

Curriculum Vitae

Andrea LONGHIN



Born December 09, 1976 in Noale (VE), Italy.

ORCID 0000-0001-9103-9936

<http://www.lnf.infn.it/~longhin>

Education

- 2003 **Ph.D. in Physics** *Measurement of beauty production in ep collisions in the μD^* channel*, supervisor R. Brugnera at Università degli Studi di Padova.
- 2000 **Degree in Physics** *Measurement of the beauty photoproduction cross section with muon + dijets in ep collisions at HERA*, supervisor R. Brugnera at Università degli Studi di Padova obtaining full marks: 110/110 *cum laude*.

Present position

- 2016- **Permanent researcher at INFN-Padova**
- 2011-2016 **Permanent researcher at INFN-Frascati National Laboratories**

Previous positions

- 2009-2011 **Post-doctoral fellowship** at IRFU, CEA-Saclay, (FR)
- 2004-2008 **Research associate at Physics Dep. / INFN of Bologna, Padova, Bari and Napoli (IT)**

Scientific leadership

- 2016-2021 **Principal Investigator** of ENUBET (Enhanced NeUtrino BEams from kaon Tagging) **Consolidator Grant 2015 (2 M€ budget)** from the European Research Council
- 2014- **Deputy Physics Coordinator** of the *OPERA Coll.* In the **OPERA executive board**
- 2015- **Scientific Secretary** of the **Scientific Committee** of INFN-Frascati National labs (LNF).
- 2015- **OPERA Publication and Talks board** member (1/4)
- 2016- **Responsible** at INFN-LNF for the **SCENTT** project
- 2015- **Responsible** at INFN-LNF for the **T2K** project
- 2011- **Responsible** of the INFN-LNF **OPERA Emulsion Scanning Station**
- 2016- **Convener** of the T2K Inclusive Cross section Physics group
- 2013- **Committee of reviewers** for the T2K cross section group and OPERA papers
- 2012-2015 **Responsible** at INFN-LNF for the **NESSiE** project
- 2014 **Convener** at *Neutrino Oscillation International Workshop NOW 2014*, Sept. 2014 Otranto (IT)
- 2013 **Convener** of *Incontri sulla Fisica Alte Energie. IFAE 2013*, Cagliari (IT)
- 2006-2008 **Responsible** of the OPERA Emulsion Scanning Station at INFN-LNL (Legnaro)
- 2012-2015 (2000-2004) **Detector expert** for the T2K time-projection chamber (ZEUS μ chambers)
- 2003-2004 **Installation team** of the OPERA magnetic spectrometer

Research performances

Funding:

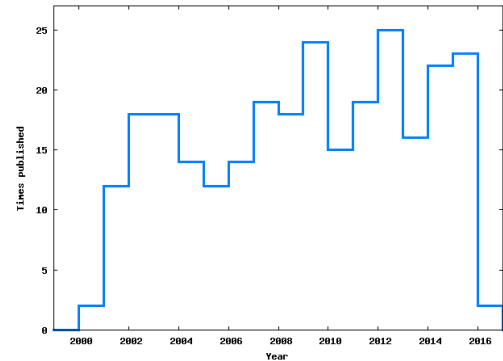
2 M€ through the European Research Council ENUBET Consolidator Grant.

62 k€ through the 2nd / 5th INFN Commissione Scientifica Nazionale for the NESSiE, T2K and SCENTT activities.

Publications:

More than **200** in international journals with more than **12000** citations (details below).

	Citable	Published
Tot. papers	264	217
Tot. citations (per paper)	12475 (47.3)	12116 (55.8)
Renowned (> 500 citations)	2	2
Famous (250-499)	6	6
Very well-known (100-249)	20	20
Well known (50-99)	35	34
Known (10-49)	125	117
Less known (1-9)	62	36
Unknown	14	2



Publications ranking from <http://inspirehep.net>, 31/03/2016.

h-index = 56 (from the inSPIRE database).

Career supervision:

Master student: F. Turato. Post-docs: N. Mauri and F. Pupilli “Castagnoli” award, SIF, May 2004.

Visiting at international research laboratories

- 1999-2004 **Deutsches Elektronen-Synchrotron (DESY)**, Hamburg (DE) working within the *ZEUS Coll.* as a Summer Student, diploma and Ph. D student.
- 2003-2006 **Gran Sasso INFN national underground laboratories (LNGS)**, Assergi (IT) as a post-doc for the construction and commissioning of the **OPERA** experiment.
- 2005 **Fermilab US national labs (FNAL)**, Aurora (IL) **PEANUT** experiment
- 2010-2016 **Japan Proton Accelerator Research Complex (J-PARC)**, Tokai (JP), **T2K** experiment

Organisation of scientific meetings and schools

Program definition, speakers/sponsors contacts, chairing, proceedings reviewing for:

- 02/2012: *RPC2012 XI Resistive Plate Chambers and related detectors*, LNF (IT). ~ 100 participants
- 04/2013: *Incontri sulla Fisica Alte Energie. IFAE 2013*, Cagliari (IT). ~ 130 participants
- 09/2014: *Neutrino Oscillation International Workshop NOW 2014*, Otranto (IT). ~ 150 participants
- 05/2014-2016: *XVII LNF Spring School Bruno Touschek*, LNF Frascati (IT). ~ 40 students

Editorial activity (refereeing)

- Nuclear Instruments and Methods in Physics Research Section A (N.I.M. A)
- Journal of Instrumentation (JINST)

Major Collaborations, EU programs and roles

- **2000-2006 ZEUS Coll. (450 people)** at DESY, Hamburg. *High Energy electron-proton collider.*
 - Expert of the muon chambers and of the micro-vertex radiation monitor system.
 - Responsibility in the Muon trigger upgrade.
 - Development of the real-time control software of micro-vertex radiation monitor detectors.
- **2003-present OPERA Coll. (150 people).** *Direct detection of $\nu_\mu \rightarrow \nu_\tau$ with emulsion detectors.*
 - 2014-present deputy Analysis Coordinator.
 - 2003/2004 responsibility in the quality testing of Resistive Plate Chambers detectors and installation of the OPERA muon spectrometers at LNGS.

