

# CURRICULUM VITAE : Alexis A. Aguilar-Arévalo

*Last Updated: December 2017*

**Place and date of birth:** México City, November 8, 1975  
**Citizenship:** Mexican  
**Contact Address:** Instituto de Ciencias Nucleares,  
Departamento de Física de Altas Energías,  
Universidad Nacional Autónoma de México (ICN-UNAM),  
Apartado Postal 70-543, 94510 México, D.F., México  
Phone: (52-55) 5622-4690 (Ext. 3342)  
**E-Mail:** [alexis@nucleares.unam.mx](mailto:alexis@nucleares.unam.mx)  
**Permanent Address:** Cto. Diamantes #109, Col. Joyas del Pedregal,  
C.P. 04660, Mexico D.F., Mexico

## **Current Status:**

Titular Researcher (*Investigador Titular A*), Instituto de Ciencias Nucleares, UNAM, Mexico D.F.

## **Academic background:**

- **Ph.D.** *Columbia University, Graduate School of Arts and Sciences*, February 2008; Ph.D. Thesis: "An Improved Neutrino Oscillations Analysis of the MiniBooNE Data".
- **M.Phil.** *Columbia University, Graduate School of Arts and Sciences*, February 2004.
- **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**

- Titular A Researcher, Department of High Energy Physics, ICN-UNAM, May 7 2015 to date.
- Associate C Researcher, Department of High Energy Physics, ICN-UNAM, Feb 2, 2009 - May 7, 2015.
- Post-Doctoral Research Associate, PIENU experiment, Jan – Dec of 2008.
- Graduate Research Assistant, *Columbia Neutrino Group*, Physics Department, Columbia University, project: "MiniBooNE Experiment", Sep. 2002 – Dec. 2007.
- Visiting research student, project: "Large Angle Analysis with the Harp RPC's" (ref. J. Wotschack), CERN, Geneva, Switzerland, Mar - Apr, 2002.
- Undergraduate summer student, project: "Neutrino Oscillations at LSND", *Los Alamos National Laboratory, LANSCE*, Jun-Jul 1998, and Feb-Mar 1999.
- Social Service research, project: "Optical spectroscopy of metal-oxide gels with organic and inorganic impurities", Instituto de Física UNAM , Nov 1997 – May 1998.
- Undergraduate summer student, project: "Magnetic properties of materials at low temperatures", Instituto de Investigaciones en Materiales (IIM-UNAM), May - June 1997.

## Participation in research projects

1. Participant, project “*Análisis de datos de fenomenología de neutrinos*”, No. CB71-CIC2014, Impacto Caribe, Universidad del Atlántico, Barranquilla, Colombia; since November 2015.
2. Participant, “*Red Académica de Experimentos en Laboratorios Subterráneos*”, Subprogram of Academic Networks, DGECI-UNAM, since June, 2014.
3. Primary Investigator, project “*Desarrollo de detectores de materia oscura y neutrinos*”, PAPIIT-UNAM No. IB100413, 9 April 2013 to 9 April 2015.
4. Participant, project “*Fenomenología y experimentación con neutrinos y materia oscura*”, PAPIIT-UNAM No. IN112213, Feb 2013 to Feb 2015.
5. Primary Investigator, project “*Investigación y Desarrollo en detectores de antineutrinos para el monitoreo de instalaciones nucleares*”, SEP-CONACYT, CB-2009-0131598, 4 April 2010 to 3 October 2014.
6. Participant, “*Red Temática CONACYT de Física de Altas Energías*”, CONACYT, since 2009.

