

CURRICULUM VITAE : Alexis A. Aguilar-Arévalo

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Place and date of birth: México City, November 8, 1975

Citizenship: Mexican

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Current Status:

Research Scientist, ICN-UNAM, Mexico D.F. (ongoing hiring process)

Academic background:

- **Ph.D.** from Columbia University, Graduate School of Arts and Sciences (defended thesis on December 20, 2007. Degree conferred in Feb. 2008); Ph.D. Thesis: "*An Improved Neutrino Oscillations Analysis of the MiniBooNE Data*".
- **M.Phil.** from Columbia University, Graduate School of Arts and Sciences, Feb. 2003.
- **Masters Degree** in Physics, Universidad Nacional Autónoma de México, June 2002.
- **Bachelor Degree (*Licenciatura en Física*)**: Facultad de Ciencias, UNAM, August, 1999; Undergraduate Thesis: "*Neutrino Oscillations : the DAR experiment in LSND*"
- **High School**, Physics-Math Area Diploma: Centro Universitario México A.C., 1994.

Research experience

- Post-Doctoral research, PIENU experiment, Jan – Dec of 2008.
- Graduate Research Assistant, *Columbia Neutrino Group*, Physics Department, Columbia University, project: "*MiniBooNE Experiment*", Sep. 2002 – Dec. 2007.
- CERN, Geneva, Switzerland, project: "*Large Angle Analysis with the Harp RPC's*" (J. Wotschack), Mar - Apr, 2002.
- Los Alamos National Laboratory, LANSCE, project: "*Neutrino Oscillations at LSND*" Jun-Jul 1998, and Feb-Mar 1999.
- Instituto de Física UNAM; project: "*Optical Spectroscopy of metal-oxide gels with organic and inorganic impurities*", Nov 1997 – May 1998.
- Instituto de Investigaciones en Materiales (IIM-UNAM); project: "*Magnetic Properties of Materials at low temperatures*", May - June 1997.

Presentations in Conferences and other venues:

Presentations:

1. "Study of the Decay $\pi \rightarrow e\nu$ ", Sub-Atomic Physics Experiment Evaluation Committee (SAP-EEC) TRIUMF, Vancouver, B.C. Canada, July 12, 2008.

2. "Results of the MiniBooNE Experiment", PASCOS'08, Perimeter Institute for Theoretical Physics, Waterloo, Ontario, June 3, 2008.
3. "Results from MiniBooNE", Rencontres de Physique de la Vallée d'Aoste, La Thuile, Aosta Valley, Italy, February 25, 2008.
4. "The MiniBooNE neutrino oscillations search", TRIUMF special seminar, Vancouver, B.C., September 27, 2007.
5. "Resultados Recientes de MiniBooNE sobre Oscilaciones de Neutrinos", XXI Meeting of the Division of Particles and Fields of the Mexican Physical Society, UNAM, Mexico City, June 21-22, 2007.
6. Poster: "The Combined μ - ν oscillations fit for the BDT analysis in MiniBooNE", 40th Fermilab Users' Meeting, Fermi National Accelerator Laboratory, Batavia, IL, June 6-7, 2007.
7. "Neutrinos from the NuMI beamline in the MiniBooNE Detector", Particles and Nuclei International Conference (PANIC'05), Santa Fe NM, 23-30 October, 2005.
8. "BooNE", PANIC'05 Neutrino Satellite Meeting, Santa Fe NM, October 31, 2005.
9. Poster "The MiniBooNE Experiment"; XXIV Physics In Collision Conference; Boston University, Boston MA, June 24-29, 2004.
10. "Active Neutrino Oscillations and the SNO NC measurement", Physics Department Columbia University, Particle Physics Seminar, February 2003.
11. Poster "The MiniBooNE Experiment"; New Perspectives 2004; Fermilab, June 2, 2004
12. "On the Implications of recent SNO results" VIII Mexican Workshop on Particles and Fields, Zacatecas Zac., Mexico, November 14-20, 2001.
13. Poster "The DAR Analysis of the LSND Experiment", International Workshop on observing Ultra-High Energy Cosmic Rays; Metepec, Puebla, Aug 2000.
14. Poster "An improvement in the data analysis of LSND"; XIX Symposium of Nuclear Physics; Oaxtepec, Morelos (Jan 10, 1999).