- Responsible of the scanning laboratories at LNL (2006-2008) and LNF (2011-present).
- Corresponding author/reviewer of milestone publications.
- **2006 International Scoping Study of a future Neutrino Factory and Super-Beam facility**
 - Coll. with the Detector Group: magnetized emulsion detectors proposal.
- **2009-2011 EUROnu FP7 program (WP2, 20 people).** *R&D for future neutrino facilities in Europe.*
 - Responsible for the simulation and optimization of the SPL-Fréjus neutrino Super Beam.
- **2009-2011 LAGUNA FP7 program.** *A study for long-baseline neutrino experiments in Europe.*
 - Simulation of fluxes and assessment of the best performing long-baselines configurations.
- **2010-present T2K Coll. (500 people).** *Determination of the θ_{13} mixing parameters through $\nu_{\mu} \rightarrow \nu_e$*
 - Installation and expert of the Time Projection Chambers.
 - Reviewer in the cross section analysis group.
 - Convener in the inclusive cross-section group.
- **2012-2014 NESSiE Coll. (50 people).** *A proposal experiment for the search for sterile neutrinos.*
 - INFN responsible at LNF for the NESSiE proposal. Design of muon spectrometers.
 - Responsible of the neutrino flux simulations, editor of the experimental proposal(s).
- **2012-2015 Phenomenological studies / development of new ideas (1-5 people)**
 - INFN task force investigating CP violation perspectives with a CERN to Gran Sasso long baseline neutrino experiment (presenter of outcomes at the ν Turn conference at Gran Sasso).
 - **Proposer of a program for positron tagged neutrino beams for the “What Next” INFN initiative.**
- **2016- ENUBET ERC Consolidator Grant program 2015.** 2 MEUR budget in 60 months (3 post-docs, > 10 people).

Prizes

- **Breakthrough prize in Fundamental Physics 2015** (awarded by the Milner foundation) with K. Nishikawa and the T2K Coll. **Citation:** *For the fundamental discovery and exploration of neutrino oscillations, revealing a new frontier beyond, and possibly far beyond, the standard model of particle physics.*

Invited talks at international conferences and workshops

- 03/2002 **Moriond QCD**, Les Arcs, FR: *Heavy Flavours at HERA.*
- 07/2003 **QCD 03**, Montpellier, FR *Heavy Flavour Production in ep collisions.*
- 04/2005 **DIS 2005** Madison, US: *Measurement of beauty production with $\mu\mu$ correlations.*
- 10/2005 **RPC05**, Seoul, SK: *OPERA Spectrometers RPC system installation and underground tests.*
- 06/2008 **Physics in Collisions**, Perugia, IT. *OPERA: waiting for the τ .*
- 07/2009 **NuFact 09**, Chicago, US. *EUROnu Super Beam Studies.*
- 03/2012 **Moriond Electro-Weak**, La Thuile, IT. *Recent results from OPERA.*
- 05/2012 **ν Turn**, LNGS, IT. *Opportunities for leptonic CP violation and mass hierarchy at LNGS.*
- 07/2014 **Beauty 2014**, Edinburgh, GB. *Beauty contribution to the proton structure function and charm results in ep collisions at HERA.*
- 12/2014 **DISCRETE**, London, GB. *Recent Results from the OPERA experiment at the CNGS beam.*
- 02/2016 **Lake Louise Winter Institute**, Canada, *Recent results from OPERA*

Teaching and Outreach

Teaching experience of about **270 hours** at the Physics Department of Padova University in **general physics, laboratory courses and scientific computing**. Outreach for external visitors and students at INFN Frascati on a regular basis.

Descriptive track-record of the scientific achievements

I have developed my scientific activity in the field of **high-energy physics**. In the first part of my career I have been formed in the environment of a large experimental Coll. at a **collider experiment** (ZEUS) while in the second part I have been working on **neutrino physics with accelerator produced beams** (OPERA, T2K Coll.s). I have balanced my engagement between detectors construction/commissioning, data analysis and simulation of new approaches.

During my PhD (2000-03) I decided to study experimentally the **production of beauty quarks in electron-proton interactions**, a process being at those times not well constrained and of significant interest as a test of perturbative Quantum Chromo Dynamics (Eur. Phys. Journal C). I engaged myself in the life of the experiment being at **DESY** as a responsible of the operation of the **muon chambers** of the ZEUS detector (the largest apparatus of this kind at those times). I also developed the readout of a newly designed **radiation monitoring** system designed to protect the inner vertexing silicon tracker from possible particle beams losses. This hardware was finally successfully in operation during the last year of run (2006).

After my PhD neutrino physics was undergoing one its most exciting periods (i.e. the solar neutrino puzzle was finally solved by SNO) so I became interested in it and joined the OPERA experiment. I was responsible for a large scale data quality assurance program for **Resistive Plate Chambers detectors** (active surface $> 1000 \text{ m}^2$) and actively coordinated in situ (at the Gran Sasso underground laboratory) the **installation of the OPERA magnetic spectrometers** (mass of about 2 kt)[1]. In 2006-2008 I successfully **initiated the activity of nuclear emulsions scanning in Padova** by setting up a new dedicated laboratory (the first charm 3-prong decay of OPERA was observed). I have been actively involved in the **ν_τ appearance analysis**.

In parallel, since 2006, I have always been interested in the **future ideas/proposals** in neutrino physics (for example within the *International Scoping Study of a future Neutrino Factory and Super-Beam facility*). In 2009 I moved to France at IRFU **CEA-Saclay as a post-doc** and started working in the **FP7 projects EUROnu [2] and LAGUNA [3]**. With a team of physicists and engineers (EUROnu-WP2) from UK, France and Poland I developed a technical design report for a future **neutrino Superbeam** with a completely new design and a deep optimisation (Phys. Rev. ST Accel. Beams). Moreover I published my horn-optimisation and sensitivity studies as **single author** in [2]. The optimized neutrino fluxes which I simulated have been used in more than ten neutrino phenomenology papers in later years. I continued being involved in experimental programs by joining the **T2K** international Coll. based in Japan. In 2010 I was in **Japan** for the installation of the **Time Projection Chambers** of the T2K experiment near detector and I was directly involved in the **analysis of the early neutrino data** (T2K technical notes 14, 15).

