

Juan Pedro Ochoa-Ricoux

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Education:

- **Ph.D Physics:** California Institute of Technology
Defended on October 2009
Cumulative GPA=4.20
Advisor: Dr. Harvey Newman
Thesis: A Search for Muon Neutrino to Electron Neutrino Oscillations in MINOS
- **M.S. Physics:** California Institute of Technology
Conferred in June 2007
Research topic: “Anti-neutrinos in MINOS”
- **B.S. Physics:** Instituto Tecnológico y de Estudios Superiores de Monterrey - ITESM
Conferred in June 2003
Cumulative Average: 98.9%
(including 1 year as an exchange student at the University of Illinois at Urbana-Champaign with GPA=4.0/4.0)

Academic Honors:

- 2017: “Inspiring Professor Award” (Center of Engineering Students, Catholic University of Chile, Chile).
- 2016: “Excellence in Teaching Recognition Award” (Catholic University of Chile, Chile).
- 2016: “Breakthrough Prize in Fundamental Physics 2016”, for contributions to the 2012 results released by the Daya Bay Reactor Antineutrino Experiment (Breakthrough Prize Board, USA).
- 2012: “Most Promising Engineer or Scientist at the Doctoral Level” (Great Minds in STEM, USA).
- 2012: Selected to participate and speak at the 62nd Lindau Nobel Laureate Meeting (Siemens Corporation and Scientific Review Panel of the Council for the Lindau Nobel Laureate Meeting, Germany).
- 2010: “Springer Thesis Award”, consisting in publication of PhD thesis after selection by the Physics, Mathematics and Astronomy division at Caltech (Springer Publishing Company, Germany).
- 2009: “National Prize of Youth”, in the “Academic Achievement Distinction” (President of Mexico Felipe de Jesús Calderón Hinojosa, Mexico)
- 2009: “Chamberlain Fellowship” (Lawrence Berkeley National Laboratory, USA)

- 2007: “Best Student Award” at the 45th International School of Subnuclear Physics (Ettore Majorana Foundation and Centre for Scientific Culture, Italy). Also obtained a “New Talent Award” and the “Bruno Pontecorvo Diploma”.
- 2006: “John Stager Stemple Memorial Prize in Physics 2006”. This prize is awarded yearly “for outstanding progress in research as well as excellent performance on the Oral Candidacy Exam” (Caltech Physics Department, USA)
- 2003: “Best Graduate in Physics of the year 2003” (National Association of Schools and Faculties of Engineering - ANFEI, Mexico).
- 2003: “Honors Mention of Excellence”. This is the highest recognition awarded by the university, given to students graduating with cumulative average > 95% (ITESM, Mexico)
- 2002: Summer Internship Award at the European Centre for Nuclear Research - CERN (two places awarded yearly through a national competition by the Mexican Association of Physics, Mexico).
- 1998: Mention “Très bien” (very good) in French Baccalaureate type “Scientific” (National Ministry of Education, Research and Technology, France).

Research Experience:

- Assistant Professor: Physics Faculty, Catholic University of Chile, November 2013-present:
 - Active collaborator in the Daya Bay, ATLAS, and JUNO experiments.
 - Member of the Daya Bay Executive Board (2017-present)
 - Member of the JUNO Executive Board (2015-present)
 - Member of the JUNO Speakers Committee (2016-present)
 - Level-2 manager of small PMT system of JUNO (2016-present)
 - Analysis coordinator in Daya Bay (2014-present; served as chair of this committee during all 2015)
 - Convener of New Physics Group for the Daya Bay Experiment (2014-2016)
 - Calibration coordinator for Daya Bay Experiment (2010-present)
 - Co-leader of local group responsible for last stage of construction and cosmic-ray testing of small-strip thin gap chambers that will be installed in ATLAS’ new small wheel in 2019.
 - Co-editor of all Daya Bay sterile neutrino publications to date; also responsible for sections in last two oscillation papers.
 - Member of internal review committee for 2 JUNO subsystems and 3 Daya Bay analyses.
 - Supervised 4 undergraduate theses and 3 Masters theses. Have also supervised 4 postdocs to date.
- Chamberlain Fellow: Physics Division, Lawrence Berkeley National Laboratory, November 2009-present, under the supervision of Dr. Kam-Biu Luk (k_luk@lbl.gov):
 - Potting, assembling and testing the PMTs of the water veto system.
 - Co-responsible for antineutrino detector installation and commissioning in Daya Bay.
 - Co-responsible for calibration in Daya Bay.
 - Co-developer of one of the two reconstructions used in the experiment.
 - Co-pioneered independent method for antineutrino oscillation analysis.
- Ph.D. Graduate Research Assistant, Dept. of Physics, Caltech, September 2003-October 2009, under the supervision of Dr. Harvey Newman (newman@hep.caltech.edu):
 - Modeled and calibrated the MINOS veto shield and studied its impact in the atmospheric neutrino analyses.