Schools:

1. *School on Instrumentation for Elementary Particle Physics ICFA 2001*, National Accelerator Centre, Cape Town, South Africa. March 26 to April 6, 2001.
2. *SLAC Summer Institute 2004*

Teaching experience

- *Teaching Assistant*, Pre-Med. Physics Laboratory, Physics Department, Columbia University, Sept 2002 through May 2003
- *Part Time Professor*; Mathematics for Engineering III; Instituto Tecnológico Autónomo de México (ITAM) (Fall Semester 2001, and Summer term 2002)
- *Subject Professor A*; General Physics (Laboratory), Facultad de Ciencias, UNAM, Jan 2000 - Jun 2001
- *Teaching Assistant A*; *Modern Physics III*, Facultad de Ciencias, UNAM, Sep 2000 - Jan 2001
- *Teaching Assistant A*; *General Physics*, Facultad de Ciencias, UNAM (Jan 1998 - Jan 1999).
- *Teaching Assistant*; General Physics; Central College (Pella, Iowa, E.U.A.) Aug - Dec 1995

Scholarships and Fellowships

- *TELMEX Scholar*; Fundacion TELMEX, Mexico D.F., October 1997 to May, 2001.
- *Complementary Scholarship*, Dirección General de Estudios de Posgrado, UNAM, November 2000 to May 2001.

Honors and Awards

1. Elected member of the *Graduate Student Association of Fermilab*, Sep 2005-Sep 2006.
2. *Teaching Fellow*, Physics Department Columbia University, Sep 2002 – May 2003.
3. *Gabino Barreda Medal* recipient, for obtaining the highest GPA of the undergraduate class of 1996, Facultad de Ciencias, UNAM, November 2001
4. Admission to the Direct Doctorate program in the Graduate School of Physical Sciences due to high skills and academic background, Posgrado en Ciencias Fisicas PCF-UNAM.
5. *TELMEX Scholar*, for high academic achievements, October 1997 to May, 2001.
6. *Honorable Mention* in Professional Examination, undergraduate thesis defense, August 20, 1999.
7. *Leon M. Lederman Award in Physics*, HERTEL Foundation, April 1998
8. *Member of the Dean's List*, for obtaining a GPA of 4.0 during the fall term; Central College, Pella Iowa, December 8, 1995
9. Diploma "*For Obtaining the Highest GPA of the class of 91-94 in the High Schools incorporated to the UNAM*", DGIRE- UNAM October 1994.
10. Honor Plaque in the three years of Preparatory School (High School), for being among the top three students in each class, and graduation diploma with *Honorable Mention* and *Golden Seal* and form Centro Universitario México, México City.

Publications:

1. "The MiniBooNE Detector",
A.A. Aguilar-Arevalo et.al [MiniBooNE Collaboration], arXiv:0806.4201 [hep-ex], Nucl. Instr. Meth. A599 (2009) 28-46
2. "The Neutrino Flux Prediction at MiniBooNE",
A.A. Aguilar-Arevalo et.al [MiniBooNE Collaboration], arXiv:0806.1449 [hep-ex], Submitted to Phys. Rev.D.
3. "Compatibility of high $\Delta m^2 \nu_e$ and anti- ν_e Neutrino Oscillations Searches",
A.A. Aguilar-Arevalo et.al [MiniBooNE Collaboration], arXiv:0805.1764 [hep-ex], accepted by Phys. Rev. D.
4. "First Observation of Coherent π^0 production in Neutrino Nucleus Interactions with $E_\nu < 2$ GeV",
A.A. Aguilar-Arevalo et al. [MiniBooNE Collaboration], arXiv:0803.3423 [hep-ex], Phys. Lett. B. 664, 41 (2008)