In February **2011** after undergoing a national-level selection I was selected for a **permanent researcher position at INFN Frascati National laboratories (LNF)** where I started my activity as an independent researcher. Since **2012** I became the proposer for a new activity (**NESSIE**) for the study of possible new states (**sterile neutrinos**). I was a leading player in the experiment simulations and design (see, for example, [6]). I have also had the opportunity to develop a research network by having frequent contacts with other parties being involved in this new proposal both in EU and US (the experiment was proposed at CERN Geneva and FERMILAB, Illinois).

At LNF I also continued my commitment within the *T2K Coll.* Thanks to the successful operation of the detector in 2012 the **first measurement of $\nu_\mu \rightarrow \nu_e$ oscillations and of the neutrino mixing angle θ_{13}** at a long baseline experiment [4, 5] became possible ([4] was awarded by the French review “La Recherche”). For these achievements I was awarded the **Breakthrough Prize in Fundamental Physics** with K. Nishikawa collaborators in 2015 (Milner foundation).

In 2012 I have worked for the INFN task force investigating the **perspectives of a CERN to LNGS experiment for the measurement of CP violation in the leptonic sector** (responsible of the simulation). I presented the results at the ν Turn2012 workshop [7].

In 2012 I met the criteria required, at a national level, to access 2nd level academic professorship in Italian Universities (*Abilitazione Scientifica Nazionale*).

In **2012-13** I have been **editor** and corresponding author of two milestone publications of the *OPERA Coll.* dealing with the discovery of $\nu_\mu \rightarrow \nu_\tau$ transitions (the main scientific goal of the experiment) [8, 9]. I am currently the **Deputy Physics Coordinator**.

In **2014**, beside continuing my commitments in OPERA, T2K and NESSIE, I started working out a precise layout for a **new-concept neutrino beam based on Kaon tagging** and proposed an experimental program in the context of the INFN initiative called **What Next** trying to foster fresh ideas for future experiments. I have presented the outcomes in the INFN What Next meeting (Padova, 2/12/2014). The paper is published by European Physical Journal C [10].

In **2015** I have proposed, in the role of principal investigator, a research project based on this idea, **ENUBET (Enhanced NeUtrino BEams from kaon Tagging)** which has been financed by the European Research Council within Consolidator Grant 2015 call with a **total budget of 2M EUR**. The project will start on **1 June 2016 for a duration of five years**. The team of interested people is presently composed of about 35 physicists from INFN and other foreign institutes (CERN, Protvino, IN2P3). Three new post-doctoral fellow positions are foreseen. The activity will also be represented in the Commissione Scientifica Nazionale 2. An Expression of Interest to CERN SPSC is going to be submitted.

I have had a leading role for important Coll. papers both for ZEUS (450 members), OPERA (150) and T2K (500). I have papers written as single author reflecting directly my personal work (for example in the redesign of the SPL-Fréjus Superbeam) or in small groups (studies on CP violation, tagged neutrino beams). Here below I report, among the most recent ones, those ten which I judge as being scientifically more relevant and at the same time reflecting my direct contribution. I am corresponding author of [8, 9] and single author of [2]:

1. *First events from the CNGS neutrino beam detected in the OPERA experiment*. R. Acquafredda *et al.*, *New J. Phys.* **8** (2006) 303.
2. *A new design for the CERN-Fréjus neutrino Super Beam* A. Longhin. *Eur. Phys. J. C* **71** (2011) 1745.
3. *Optimization of neutrino fluxes for future long baseline neutrino oscillation experiment* S. Di Luise, A. Longhin, A. Rubbia. *PoS ICHEP2012* (2013) 386.
4. *Indication of Electron Neutrino Appearance from an Accelerator-produced Off-axis Muon Neutrino Beam T2K Coll.* (K. Abe *et al.*). *Phys. Rev. Lett.* **107** (2011) 041801.
5. *Observation of Electron Neutrino Appearance in a Muon Neutrino Beam*. K. Abe *et al.* *Phys. Rev. Lett.* **112** (2014) 061802.
6. *An Appraisal of Muon Neutrino Disappearance at Short Baseline* L. Stanco, S. Dusini, A. Longhin, A. Bertolin, M. Laveder. *Adv. High Energy Phys.* **2013** (2013) 948626.
7. *CP violation and mass hierarchy at medium baselines in the large θ_{13} era* S. Dusini, A. Longhin, M. Mezzetto, L. Patrizii, M. Sioli, G. Sirri, F. Terranova. *Eur. Phys. J. C* **73** (2013) 2392.
8. *New results on $\nu_\mu \rightarrow \nu_\tau$ appearance with the OPERA experiment in the CNGS neutrino beam*. *OPERA Coll.*, 30 pages, *JHEP* **1311** (2013) 036.
9. *Evidence for $\nu_\mu \rightarrow \nu_\tau$ appearance in the CNGS neutrino beam with the OPERA experiment*. *OPERA Coll.*, *Phys. Rev. D* **89** 051102(R) (2014).
10. *A novel technique for the measurement of the electron neutrino cross section*. A. Longhin, L. Ludovici, F. Terranova, *arXiv:1412.5987*. *Eur. Phys. J. C*, April 2015, 75:155

Other skills

- English, French (fluent), Italian (mother), Chinese, German (basic).
- Fortran77, c, C++, LATEX, paw, GNUPLOT, ROOT, GEANT4, FLUKA, GloBES

List of publications since INFN permanent (Feb. 2011-Apr. 2016)

- 1) **Combined QCD and electroweak analysis of HERA data** *ZEUS Coll.* (H Abramowicz *et al.*). Mar 31, 2016. 32 pp. DESY-16-039 *arXiv:1603.09628*.
- 2) **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**. *T2K Coll.* (K. Abe *et*