- Studied antineutrinos and their physics potential. Crafted proposal for anti-neutrino running in the MINOS experiment.
 - Measured the intrinsic electron neutrino background using anti-neutrinos.
 - Developed a novel nearest neighbor selection for electron neutrinos; used it to search for a non-zero θ_{13} mixing angle.
- Research Assistant, Dept. of Physics, Monterrey Tech (ITESM), January 2001-August 2003:
 - Studied behavior of solitonic waves using numerical methods, under the supervision of Dr. Julio Gutierrez (juliocesar@itesm.mx).
 - Studied some of the chemical properties and combustion emissions of biodiesel, under the supervision of Dr. Oliver Probst (oprobst@itesm.mx).
 - Research Assistant, Dept. of Atmospheric Sciences, University of Illinois at Urbana-Champaign, August 2002-December 2002, under the supervision of Dr. Walter Robinson (robison@atmos.uiuc.edu) :
 - Studied atmospheric jets using numerical models.
 - Summer Student, European Center for Nuclear Research (CERN), June-August 2002, under the supervision of Dr. Arno Straessner (Arno.Straessner@cern.ch):
 - Developed an optimal pairing algorithm for 4 and 5 Jet Events at the Large Electron-Positron Collider LEP (L3 internal note #2786).

Teaching Experience:

- 2017: served as coordinator of committee tasked to design three new courses focused on experimental physics. These courses will be implemented in 2018.
- 2014-2017: taught Electricity & Magnetism, Thermodynamics, and Classical Mechanics several times at Catholic University of Chile. Each time the courses had at least 120 registered students. Have also taught Particle Physics to a mixture of undergraduate and graduate students.
 - Obtained two awards for performance in teaching (see “Academic Honors” section).
- 2014-2015: developed a “library of experiments” with more than 50 in-class physics demonstrations available to other lecturers: <http://experimentosfisicauc.wixsite.com/experimentos>
- 2014: obtained the prize for “best contribution” to “2nd Conference on University Teaching” at the Catholic University of Chile. A video about my teaching was produced as a result, which can be seen by searching for “*Buenas Practicas UC: Utilizando experimentos demostrativos en la sala de clases*” in youtube or by clicking below: https://www.youtube.com/watch?v=vqInIoyYb2o&index=1&list=PLKEDYb1HxqHU6ZBKmoIZKM_ollL2-FTra
- 2009: served as curriculum coordinator of the Physics course at the Caltech Young Engineering and Science Scholars (YESS) Program (<http://www.yess.caltech.edu>). YESS was a residential program for high school sophomores and juniors with outstanding academic records taught by Caltech graduate students. In addition to having the responsibilities of a physics instructor (listed below), the curriculum coordinator was responsible for leading the other instructors and for organizing the physics course in general.
- 2007-2008: served as a physics instructor at the Caltech Young Engineering and Science Scholars Program. Activities performed include:
 - Development of curriculum for the Physics course.
 - Class lecturing and lab instruction.
 - Supervision of students in their research and engineering projects.
 - Writing students evaluations and letters of recommendation for their college applications.

Other Information:

- Languages: completely fluent in Spanish, French and English. Also know some very basic Chinese.
- Citizenship: Mexico, France, and United States (yes, I have three passports).