## Teaching experience

1. Laboratory Professor; Mechanics Laboratory, 96 hr; Facultad de Ciencias, UNAM, August–December, 2017.
2. Professor, graduate course, Introduction to Neutrino Physics, 48 hr; Posgrado en Ciencias Físicas, UNAM, February – June 2016.
3. Laboratory Professor; Mechanics Laboratory, 96 hr; Facultad de Ciencias, UNAM, February – June, 2015.
4. Subject Professor A; Contemporary Physics, 48 hr, Facultad de Ciencias, UNAM, August – December, 2014.
5. Laboratory Professor; Contemporary Physics Laboratory II, 96 hr; Facultad de Ciencias, UNAM, February – June, 2013.
6. Subject Professor A; Introduction to Elementary Particle Physics I, 48 hr, Facultad de Ciencias, UNAM, February 2012 - June 2012.
7. Subject Professor A; Introduction to Elementary Particle Physics I, 48 hr, Facultad de Ciencias, UNAM, February 2011 - June 2011.
8. Teacher of the Electromagnetism segment of the Preparatory Course for Admission to the Graduate Program on Physical Sciences and the Graduate Program on Astronomy, 24 hr, UNAM, October-November, 2010.
9. Subject Professor A; Introduction to Elementary Particle Physics I, 48 hr, Facultad de Ciencias, UNAM, February 2010 - June 2010.
10. Subject Professor A; Vector Mechanics, Facultad de Ciencias, 96 hr, UNAM, Aug 2009 - Nov 2009.
11. Teaching Fellow, Pre-Med. Physics Laboratory, Physics Department, Columbia University, September 2002 through May 2003
12. Part Time Professor; Mathematics for Engineering III, 48 hr; Instituto Tecnológico Autónomo de México (ITAM) (Fall Semester 2001, and Summer term 2002)
13. Subject Professor A; General Physics (Laboratory), Facultad de Ciencias, UNAM, January- June 2001
14. Teaching Assistant A; Modern Physics III, Facultad de Ciencias, UNAM, Sep 2000 - Jan 2001
15. Teaching Assistant A; General Physics, Facultad de Ciencias, UNAM (Jan 1998 - Jan 1999).
16. Teaching Assistant; General Physics, Central College (Pella, Iowa, USA) Aug - Dec 1995

## Directed Theses

1. "Potential of CCDs for the study of sterile neutrino oscillations through coherent elastic neutrino-nucleus scattering", Marisol Chávez Estrada, Posgrado en Ciencias Físicas, UNAM **Masters**. Date of exam 23 January 2017.
2. "CCD sensors for the direct search of dark matter: the DAMIC experiment", Guadalupe Moreno Granados, Physics, Facultad de Ciencias, UNAM, **Undergraduate**. Date of exam September 3, 2015.
3. "The search for muon neutrino disappearance in the Fermilab Booster Neutrino Beam", Diana Patricia Méndez Méndez, Physics, Facultad de Ciencias, UNAM, **Undergraduate**, with *Honorable Mention*. Date of exam May 6 2015.
4. "Estimating the sensitivity of a CCD-based detector for WIMP dark matter searches", Youssef Sarkis Mobarak, Physics, Facultad de Ciencias, UNAM, **Undergraduate**. Date of exam November 28, 2014.
5. "The antineutrino flux from the Laguna Verde Nuclear Plant and its detection", Marisol Chávez Estrada, **Undergraduate**, Physics, Facultad de Ciencias, UNAM. Date of exam June 26, 2014.
6. "Neutrino Oscillations searches in the MiniBooNE experiment: the nue and nuebar appearance analyses", Iker Loik de Icaza Astiz, **Undergraduate**, with *Honorable Mention*, Facultad de Ciencias, UNAM. Date of exam December 6, 2013.

## Theses in progress

1. "Simulation of the response of a plastic scintillator bar to the cosmogenic muon flux at Ciudad Universitaria", Bryan Olmos Yáñez, Physics, Facultad de Ciencias, UNAM, **Undergraduate**. Started August 2016.
2. "Science-grade CCDs and their application to the direct search for dark matter and neutrino physics", Youssef Sarkis Mobarak, Posgrado en Ciencias Físicas, UNAM, **Ph.D**. Start date August 2017.

## Participation in editorial boards and proposal evaluations

1. Review Editor, Journal *Frontiers in High Energy Physics and Astrophysics*, Nov 2013 – Aug 2016.
2. Proposal reviewer: CONACYT (Mexico) (x10), DGAPA-PAPIIT (UNAM) (x5), FONDECYT (Chile) (x1).
3. Reviewer for the international scholarships program of CONACYT, 2014, 2<sup>nd</sup> period.