5. "Measurement of Muon Neutrino Quasi-Elastic Scattering on Carbon", A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration]; arXiv:0706.0926 [hep-ex], Phys. Rev. Lett. 100, 032301 (2008).
6. "A Search for Electron Neutrino Appearance at the $\Delta m^2 \sim 1 \text{ eV}^2$ Scale", A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration]; Phys. Rev. Lett. 98, 231801 (2007)
7. "Leptonic CP violation studies at MiniBooNE in the (3+2) sterile neutrino oscillation hypothesis", G. Karagiorgi, A. Aguilar-Arevalo, J.M. Conrad, M.H. Shaevitz (Columbia U.) , K. Whisnant (Iowa State U.) , M. Sorel (Valencia U., IFIC) , V. Barger (Wisconsin U., Madison); Phys. Rev. D75:013011, (2007)
8. "Active Neutrino Oscillations and the SNO NC measurement", Alexis A. Aguilar-Arevalo, J.C. D'Olivo (Mexico U., ICN); Phys. Rev. D66 113009, (2002)
9. "Evidence for neutrino oscillations from the observation of anti-neutrino(electron) appearance in a anti-neutrino(muon) beam", A. Aguilar *et al.* [LSND Collaboration], Phys. Rev. D64:112007, (2001)

Conference Proceedings

1. "Results from MiniBooNE", Alexis A. Aguilar-Arevalo [for the MiniBooNE Collaboration], to appear in the proceedings for the *Rencontres de Physique de la Vallee d'Aoste*, held from Feb 24 to Mar 1, 2008, La Thuille, Aosta Valley, Italy.
2. "Neutrinos from the NuMI beamline in the MiniBooNE detector", Alexis A. Aguilar-Arevalo [for the MiniBooNE Collaboration]; Prepared for Particles and Nuclei International Conference (PANIC 05), Santa Fe, New Mexico, 24-28 Oct 2005. Published in AIP Conf.Proc. 842:834-836,2006
3. "The MiniBooNE Experiment", Alexis A. Aguilar-Arevalo [for the MiniBooNE Collaboration]; Proceedings of 24th International Conference on Physics in Collision (PIC 2004), Boston, Massachusetts, 27-29 Jun 2004, pp MONP01.
4. "On the Implications of Recent SNO Results", Alexis A. Aguilar-Arevalo, J.C. D'Olivo, AIP Conference Proceedings, vol. 623, iss. no. 1, p. 337-340, PARTICLES AND FIELDS: Eight Mexican Workshop.
5. "Magnus Expansion and Three-Neutrino Oscillations in Matter", Alexis A. Aguilar-Arevalo, L.G. Cabral-Rosetti, J.C. D'Olivo (Mexico U., ICN); proceedings of Mexican School of Astrophysics 2002, Guanajuato, Mexico, 31 Jul - 7 Aug 2002; J.Phys.Conf.Ser.37:161,2006(received 2002)

Event Organization experience

- I. Poster Session of the 2006 Fermilab Users' Meeting, May 31, 2006.
- II. New Perspectives 2006, Fermi National Accelerator Laboratory, June 2-3, 2006.
- III. Staff member, NUFAC'T'03, 5th International Workshop on Neutrino Factories & Superbeams. Columbia University, New York. 5-11 June 2003.

Languages

Fluent in **English**, some **French**, and **Spanish** (First Language).

Personal References

Prof. Douglas Bryman, Professor of Physics, Department of Physics and Astronomy, University of British Columbia, Vancouver, B.C. Canada; e-mail: doug@triumf.ca

Prof. Michael H. Shaevitz, Professor of Physics, Department of Physics, Columbia University, 538 West 120th Street, New York, NY,10027; e-mail: shaevitz@nevis.columbia.edu

Prof. Janet M. Conrad, Le-Croy Professor of Physics, Department of Physics, Columbia University, 538 West 120th Street, New York, NY,10027; e-mail: conrad@nevis.columbia.edu

Dr. William. C. Louis III; *Los Alamos Neutron Science Center*, Los Alamos National laboratory, Los Alamos, New Mexico, U.S.A.; e-mail: louis@lanl.gov

Dr. Stephen Brice, Fermi National Accelerator Laboratory, Batavia, IL, U.S.A, e-mail: sbrice@fnal.gov

Other people I have worked with:

Dr. Geoffrey B. Mills; *Los Alamos Neutron Science Center*, Los Alamos National laboratory, Los Alamos, New Mexico, U.S.A.; e-mail: mills@lanl.gov

Dr. Juan Carlos D'Olivo Sanz; Investigador Titular C, Tiempo Completo, *Instituto de Ciencias Nucleares, UNAM*; e-mail: dolivo@nucleares.unam.mx.gov

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