Invited Talks:

- **September 2017:** “Overview of Reactor Neutrino Physics”, Particles and Nuclei International Conference [Panic 2017] (Beijing, China).
- **September 2017:** “Status of the JUNO Experiment”, 19th Conference on Neutrino Factories and Future Neutrino Facilities [NuFact 2017] (Uppsala, Sweden).
- **September 2017:** “Latest Results from the Daya Bay Experiment”, 19th Conference on Neutrino Factories and Future Neutrino Facilities [NuFact 2017] (Uppsala, Sweden).
- **February 2017:** “New and Improved Results from Daya Bay”, CERN EP Seminar, (Geneva, Switzerland). [Video available online at <https://cds.cern.ch/record/2253049>]
- **February 2017:** “Reactor Antineutrino Physics with the Daya Bay and JUNO Experiments”, Particle Physics Department Seminar, Rutherford Appleton Laboratory (Oxfordshire, UK).
- **October 2016:** “Reactor Antineutrinos: An Overview”, 6th Workshop on Flavor Symmetries and Consequences in Accelerators and Cosmology [Flasy 2016] (Valparaiso, Chile).
- **August 2016:** “Latest Results from the Daya Bay Reactor Antineutrino Experiment”, 18th Conference on Neutrino Factories and Future Neutrino Facilities [NuFact 2016] (Quy Nhon, Vietnam).
- **July 2016:** “Neutrino Physics”, 2 lectures given at the 16th Baikal Summer School on Particle Physics and Astrophysics (Irkutsk, Russia).
- **June 2016:** “Neutrinos: Ghosts of the Universe”, Annual Session for High-school Teachers, Catholic University of Chile (Santiago, Chile).
- **March 2016:** “Measurement of the Reactor Antineutrino Flux and Spectrum at Daya Bay”, Notre Dame University and Catholic University of Chile Joint Seminar Workshop (Santiago, Chile).
- **November 2015:** “Neutrinos and the 2015 Nobel Prize in Physics”, Colloquium of Physics, University of Santiago de Chile (Santiago, Chile).
- **July 2015:** “Neutrinos: Ghosts of the Universe”, Talk for the General Public, Catholic University of Chile (Santiago, Chile).
- **November 2014:** “ATLAS Physics Prospects at the High-Luminosity LHC”, X Latin-American Symposium on High-Energy Physics [Silafae 2014] (Medellin, Colombia).
- **November 2014:** “Reactor Antineutrinos: Present and Future”, X Latin-American Symposium on High-Energy Physics [Silafae 2014] (Medellin, Colombia).
- **October 2014:** “Neutrinos: Probes of the Universe”, Physics Colloquium, Catholic University of Chile (Santiago, Chile).
- **September 2014:** “Neutrinos and Dark Matter,” Workshop on Cosmic-Rays and Dark Matter, Catholic University of Chile (Santiago, Chile).
- **July 2014:** “Latest Results from the Daya Bay Reactor Antineutrino Experiment,” EP-Seminar, CERN (Geneva, Switzerland). [Video available online at <http://cds.cern.ch/record/1744648>]
- **June 2014:** “Latest Results from the Daya Bay Reactor Antineutrino Experiment,” Physics Seminar, Catholic University of Chile (Santiago, Chile).
- **April 2014:** “Reactor Antineutrinos: Tools for Discovery”, Workshop on Neutrinos and Dark Matter, Universidad Técnica Federico Santa María (Santiago, Chile).
- **April 2014:** “Reactor Antineutrinos: Tools for Discovery”, Physics Seminar, Universidad de Chile (Santiago, Chile).
- **February 2014:** “Latest Results from the Daya Bay Experiment”, Fourth International Workshop for the Design of the ANDES Underground Laboratory (Mexico city, Mexico).
- **January 2014:** “Neutrinos: The Ghosts of the Universe”, Talk for the General Public, National Autonomous University of Mexico (Mexico city, Mexico).