## Participation in examination boards and juries

1. Undergraduate exam board. Vocal: "External and internal neutron-induced noise in the SNO+ experiment", José Luis Hernández Hernández, Física, Facultad de Ciencias, UNAM, September 18, 2017.
2. Exam board, Predoctoral Examination in Classical Mechanics, Posgrado en Ciencias Físicas, UNAM, semester 2017-2, 12-23 June 2017.
3. Masters/(protocol for the Ph.D) exam board, Secretary/Advisor: "Science-grade CCDs for direct dark matter searches and neutrino detection: the DAMIC and CONNIE experiments", Youssef Sarkis Mobarak, Posgrado en Ciencias Físicas, UNAM, May 31, 2017.
4. Masters exam board, President: "Dark matter in a model with 4 Higgs doublets and S3 symmetry", Humberto Alonso Reyes González, Posgrado en Ciencias Físicas, UNAM, April 21, 2017.
5. Masters exam board, Secretary/advisor: "Potential of CCDs for the study of sterile neutrino oscillations through coherent elastic neutrino-nucleus scattering", Marisol Chávez Estrada, Posgrado en Ciencias Físicas, UNAM, Jan 23, 2017.
6. Undergraduate exam board, President: "Neutrino oscillations for the study of the Earth's interior", José Arnulfo Herrera Lara, Physics, Facultad de Ciencias, UNAM, Jan 23, 2017.
7. Ph.D. Candidacy exam board, Secretary: "Modelos para la generación de masas de neutrinos y materia oscura", Jorge Mario Lamprea Garzón, Posgrado en Ciencias Físicas, UNAM, Nov 15 2016.