- al.*). Feb 11, 2016. 44 pp. [arXiv:1602.03652](#).
- 3) **A non-conventional neutrino beamline for the measurement of the electron neutrino cross section.** A. Berra *et al.* Dec 27, 2015. 10 pp. Conference: C15-08-10.2. [arXiv:1512.08202](#).
 - 4) **Measurement of muon anti-neutrino oscillations with an accelerator-produced off-axis beam.** *T2K Coll.* (K. Abe *et al.*). Dec 8, 2015. 8 pp. [arXiv:1512.02495](#).
 - 5) **Summary of session III: oscillations at high energies.** P. Coloma (Virginia Tech.), A. Longhin (Frascati). 2015. 6 pp. *Nucl. Part. Phys. Proc.* 265-266 (2015) 346-351. Conference: C14-09-07.1 Proceedings.
 - 6) **Measurement of the muon neutrino inclusive charged-current cross section in the energy range of 1-3 GeV with the T2K INGRID detector.** *T2K Coll.* (K. Abe *et al.*). Sep 23, 2015. 23 pp. [arXiv:1509.06940](#).
 - 7) **Measurement of the cross-section ratio $\sigma(\psi(2S))/\sigma(J/\psi(1S))$ in deep inelastic exclusive ep scattering at HERA.** *ZEUS Coll.* (H. Abramowicz *et al.*). Jan 14, 2016. 29 pp. [PoS DIS2015 \(2015\) 078 DESY-16-008](#). Conference: C15-04-27 Proceedings. [arXiv:1601.03699](#).
 - 8) **Results from the OPERA experiment at the CNGS beam.** *OPERA Coll.* (A. Longhin (Frascati) for the Coll.). 2015. 15 pp. *J.Phys.Conf.Ser.* 631 (2015) no.1, 012056 DOI: [10.1088/1742-6596/631/1/012056](#). Conference: C14-12-02.1 Proceedings.
 - 9) **Discovery of τ Neutrino Appearance in the CNGS Neutrino Beam with the OPERA Experiment.** *OPERA Coll.* (N. Agafonova *et al.*). Jul 6, 2015. 7 pp. *Phys. Rev. Lett.* 115 (2015) no.12, 121802. [arXiv:1507.01417](#).
 - 10) **Large-angle scattering of multi-GeV muons on thin Lead targets.** A. Longhin, A. Paoloni, F. Pupilli (Frascati). Jun 29, 2015. 9 pp. DOI: [10.1109/TNS.2015.2473674](#). [arXiv:1506.08759](#).
 - 11) **Combination of measurements of inclusive deep inelastic e^+p scattering cross sections and QCD analysis of HERA data.** *H1 and ZEUS Coll.s* (H. Abramowicz *et al.*). Jun 19, 2015. 160 pp. *Eur. Phys. J. C* 75 (2015) no.12, 580. [arXiv:1506.06042](#).
 - 12) **Production of exclusive dijets in diffractive deep inelastic scattering at HERA.** *ZEUS Coll.* (H. Abramowicz *et al.*). May 21, 2015. 42 pp. *Eur. Phys. J. C* 76 (2016) no.1, 16. [DESY-15-070](#). [arXiv:1505.05783](#).
 - 13) **Measurement of the electron neutrino charged-current interaction rate on water with the T2K ND280 π^0 detector.** *T2K Coll.* (K. Abe *et al.*). Mar 30, 2015. 11 pp. *Phys.Rev.* D91 (2015) 112010. [arXiv:1503.08815](#).
 - 14) **Search for Sterile Neutrinos in the Muon Neutrino Disappearance Mode at FNAL.** A. Anokhina *et al.* Mar 25, 2015. 15 pp. [arXiv:1503.07471](#).
 - 15) **Measurement of the ν_μ charged current quasielastic cross section on carbon with the T2K on-axis neutrino beam.** *T2K Coll.* (K. Abe *et al.*). Mar 25, 2015. 17 pp. *Phys. Rev.* D91 (2015) no.11, 112002. [arXiv:1503.07452](#).
 - 16) **Combination of differential $D^{*\pm}$ cross-section measurements in deep-inelastic ep**

