or assessment committees

Committee title: Future Opportunities in Accelerator-based Neutrino Physics
Affiliation entity: Instituto de Física Corpuscular **Type of entity:** State agency

Organization of R&D activities

Title of the activity: Neutrino oscillation analysis
Type of activity: Coordination of the atmospheric neutrino oscillation analysis group in the Suer-Kamiokande experiment
Geographical area: Non EU International
Convening entity: Tokyo University **Type of entity:** University
City convening entity: Tokyo, Japan
Start date: 06/2016 **Duration:** 8 months

R&D management

Name of the activity: Meeting with the Marie Curie Actions inside the project SKPLUS
Type of management: Management of R&D&I actions and projects
Performed tasks: Presentation of the progress done by the University Autonoma of Madrid
Entity: NCBJ **Type of entity:** Innovation and Technology Centres
Start date: 15/04/2016 **Duration:** 1 day

Other achievements

Stays in public or private R&D centres

- 1 **Entity:** CERN **Type of entity:** Public Research Body
Faculty, institute or centre: Neutrino Platform
City of entity: Geneve, Switzerland
Start-End date: 01/08/2017 - 31/03/2019 **Duration:** 1 year - 8 months
Funding entity: CERN **Type of entity:** Public Research Body
City funding entity: Ginebra, Switzerland
Goals of the stay: Contracted
Provable tasks: Coordination, startup, development and installation of the protoDUNE-SP prototype
Acquired skills developed: Development of the TPC technology with liquid argon for large volume detectors
- 2 **Entity:** J-PARC **Type of entity:** Innovation and Technology Centres
Faculty, institute or centre: Neutrino Facility
City of entity: Tokai, Japan
Start-End date: 05/11/2017 - 17/11/2017 **Duration:** 13 days
Goals of the stay: Post-doctoral



Provable tasks: Data taking with T2K near detector (ND280) and education as TPC expert

- 3** **Entity:** Instituto de Física Teórica **Type of entity:** State agency
City of entity: Madrid, Spain
Start-End date: 06/2016 - 06/2016 **Duration:** 1 month
Goals of the stay: Doctorate
Provable tasks: Neutrino phenomenology studies for future Gadolinium-doped water-Cherenkov detectors
- 4** **Entity:** INSTITUTO DE CIENCIAS MATEMATICAS **Type of entity:** State agency
City of entity: Madrid, Spain
Start-End date: 03/2015 - 06/2016 **Duration:** 1 year - 3 months
Goals of the stay: Guest
Provable tasks: Study of the correspondence between the Langland geometric program and the electric-magnetic duality of gauge field theories
- 5** **Entity:** INSTITUTO DE CIENCIAS MATEMATICAS **Type of entity:** State agency
City of entity: Madrid, Spain
Start-End date: 01/2016 - 01/2016 **Duration:** 5 days
Funding entity: INSTITUTO DE CIENCIAS MATEMATICAS **Type of entity:** State agency
Goals of the stay: Guest
Provable tasks: Participation in the Moduli Space workshop
- 6** **Entity:** Kavli IPMU
City of entity: Tokio, Japan
Start-End date: 01/2016 - 01/2016 **Duration:** 7 days
Funding entity: Universidad Autónoma de Madrid **Type of entity:** University
Goals of the stay: Doctorate
Provable tasks: Super-Kamiokande collaboration meeting
- 7** **Entity:** Kamioka Observatory
City of entity: Toyama, Japan
Start-End date: 11/2015 - 11/2015 **Duration:** 13 days
Funding entity: Universidad Autónoma de Madrid **Type of entity:** University
Goals of the stay: Doctorate
Provable tasks: Data taking with the Super-Kamiokande experiment and participation in the collaboration meeting
- 8** **Entity:** Chennai Mathematical Institute (CMI) **Type of entity:** R&D Centre
City of entity: Chennai, India
Start-End date: 10/2015 - 10/2015 **Duration:** 16 days
Funding entity: INSTITUTO DE CIENCIAS MATEMATICAS **Type of entity:** State agency
Goals of the stay: Guest
Provable tasks: Participation in the workshop about the Narasimhan-Seshadri
- 9** **Entity:** Kavli IPMU
City of entity: Tokio, Japan
Start-End date: 07/2015 - 07/2015 **Duration:** 7 days
Funding entity: Universidad Autónoma de Madrid **Type of entity:** University
Goals of the stay: Doctorate