- **January 2014**: “Reactor Antineutrinos: Tools for Discovery”, 3rd Congress of Latin-American High-Energy Physics Network (Guanajuato, Mexico).
- **December 2013**: “Latest Results from the Daya Bay Experiment”, High-Energy Physics in the LHC Era 2013 (Valparaiso, Chile).
- **September 2013**: “Latest Results from the Daya Bay Experiment”, XXIV Workshop on Weak Interactions and Neutrinos (Natal, Brazil).
- **January 2013**: “Observing the smallest kind of neutrino oscillation”, Physics Colloquium, Catholic University of Chile (Santiago, Chile).
- **December 2012**: “Results from the Daya Bay Reactor Neutrino Experiment”, Latin-American Symposium of High-Energy Physics [Silafae 2014] (Sao Paulo, Brazil).
- **July 2012**: “Neutrino Oscillations at Daya Bay”, Dr. David Gross’ Master Class, Lindau Nobel Laureate Meeting (Lindau, Germany).
- **July 2012**: “Observation of Electron Antineutrino Disappearance at Daya Bay”, Physics Seminar, State University of Campinas (Campinas, Brazil).
- **July 2012**: “Observation of Electron Antineutrino Disappearance at Daya Bay”, Physics Seminar, State University of Rio de Janeiro (Rio de Janeiro, Brazil).
- **June 2012**: “Results from the Daya Bay Experiment”, VIII International Workshop on the Dark Side of the Universe (Buzios, Brasil).
- **April 2012**: “Results from the Daya Bay Experiment”, LPPC Seminar, Harvard University (Cambridge, USA).
- **April 2012**: “Results from the Daya Bay Experiment”, HEP Seminar, Tufts University (Medford, USA).
- **November 2011**: “The Daya Bay Neutrino Experiment”, Research Progress Meeting, Berkeley Lab (Berkeley, CA).
- **May 2011**: “Neutrino Oscillations and the Daya Bay Neutrino Experiment”, XXV Annual Meeting of the Division of Particles and Fields, Mexican Physical Society (Mexico city, Mexico).
- **March 2011**: “Bridging the Socio-Cultural Gap: An International Physicist’s Experience”, Meeting of the American Physical Society (Dallas, USA).
- **December 2010**: “Experimental Neutrino Physics: Past, Present and Near Future”, VIII Latin-American Symposium of High-Energy Physics (Valparaiso, Chile).
- **September 2010**: “The Daya Bay Neutrino Oscillation Experiment”, Neutrino Oscillation Workshop [NOW 2010] (Conca Spechiulla, Italy).
- **July 2009**: “Identifying Electron Neutrino Charged-Current Events in MINOS”, Meeting of the Division of Particles and Fields of the American Physical Society (Detroit, USA).
- **May 2009**: “Initial Results of the Search for Electron Neutrino Appearance in MINOS”, Informal High Energy Physics Seminar, Caltech (Pasadena, USA).
- **May 2009**: “Recent Results from the MINOS Neutrino Experiment”, Press Conference at the American Physical Society Meeting (Denver, USA)
- **May 2009**: “A Nearest Neighbors for Electron Neutrino Event Selection in MINOS”, American Physical Society Meeting (Denver, USA)
- **November 2008**: “Electron Neutrino Appearance at MINOS”, RPM Seminar, Lawrence Berkeley National Laboratory (Berkeley, USA).
- **November 2008**: “Electron Neutrino Background Analysis with the MINOS Near Detector”, Short talk at Neutrino 2008 (Christchurch, New Zealand)
- **December 2007**: “Electron Neutrino Appearance in MINOS”, Caltech Kellogg Seminar (Pasadena, USA)
- **September 2007**: “Exploring the Physics Frontier with antineutrinos and electron neutrinos in MINOS”, International School of Subnuclear Physics (Erice, Italy).
- **August 2007**: “MINOS Results and Prospects”, 13th Lomonosov Conference on Elementary Particle Physics (Moscow, Russia).
- **June 2006**: “Antineutrinos in MINOS”, New Perspectives Conference, Fermilab (Batavia, USA)
- **March 2006**: “Electron Neutrino Appearance at MINOS”, Informal High Energy Physics Seminar, Caltech (Pasadena, USA).
- **April 2006**: “Latest Atmospheric Neutrino Results from MINOS”, American Physical Society Meeting (Dallas, USA).
- **September 2005**: “Physics with the MINOS Experiment”, International School of Nuclear Physics (Erice, Italy).