- scattering at HERA. *H1* and *ZEUS* Coll.s** (H. Abramowicz *et al.*). Mar 20, 2015. 37 pp. [JHEP 1509 \(2015\) 149](#). [DESY-15-037](#). [arXiv:1503.06042](#).
- 17) **Limits on muon-neutrino to tau-neutrino oscillations induced by a sterile neutrino state obtained by OPERA at the CNGS beam.** *OPERA Coll.* (N. Agafonova *et al.*). Mar 6, 2015. 11 pp. [JHEP 1506 \(2015\) 069](#). [arXiv:1503.01876](#).
- 18) **Upper bound on neutrino mass based on T2K neutrino timing measurements.** *T2K Coll.* (K. Abe *et al.*). Feb 23, 2015. 15 pp. [Phys. Rev. D93 \(2016\) no.1, 012006](#). [arXiv:1502.06605](#).
- 19) **Physics potential of a long-baseline neutrino oscillation experiment using a J-PARC neutrino beam and Hyper-Kamiokande.** Hyper-Kamiokande Proto-Coll. (K. Abe *et al.*). Feb 18, 2015. 35 pp. [PTEP 2015 \(2015\) 053C02](#). [arXiv:1502.05199](#).
- 20) **Beauty contribution to the proton structure function and charm results.** *H1* and *ZEUS* Coll.s (Andrea Longhin for the Coll.). 2015. [PoS Beauty2014 \(2015\) 018](#). Conference: [C14-07-14.2 Proceedings](#).
- 21) **Measurements of neutrino oscillation in appearance and disappearance channels by the T2K experiment with 6.6×10^{20} protons on target.** *T2K Coll.* (K. Abe *et al.*). Feb 5, 2015. 50 pp. [Phys. Rev. D91 \(2015\) no.7, 072010](#). [arXiv:1502.01550](#).
- 22) **Tagged electron neutrinos.** Francesco Terranova (INFN, Milan & Milan Bicocca U.), Andrea Longhin (Frascati), Lucio Ludovici (INFN, Rome). 2015. 7 pp. [PoS NUFACT2014 \(2015\) 037](#). Conference: [C14-08-25.3 Proceedings](#).
- 23) **Improving the detection efficiency in nuclear emulsion trackers.** A. Alexandrov *et al.* 2015. 5 pp. [Nucl. Instrum. Meth. A776 \(2015\) 45-49](#).
- 24) **The OPERA experiment.** N. Agafonova *et al.* 2015. 7 pp. [Nucl. Part. Phys. Proc. 267-269 \(2015\) 87-93](#). Conference: [C14-11-24 Proceedings](#).
- 25) **Overview on neutrino oscillations.** A. Longhin (Frascati). 2015. [Nuovo Cim. C38 \(2015\) no.1, 25](#). Conference: [C14-04-09 Proceedings](#).
- 26) **A novel technique for the measurement of the electron neutrino cross section.** A. Longhin (Frascati), L. Ludovici (INFN, Rome), F. Terranova (Milan Bicocca U. & INFN, Milan Bicocca). Dec 18, 2014. 22 pp. [Eur. Phys. J. C75 \(2015\) no.4, 155](#). [arXiv:1412.5987](#).
- 27) **A Long Baseline Neutrino Oscillation Experiment Using J-PARC Neutrino Beam and Hyper-Kamiokande.** Hyper-Kamiokande Working Group Coll. (K. Abe *et al.*). Dec 15, 2014. 50 pp. [arXiv:1412.4673](#).
- 28) **Measurement of the ν_μ charged-current quasielastic cross section on carbon with the ND280 detector at T2K.** *T2K Coll.* (K. Abe *et al.*). Nov 23, 2014. 14 pp. [Phys. Rev. D92 \(2015\) no.11, 112003](#). [arXiv:1411.6264](#).
- 29) **Search for short baseline ν_e disappearance with the T2K near detector.** *T2K Coll.* (K. Abe *et al.*). Oct 31, 2014. 8 pp. [Phys. Rev. D91 \(2015\) 051102](#). [arXiv:1410.8811](#).
- 30) **The NESSiE way to searches for sterile neutrinos at FNAL.** NESSiE Coll. (A. Anokhina *et al.*). Oct 15, 2014. 12 pp. [arXiv:1410.3980](#).

- 31) **Neutrino oscillation physics potential of the T2K experiment.** *T2K Coll.* (K. Abe *et al.*). Sep 26, 2014. 36 pp. [PTEP 2015 \(2015\) no.4, 043C01](#). [arXiv:1409.7469](#).
- 32) **Measurement of the Inclusive Electron Neutrino Charged Current Cross Section on Carbon with the T2K Near Detector.** *T2K Coll.* (K. Abe *et al.*). Jul 28, 2014. 7 pp. [Phys. Rev. Lett. 113 \(2014\) no.24, 241803](#). [arXiv:1407.7389](#).
- 33) **Measurement of the inclusive ν_μ charged current cross section on iron and hydrocarbon in the T2K on-axis neutrino beam.** *T2K Coll.* (K. Abe *et al.*). Jul 16, 2014. 15 pp. [Phys. Rev. D90 \(2014\) no.5, 052010](#). [arXiv:1407.4256](#).
- 34) **Observation of tau neutrino appearance in the CNGS beam with the OPERA experiment.** *OPERA Coll.* (N. Agafonova *et al.*). Jul 13, 2014. 10 pp. [PTEP 2014 \(2014\) no.10, 101C01](#). [arXiv:1407.3513](#).
- 35) **Further studies of the photoproduction of isolated photons with a jet at HERA.** *ZEUS Coll.* (H. Abramowicz *et al.*). May 28, 2014. 27 pp. [JHEP 1408 \(2014\) 023](#). [arXiv:1405.7127](#).
- 36) **Measurement of beauty and charm production in deep inelastic scattering at HERA and measurement of the beauty-quark mass.** *ZEUS Coll.* (H. Abramowicz *et al.*). May 27, 2014. 56 pp. [JHEP 1409 \(2014\) 127](#). [arXiv:1405.6915](#).
- 37) **Measurement of D^* photoproduction at three different centre-of-mass energies at HERA.** *ZEUS Coll.* (H. Abramowicz *et al.*). May 20, 2014. 18 pp. [JHEP 1410 \(2014\) 3](#). [arXiv:1405.5068](#).
- 38) **Deep inelastic cross-section measurements at large y with the ZEUS detector at HERA.** *ZEUS Coll.* (H. Abramowicz *et al.*). Apr 25, 2014. 27 pp. [Phys. Rev. D90 \(2014\) no.7, 072002](#). [arXiv:1404.6376](#).
- 39) **Procedure for short-lived particle detection in the OPERA experiment and its application to charm decays.** *OPERA Coll.* (N. Agafonova *et al.*). Apr 16, 2014. 9 pp. [Eur. Phys. J. C74 \(2014\) no.8, 2986](#). [arXiv:1404.4357](#).
- 40) **Prospects for the measurement of muon-neutrino disappearance at the FNAL-Booster.** A. Anokhina *et al.* Apr 9, 2014. 76 pp. [arXiv:1404.2521](#).
- 41) **Measurement of the neutrino-oxygen neutral-current interaction cross section by observing nuclear deexcitation γ rays.** *T2K Coll.* (K. Abe *et al.*). Mar 12, 2014. 11 pp. [Phys. Rev. D90 \(2014\) no.7, 072012](#). [arXiv:1403.3140](#).
- 42) **Measurement of the intrinsic electron neutrino component in the T2K neutrino beam with the ND280 detector.** *T2K Coll.* (K. Abe *et al.*). Mar 11, 2014. 18 pp. [Phys. Rev. D89 \(2014\) 092003](#), [Phys. Rev. D89 \(2014\) 099902](#). [arXiv:1403.2552](#).
- 43) **Precise Measurement of the Neutrino Mixing Parameter θ_{23} from Muon Neutrino Disappearance in an Off-Axis Beam.** *T2K Coll.* (K. Abe *et al.*). Mar 6, 2014. 8 pp. [Phys. Rev. Lett. 112 \(2014\) no.18, 181801](#). [arXiv:1403.1532](#).
- 44) **Measurement of the TeV atmospheric muon charge ratio with the complete OPERA data set** *OPERA Coll.* (N. Agafonova *et al.*). 2014. 9 pp. [Eur. Phys. J. C74 \(2014\) 2933](#). [arXiv:1403.0244](#).