Provable tasks: Hyper-Kamiokande collaboration meeting

10 Entity: Kamioka Observatory

City of entity: Toyama, Japan

Start-End date: 06/2015 - 07/2015

Duration: 17 days

Funding entity: Universidad Autónoma de Madrid **Type of entity:** University

Goals of the stay: Doctorate

Provable tasks: Data taking with the Super-Kamiokande experiment

11 Entity: Kamioka Observatory

City of entity: Toyama, Japan

Start-End date: 01/04/2015 - 15/04/2015

Duration: 16 days

Goals of the stay: Doctorate

Provable tasks: R&D of hardware to remove radon from gadolinium sulphate for EGADS

12 Entity: Kavli IPMU

City of entity: Tokio, Japan

Start-End date: 01/2015 - 01/2015

Duration: 7 days

Funding entity: Universidad Autónoma de Madrid **Type of entity:** University

Goals of the stay: Doctorate

Provable tasks: Hyper-Kamiokande collaboration meeting

13 Entity: Instituto de Física Teórica

Type of entity: State agency

City of entity: Madrid, Spain

Start-End date: 10/2014 - 01/2015

Duration: 3 months

Goals of the stay: Doctorate

Provable tasks: Phenomenology studies in future gadolinium-doped water-Cherenkov experiments

14 Entity: Kamioka Observatory

Type of entity: University Research Institute

Faculty, institute or centre: Tokyo University

City of entity: Toyama, Japan

Start-End date: 09/2014 - 11/2014

Duration: 2 months - 20 days

Funding entity: Tokyo University

Goals of the stay: Doctorate

Provable tasks: Atmospheric neutrino oscillations, R&D of a new technology for the removal of radon from gadolinium sulfate for the EGADS experiment, data taking and calibration of the Super-Kamiokande experiment, supernova physics studies for supernova neutrinos at the future SuperK-GD

Acquired skills developed: Development of new analysis techniques for supernova and atmospheric neutrinos

15 Entity: Kamioka Observatory

Type of entity: University Research Institute

Faculty, institute or centre: Tokyo University

City of entity: Toyama, Japan

Start-End date: 03/2014 - 06/2014

Duration: 3 months

Funding entity: Universidad Autónoma de Madrid **Type of entity:** University

Goals of the stay: Doctorate

Provable tasks: Atmospheric neutrino oscillations, R&D of a new technology for the removal of radon from gadolinium sulfate for the EGADS experiment, data taking and calibration of the Super-Kamiokande experiment, supernova physics studies for supernova neutrinos at the future SuperK-GD

Acquired skills developed: Development of new analysis techniques for supernova and atmospheric neutrinos



- 16** **Entity:** Kamioka Observatory **Type of entity:** University Research Institute
Faculty, institute or centre: Tokyo University
City of entity: Toyama, Japan
Start-End date: 11/2013 - 11/2013 **Duration:** 1 month
Funding entity: Tokyo University
Goals of the stay: Guest
Provable tasks: Super-Kamiokande data taking and participation in the Super-Kamiokande collaboration meeting
- 17** **Entity:** Kamioka Observatory **Type of entity:** University Research Institute
Faculty, institute or centre: Tokyo University
City of entity: Toyama, Japan
Start-End date: 19/07/2013 - 25/08/2013 **Duration:** 1 month - 7 days
Goals of the stay: Guest
Provable tasks: Calibration of the Super-Kamiokande experiment with a linear electron accelerator and Deuterium-Tritium generator
Acquired skills developed: Calibration of water-Cherenkov experiments and usage of lineal accelerators
- 18** **Entity:** Kamioka Observatory **Type of entity:** University Research Institute
Faculty, institute or centre: Tokyo University
City of entity: Toyama, Japan
Start-End date: 07/2011 - 08/2011 **Duration:** 1 month
Funding entity: University of Tokyo
Goals of the stay: Guest
Provable tasks: Pre-calibration of photomultipliers for the EGADS experiment, reasearch of new radioactive sources for the calibration of the Super-Kamiokande experiment and radioactivity analysis of various samples of gadolinium sulphate
Acquired skills developed: Photomultipliers calibration and usage of Ge detectors