8. Undergraduate exam board, Vocal: "*Experimental study of the production of  $K^*(892)$  and  $\phi(1020)$  in  $p$ - $Pb$  collisions at the LHC*", Talhia Gallegos Medina, Physics, Facultad de Ciencias, UNAM, Sep 27, 2016.
9. Masters exam board, Vocal. *Neutrino transition radiation and supernovae*. Sheryl Maritza Melara Durón, Posgrado en Ciencias Físicas, UNAM, August 10, 2016.
10. Masters exam board, President. *The beta decays of baryons: valence and sea quarks*. Emmanuel Ortiz Pacheco, Posgrado en Ciencias Físicas, UNAM, August 4, 2016.
11. Undergraduate exam board, Secretary/Advisor: "*CCD sensors for the direct search for dark matter: the DAMIC experiment*", Guadalupe Moreno Granados, Física, Facultad de Ciencias, UNAM. September 3, 2015.
12. Undergraduate exam board, Secretary: "*Graphic tool for the automation of the characterization of scientific CCDs*", Alejandro Castañeda Vázquez y Karen Pamela Hernández Torres, Ingeniería Eléctrica y Electrónica, Facultad de Ingeniería, UNAM, July 28, 2015.
13. Undergraduate exam board, Secretary/Advisor: "*The search for muon neutrino disappearance in the Fermilab Booster Neutrino Beam*", Diana Patricia Méndez Méndez, Physics, Facultad de Ciencias, UNAM, May 6, 2015.
14. Ph.D. exam board, vocal: "*Study of the mixing in quarks and leptons through their mass hierarchy and with an  $S_3$  flavor model*", Ulises Jesús Saldaña Salazar, Posgrado en Ciencias Físicas, UNAM, Abril 22, 2015.
15. Undergraduate exam board, Secretary/Advisor: "*Estimating the sensitivity of a CCD-based detector for WIMP dark matter searches*", Youssef Sarkis Mobarak, Physics, Facultad de Ciencias, UNAM, November 28, 2014.
16. Exam board, Predoctoral Examination in Quantum Mechanics, Posgrado en Ciencias Físicas, UNAM, semester 2014-2, 23 June – 4 July 2014.
17. Undergraduate exam board, Secretary/Advisor: "The antineutrino flux from the Laguna Verde Nuclear Plant and its detection", Marisol Chávez Estrada, Physics, Facultad de Ciencias, UNAM, June 26, 2014.
18. Undergraduate exam board, Secretary: "Development of a monitoring and control system for the DAMIC experiment", Carolina Arlette Salazar Lagunes, Mecatronic Engineering, Facultad de Ingeniería, UNAM, May 12, 2014.
19. Undergraduate exam board, Secretary/advisor: "Neutrino oscillations searches with the MiniBooNE experiment: electron neutrino and antineutrino appearance analyses", Iker Loïc de Icaza Astiz, Physics, Facultad de Ciencias, UNAM, December 6, 2013.
20. PhD Candidacy exam board, Deputy, "Electromagnetic couplings and self-energies of baryons in the unquenched quark model", Hugo García Tecocoatzi, Posgrado en Ciencias Físicas, UNAM, August 30 2013.
21. Ph.D. exam board, external examiner: "New physics and neutrino phenomenology in some frontier experiments", Estela Alejandra Garcés García, Department of Physics, CINVESTAV-IPN, June 13, 2012.
22. Undergraduate exam board, Deputy Secretary: "Charged particle identification in proton-proton collisions in ALICE", Raúl Tonatiuh Jiménez Bustamante, Physics, Facultad de Ciencias UNAM, Jan 18, 2012.
23. Ph.D exam board, Secretary: "Permutational Symmetry  $S_3$ : Flavor and Zeroes of Texture", Felix Francisco González Canales, Posgrado en Ciencias Físicas UNAM, Octubre 27, 2011.
24. Masters exam board, Secretary: "Dihadronic correlations with strangeness in proton-proton collisions at 7 TeV in ALICE", Xitzel Sánchez Castro, Posgrado en Ciencias Físicas, UNAM, October 5, 2011.
25. Masters exam board, Secretary: "Study of neutrino oscillations under the light of the theory of fields", César Agón Quintero, Posgrado en Ciencias Físicas UNAM, Agosto 19, 2011.
26. External examiner, degree requirement seminar: "Same Sign Low Mass Dimuons", Jorge Daniel Morales Mendoza, Departamento de Física y Matemáticas, Universidad Iberoamericana, México D.F. May 12, 2011.
27. External examiner, degree requirement seminar: "Installation of a cosmic ray muon detector", Bruno Giovanni Candiani Vázquez, Departamento de Física y Matemáticas, Universidad Iberoamericana, México D.F. May 12, 2011.

28. External examiner, degree requirement seminar: "Searches for new physics:  $Z^0 \rightarrow \mu^+ \mu^-$ . Calculation of the cross section of  $Z^0 \rightarrow \mu^+ \mu^-$  - calculation of reconstruction efficiencies of the BMU at CDF", Silvia Fernanda Psihas Olmedo, Departamento de Física y Matemáticas, Universidad Iberoamericana, México D.F. December 3, 2009.
29. External examiner, degree requirement seminar: "Start-up of a cosmic ray muon detector", Bruno Giovanni Candiani Vázquez, Departamento de Física y Matemáticas, Universidad Iberoamericana, México D.F. December 3, 2009.