- 45) **Further studies of the photoproduction of isolated photons with a jet at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). May 28, 2014. 27 pp. [JHEP 1408 \(2014\) 023](#) [DESY-14 086](#) [arXiv:1405.7127](#).
- 46) **The Angular Matching Method for the Muon Charge Sign Measurement in the OPERA Experiment** *OPERA Coll.* (N. Agafonova *et al.*). Apr 23, 2014. 10 pp. [arXiv:1404.5933](#).
- 47) **Prospects for the measurement of muon-neutrino disappearance at the FNAL-Booster** *NESSiE Coll.* (A. Anokhina *et al.*). Apr 9, 2014. 76 pp. [arXiv:1404.2521](#).
- 48) **Opportunities for Leptonic CP Violation and Neutrino Mass Hierarchy at Medium Baselines** S. Dusini (INFN, Padua), A. Longhin (INFN, Italy), M. Mezzetto (INFN, Padua), L. Patrizii (INFN, Bologna), M. Sioli (Bologna U. & INFN, Bologna), G. Sirri (INFN, Bologna), F. Terranova (Milan Bicocca U. & INFN, Milan Bicocca). 2012. 3 pp. Conference: [C12-07-23.4](#), p.64-66 Proceedings
61. **Recent Results from the T2K Experiment** *T2K Coll.* (K. Abe *et al.*). 2014. 6 pp. [Nucl. Phys. Proc. Suppl. 246-247 \(2014\) 23-28](#).
62. **Evidence for $\nu_\mu \rightarrow \nu_\tau$ appearance in the CNGS neutrino beam with the OPERA experiment** *OPERA Coll.* (N. Agafonova *et al.*). Jan 9, 2014. 9 pp. [Phys. Rev. D89 \(2014\) 051102](#). [arXiv:1401.2079](#).
63. **Measurement of neutral current $e^{+l}p$ cross sections at high Bjorken x with the ZEUS detector.** *ZEUS Coll.* (H. Abramowicz *et al.*). Dec 16, 2013. 45 pp. [Phys. Rev. D89 \(2014\) 072007](#). [DESY-13-245](#). [arXiv:1312.4438](#).
64. **Photoproduction of Isolated Photons, Inclusively and with a Jet, at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). Dec 5, 2013. 9 pp. [Phys. Lett. B730 \(2014\) 293-301](#). [DESY-13-234](#). [arXiv:1312.1539](#).
65. **The NESSiE Concept for Sterile Neutrinos** *NESSiE Coll.* (A. Anokhina *et al.*). Dec 4, 2013. 13 pp. Conference: [C13-03-11.5](#). [arXiv:1312.1227](#).
66. **Observation of Electron Neutrino Appearance in a Muon Neutrino Beam** *T2K Coll.* (K. Abe *et al.*). Nov 19, 2013. 8 pp. [Phys. Rev. Lett. 112 \(2014\) 061802](#). [arXiv:1311.4750](#).
67. **Optimization of neutrino fluxes for future long baseline neutrino oscillation experiment.** S. Di Luise, A. Longhin, A. Rubbia. 2013. 6 pp. [PoS ICHEP2012 \(2013\) 386](#).
68. **New results on $\nu_\mu \rightarrow \nu_\tau$ appearance with the OPERA experiment in the CNGS beam.** *OPERA Coll.* (N. Agafonova *et al.*). Aug 12, 2013. 33 pp. [arXiv:1308.2553](#). [JHEP 1311 \(2013\) 036](#), Erratum-ibid. [1404 \(2014\) 014](#).
69. **Measurement of Neutrino Oscillation Parameters from Muon Neutrino Disappearance with an Off-axis Beam.** *T2K Coll.* (K. Abe *et al.*). Aug 2, 2013. 8 pp. [arXiv:1308.0465](#). [Phys.Rev.Lett. 111 \(2013\) no.21, 211803](#).
71. **Measurement of charm fragmentation fractions in photoproduction at HERA.** *ZEUS Coll.* (H. Abramowicz *et al.*). Jun 20, 2013. 28 pp. [JHEP 1309 \(2013\) 058](#) [arXiv:1306.4862](#).
72. **An Appraisal of Muon Neutrino Disappearance at Short Baseline** L. Stanco, S. Dusini,