Obtained grants and scholarships

- 1** **Name of the grant:** Grant for attending conferences
Awarding entity: Universidad Autónoma de Madrid **Type of entity:** University
Conferral date: 2014
End date: 2016
Entity where activity was carried out: Universidad Autónoma de Madrid
- 2** **Name of the grant:** Grant for attending Workshop of DUNE module of Opportunity
Aims: Post-doctoral
Awarding entity: Kavli IPMU (Tokyo)
Conferral date: 19/11/2019 **Duration:** 4 days
Entity where activity was carried out: Brookhaven National Lab.
- 3** **Name of the grant:** Grant for attending the CPAN XI workshop
Aims: Post-doctoral
Awarding entity: Instituto de Física Corpuscular **Type of entity:** State agency
Conferral date: 21/10/2019 **Duration:** 3 days
Entity where activity was carried out: Universidad de Oviedo



- 4** **Name of the grant:** Juan de la Cierva Formacion grant
Aims: Post-doctoral
Awarding entity: Consejo Superior de Investigaciones Científicas
Type of entity: State agency
Conferral date: 03/10/2018
Duration: 2 years
Entity where activity was carried out: Instituto de Física Corpuscular
- 5** **Name of the grant:** Grant for attending the Workshop and Conference NS@50 - Fifty Year of the Narasimhan- Seshadri Theorem
Aims: Pre-doctoral
Awarding entity: INSTITUTO DE CIENCIAS MATEMATICAS
Type of entity: State agency
Conferral date: 10/2015
Duration: 20 days
Entity where activity was carried out: Chennai Mathematical Institute (India)
- 6** **Name of the grant:** Grant covering local expenses while visiting the Kamioka Observatory
Awarding entity: University of Tokyo
Type of entity: University
Conferral date: 03/2014
Duration: 3 months
Entity where activity was carried out: Kamioka Observatory (Japan)
- 7** **Name of the grant:** Grant for attending the INVISIBLES13 workshop and conference
Awarding entity: INVISIBLES
Type of entity: Public Research Body
Conferral date: 07/2013
Duration: 15 days
Entity where activity was carried out: Durham University (UK)
- 8** **Name of the grant:** Grant for attending the Internacional Meeting of Fundamental Physics
Awarding entity: Consejo Superior de Investigaciones Científicas
Type of entity: State agency
Conferral date: 05/2013
Duration: 12 days
Entity where activity was carried out: Instituto de Física de Cantabria (IFCA)
- 9** **Name of the grant:** Grant for coursing the Master's course (AYUDANTIA)
Aims: Pre-doctoral
Awarding entity: Universidad Autónoma de Madrid
Type of entity: University
Conferral date: 10/2012
Duration: 1 year
Entity where activity was carried out: Instituto de Física Teórica
- 10** **Name of the grant:** Grant for attending the course Initiation to research
Aims: Pre-doctoral
Awarding entity: Consejo Superior de Investigaciones Científicas
Type of entity: State agency
Conferral date: 03/2012
Duration: 5 days
Entity where activity was carried out: Consejo Superior de Investigaciones Científicas



Prizes, mentions and distinctions

- 1** **Description:** Springer Outstanding PhD Theses
Awarding entity: Springer Nature **Type of entity:** Business
City awarding entity: Berlin, Germany
Conferral date: 01/2018
- 2** **Description:** Bronze medal in the Spanish Chemistry championship
Awarding entity: IUPAC
Conferral date: 04/2007
- 3** **Description:** Second position in the regional (Asturias) Chemistry championship
Awarding entity: IUPAC
Conferral date: 02/2007
- 4** **Description:** Winner of the regional (Asturias) Mathematics championship
Awarding entity: FUNDACION UNIVERSIDAD DE OVIEDO
Conferral date: 05/2005