- A. Longhin, A. Bertolin, M. Laveder. Jun 14, 2013. 19 pp. [arXiv:1306.3455](#). *Adv. High Energy Phys.* **2013** (2013) 948626.
73. **The EUROnu Project** T.R. Edgecock, O. Caretta, T. Davenne, C. Densham, M. Fitton, D. Kelliher, P. Loveridge, S. Machida, C. Prior, C. Rogers *et al.* May 17, 2013. *Phys. Rev. ST Accel. Beams* **16** (2013) 021002. [arXiv:1305.4067](#) [physics.acc-ph].
74. **Evidence of Electron Neutrino Appearance in a Muon Neutrino Beam** *T2K Coll.* (K. Abe *et al.*). Apr 3, 2013. 43 pp. *Phys. Rev. D* **88** (2013) 032002 [arXiv:1304.0841](#).
75. **Measurement of production in deep inelastic scattering at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). Mar 26, 2013. *JHEP* **1305** (2013) 097. [arXiv:1303.6578](#).
76. **Search for $\nu_\mu \rightarrow \nu_\tau$ oscillations with the OPERA experiment in the CNGS beam** *OPERA Coll.* (N. Agafonova *et al.*). Mar 16, 2013. 3 pp. *JHEP* **1307** (2013) 004, *Addendum-ibid.* **1307** (2013) 085 [arXiv:1303.3953](#).
77. **Measurement of the Inclusive NuMu Charged Current Cross Section on Carbon in the Near Detector of the T2K Experiment** *T2K Coll.* (K. Abe *et al.*). Feb 20, 2013. *Phys. Rev. D* **87** (2013) 092003 [arXiv:1302.4908](#).
78. **Performance and aging of OPERA bakelite RPCs** A. Paoloni, A. Bertolin, R. Brugnera, F. Dal Corso, S. Dusini, A. Garfagnini, L. Stanco, A. Candela, M. D'Incecco, M. Lindozzi *et al.* 2012. 6 pp. *PoS RPC2012* (2012) 010.
79. **The OPERA RPCs front end electronics A novel application of LVDS line receiver as low cost discriminator** E. Balsamo, A. Bergnoli, A. Bertolin, R. Brugnera, E. Carrara, R. Ciesielski, F. Dal Corso, S. Dusini, A. Garfagnini, U. Kose *et al.* 2012. *JINST* **7** (2012) P11007.
80. **Measurement of the neutrino velocity with the OPERA detector in the CNGS beam using the 2012 dedicated data** *OPERA Coll.* (T. Adam *et al.*). Dec 2012. 14 pp. *JHEP* **1301** (2013) 153. [arXiv:1212.1276](#).
81. **14. The SPL-based Neutrino Super Beam** *EUROnu Super Beam Coll.* (E. Baussan *et al.*). Dec 2012. [arXiv:1212.0732](#).
82. **Measurement of inelastic and photoproduction at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). Nov 2012. 39 pp. *JHEP* **1302** (2013) 071. [arXiv:1211.6946](#).
83. **Combination and QCD Analysis of Charm Production Cross Section Measurements in Deep-Inelastic ep Scattering at HERA** *H1 and ZEUS Coll.s* (H. Abramowicz *et al.*). Oct 2012. 47 pp. *Eur. Phys. J. C* **73** (2013) 2311. [arXiv:1211.1182](#).
84. **Expression of interest for a very long baseline neutrino oscillation experiment (LBNO)** A. Stahl, C. Wiebusch, A.M. Guler, M. Kamiscioglu, R. Sever, A.U. Yilmazer, C. Gunes, D. Yilmaz, P Del Amo Sanchez, D. Duchesneau *et al.* 2012. 151 pp. [CERN-SPSC-2012-021, SPSC-EOI-007](#).
85. **Production of bosons in elastic and quasi-elastic collisions at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). Oct 2012. 13 pp. *Phys. Lett. B* **718** (2013) 915-921. [arXiv:1210.5511](#).
86. **CP violation and mass hierarchy at medium baselines in the large q_{13} era** S. Dusini, A. Longhin, M. Mezzetto, L. Patrizii, M. Sioli, G. Sirri, F. Terranova. Sep 2012. 14 pp. *Eur.*

- Phys. J. C73 (2013) 2392.** arXiv:1209.5010.
87. **EUROnu-WP6 2010 Report** S.K. Agarwalla, E. Akhmedov, M. Blennow, P. Coloma, A. Donini, E. Fernandez-Martinez, C. Giunti, J.J. Gomez-Cadenas, M.C. Gonzalez-Garcia, P. Hernandez *et al.* Sep 2012. 82 pp. **arXiv:1209.2825.**
 88. **Production of the excited charm mesons and at HERA ZEUS Coll.** (H. Abramowicz *et al.*). Aug 2012. 31 pp. **Nucl. Phys. B866 (2013) 229-254.** arXiv:1208.4468.
 89. **Search for anomalies in the neutrino sector with muon spectrometers and large LArTPC imaging detectors at CERN** A. Antonello, D. Bagliani, B. Baibussinov, H. Bilokon, F. Boffelli, M. Bonesini, E. Calligarich, N. Canci, S. Centro, A. Cesana *et al.* Aug 2012. 11 pp. **arXiv:1208.0862.**
 90. **Combined inclusive diffractive cross sections measured with forward proton spectrometers in deep inelastic scattering at HERA H1 and ZEUS Coll.s** (F.D. Aaron *et al.*). Jul 2012. **Eur. Phys. J. C72 (2012) 2175.** arXiv:1207.4864.
 91. **Optimization of neutrino beams for underground sites in Europe** A. Longhin. Jun 2012. 6 pp. **arXiv:1206.4294.**
 92. **Determination of a time-shift in the OPERA set-up using high energy horizontal muons in the LVD and OPERA detectors** *LVD and OPERA Coll.* (N. Yu. Agafonova *et al.*). Jun 2012. 21 pp. **Eur. Phys. J. Plus 127 (2012) 71.** arXiv:1206.2488.
 93. **Measurement of isolated photons accompanied by jets in deep inelastic scattering** *ZEUS Coll.* (H. Abramowicz *et al.*). Jun 2012. 17 pp. **Phys. Lett. B715 (2012) 88-97.** arXiv:1206.2270.
 94. **Inclusive-jet photoproduction at HERA and determination of α_s** *ZEUS Coll.* (H. Abramowicz *et al.*). May 2012. 53 pp. **Nucl. Phys. B864 (2012) 1-37.** arXiv:1205.6153.
 95. **Search for first-generation leptoquarks at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). May 2012. 29 pp. **Phys. Rev. D86 (2012) 012005.** arXiv:1205.5179.
 96. **A new design for the SPL-Fréjus superbeam** A. Longhin. Mar 2011. 3 pp. In *Venice 2011, Neutrino Telescopes* **447-449 Conference: C11-03-15.2** Proceedings.
 97. **The MEMPHYS project: A large scale water-Cherenkov detector in Europe** J.L. Borne, J. Busto, J.E. Campagne, M. Dracos, C. Cavata, D. Duchesneau, J. Dumarchez, P. Gorodetzky, S. Katsanevas, A. Longhin *et al.* Mar 2011. 3 pp. In *Venice 2011, Neutrino Telescopes* **451-453 Conference: C11-03-15.2** Proceedings.
 98. **Search for $\nu_\mu \rightarrow \nu_\tau$ oscillation with the OPERA experiment in the CNGS beam** . *OPERA Coll.* (N. Agafonova *et al.*). 2012. 17 pp. **New J. Phys. 14 (2012) 033017.**
 99. **Long term performances of OPERA bakelite RPC system** A. Bertolin, R. Brugnera, A. Candela, A. Cazes, G. Corradi, M. D'Incecco, F. Dal Corso, S. Dusini, G. Felici, A. Garfagnini *et al.* 2012. **Nucl. Instrum. Meth. A661 (2012) S60-S63.**
 100. **Search for anomalies from neutrino and anti-neutrino oscillations at $\Delta m^2 \sim 1$ eV² with muon spectrometers and large LAr-TPC imaging detectors** M. Antonello, D. Bagliani, B. Baibussinov, H. Bilokon, F. Boffelli, M. Bonesini, E. Calligarich, N. Canci, S. Centro, A. Cesana *et al.* Mar 2012. **CERN-SPSC-2012-010-AND-SPSC-P-347.**

arXiv:1203.3432.

101. **First Muon-Neutrino Disappearance Study with an Off-Axis Beam** *T2K Coll.* (K. Abe *et al.*). Jan 2012. 7 pp. *Phys. Rev. D* **85** (2012) 031103. arXiv:1201.1386.
102. **Exclusive electroproduction of two pions at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). Nov 2011. 24 pp. *Eur. Phys. J. C* **72** (2012) 1869. arXiv:1111.4905.
103. **Search for single-top production in collisions at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). Nov 2011. 28 pp. *Phys. Lett. B* **708** (2012) 27-36. arXiv:1111.3901.
104. **Scaled momentum distributions for and in DIS at HERA** *ZEUS Coll.* (H. Abramowicz *et al.*). Nov 2011. 32 pp. *JHEP* **1203** (2012) 020. arXiv:1111.3526.
105. **Measurements of the T2K neutrino beam properties using the INGRID on-axis near detector** K. Abe, N. Abgrall, Y. Ajima, H. Aihara, J.B. Albert, C. Andreopoulos, B. Andrieu, M.D. Anerella, S. Aoki, O. Araoka *et al.* Nov 2011. 32 pp. *Nucl. Instrum. Meth. A* **694** (2012) 211-223. arXiv:1111.3119.
106. **Measurement of the t dependence in exclusive photoproduction of Upsilon(1S) mesons at HERA** . *ZEUS Coll.* (H. Abramowicz *et al.*). Nov 2011. 15 pp. *Phys. Lett. B* **708** (2012) 14-20. arXiv:1111.2133.
107. **Prospect for Charge Current Neutrino Interactions Measurements at the CERN- PS** P. Bernardini, A. Bertolin, C. Bozza, R. Brugnera, A. Cecchetti, S. Cecchini, G. Collazuol, F. Dal Corso, I. De Mitri, M. De Serio *et al.* Nov 2011. 70 pp. *CERN-SPSC-2011-030, SPSC-P-343* arXiv:1111.2242.
108. **Measurement of the neutrino velocity with the OPERA detector in the CNGS beam** *OPERA Coll.* (T. Adam *et al.*). Sep 2011. 24 pp. *JHEP* **1210** (2012) 093 arXiv:1109.4897.
109. **Micromegas for charge readout of double phase Liquid Argon TPCs** A. Delbart, D. Attie, J. Beucher, O. Besida, E. Ferrer-Ribas, F.J. Iguaz, A. Giganon, A. Longhin, E. Mazzucato, G. Vasseur *et al.* 2011. 9 pp. *J. Phys. Conf. Ser.* **308** (2011) 012017.
110. **The MEMPHYS project** J.L. Borne, J. Busto, J.E. Campagne, M. Dracos, C. Cavata, J. Dolbeau, D. Duchesneau, J. Dumarchez, P. Gorodetzky, S. Katsanevas *et al.* 2011. 3 pp. *Nucl. Instrum. Meth. A* **639** (2011) 287-289.
111. **Momentum measurement by the Multiple Coulomb Scattering method in the OPERA lead emulsion target** *OPERA Coll.* (N. Agafonova *et al.*). Jun 2011. 15 pp. *New J. Phys.* **14** (2012) 013026. arXiv:1106.6211.
112. **Indication of Electron Neutrino Appearance from an Accelerator-produced Off- axis Muon Neutrino Beam** *T2K Coll.* (K. Abe *et al.*). Jun 2011. 20 pp. *Phys. Rev. Lett.* **107** (2011) 041801. arXiv:1106.2822.
113. **The T2K Experiment** *T2K Coll.* (K. Abe *et al.*). Jun 2011. 33 pp. *Nucl. Instrum. Meth. A* **659** (2011) 106-135. arXiv:1106.1238.
114. **A new design for the CERN-Fréjus neutrino Super Beam** A. Longhin. Jun 2011. 11 pp. *Eur. Phys. J. C* **71** (2011) 1745. arXiv:1106.1096.
115. **Optimization of neutrino fluxes for European super-beams** A. Longhin. 2010. 3

- pp. **PoS ICHEP2010 (2010) 325** Prepared for Conference: C10-07-21 Proceedings.
116. **Measurement of heavy-quark jet photoproduction at HERA ZEUS Coll.** (H. Abramowicz *et al.*). Apr 2011. 35 pp. **Eur. Phys. J. C71 (2011) 1659**. arXiv:1104.5444.
117. **Study of neutrino interactions with the electronic detectors of the OPERA experiment** *OPERA Coll.* (N. Agafonova *et al.*). Feb 2011. 22 pp. **New J. Phys. 13 (2011) 053051**. arXiv:1102.1882.
118. **A fast automatic plate changer for the analysis of nuclear emulsions** S. Balestra *et al.*, **Nucl. Instrum. Methods A 716 (2013) 96**.
119. **An integrated system for large scale scanning of nuclear emulsions**, C. Bozza *et al.*, **Nucl. Instrum. Methods. A 703 (2013) 204**.