## Tutoring

1. Social Service Tutor of *Jesús Felipe Alanís Manríquez*, Physics, Facultad de Ciencias, UNAM, 8 sep 2014 – 8 apr 2015.
2. Social Service Tutor of Bryan Olmos Yáñez, Physics, Facultad de Ciencias, UNAM, 2 May - 24 November 2015.
3. Social Service Tutor of *Diana Patricia Méndez Méndez*, Physics, Facultad de Ciencias, UNAM, 8 March - 9 December, 2013.
4. Social Service Tutor of *Samuel Pliego Caballero*, Mechanical Engineering, Facultad de Ingeniería, UNAM, 22 March - 22 October, 2013.
5. Social Service Tutor of *Guadalupe Moreno Granados*, Physics, Facultad de Ciencias, UNAM, 12 April - 15 November, 2013.
6. Social Service Tutor of *Marisol Chávez Estrada*, Physics, Facultad de Ciencias, UNAM, 25 July 2012 - 25 January, 2013.
7. Social Service Tutor of *Rubén Llarena Fernández de Lara*, Physics, Facultad de Ciencias, UNAM, 9 Marzo - 10 Septiembre 2012.
8. Social Service Tutor of Irving E. Reyna Nolasco, Physics, Facultad de Ciencias, UNAM, February 22 – September 3, 2012.
9. Social Service Tutor of Esteban Martínez Vargas, Physics, Facultad de Ciencias, UNAM, September 21, 2011 - March 21, 2012.
10. Social Service Tutor of Youssef Sarkis Mobarak, Physics, Facultad de Ciencias, UNAM, September 21, 2011- March 21, 2012.
11. Social Service Tutor of Edgar Pérez Lezama, Physics, Facultad de Ciencias, UNAM, October 20, 2010 - September 2, 2011.
12. Social Service Tutor of Iker Loïc de Icaza Astiz, Physics, Facultad de Ciencias, UNAM, December 10, 2010 - June 23, 2011.

## Scholarships, fellowships and grants

1. *ITGAP Grant (International Travel Grant Award Program), American Physical Society, September 2012.*
2. *Faculty Fellow, Columbia University Physics Department, Sept 2002 through May 2003*
3. *Complementary Scholarship, Dirección General de Estudios de Posgrado, UNAM, November 2000 to May 2001.*
4. *TELMEX Scholar; Fundación TELMEX, Mexico D.F., October 1997 to May, 2001.*

## Honors and Awards

1. *PRIDE level C, DGAPA-UNAM, period 2016-2020.*
2. *Acknowledgement for number of Citations in 2012, Physics; DGAPA-UNAM, Nov 28, 2013.*
3. *PRIDE level B, DGAPA-UNAM, period 2012-2016.*

4. *Investigador Nacional, Nivel I*, National System of Researchers, CONACYT since Jan 2011.
5. Elected to the *Graduate Student Association of Fermilab*, Oct 2005-Oct 2006.
6. *Gabino Barreda Medal* recipient, Facultad de Ciencias, UNAM, April 2002.
7. *TELMEX Scholarship*, for high academic achievements, October 1997 to May, 2001.
8. *Honorable Mention* in professional exam, undergrad. thesis defense, August 20, 1999.
9. *Leon M. Lederman Award in Physics*, HERTEL Foundation, April 1998
10. *Member of the Dean's List*, Central College, Pella Iowa, December 8, 1995.
11. High School Achievement Diploma, DGIRE- UNAM October 1994.
12. High School Diploma with *Honorable Mention* and *Golden Seal*, Centro Universitario México, July, 1994.

### Presentations in international conferences

1. "A dark matter search with the MiniBooNE detector", XVI Mexican Workshop on Particles and Fields, Puerto Vallarta, Jalisco, Mexico, October 23-27, 2017.
2. "MiniBooNE-DM: a dark matter search in a proton beam dump", XV International Conference on Topics in Astroparticle and Underground Physics (TAUP-2017), Sudbury, ON, Canada, July 24-28, 2017.
3. "Latin American Contributions to the MiniBooNE Experiment", *Neutrinos-Latin America Workshop*, Fermilab April 27-28, 2016.
4. "The CONNIE experiment", *XV Mexican Workshop on Particles and Fields*, Mazatlán, Sinaloa, 2-6 November 2015.
5. "Status of the DAMIC direct dark matter search experiment", *XII Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2015)*, Vail, CO, United States, May 19-24, 2015.
6. "DAMIC: a search for Dark Matter with CCDs", *VIII International Conference on the Interconnections between Particle Physics and Cosmology (PPC 2014)*, Leon, Guanajuato, Mexico, June 23-27, 2014.
7. "Neutrinos and Dark Matter in Mexico", *4th International Workshop for the Design of the ANDES Underground Laboratory*, Unidad de Seminarios Dr. Ignacio Chávez, UNAM, México D.F. Jan 30-31, 2014.
8. "Neutrino oscillations and light dark matter searches with the MiniBooNE experiment", *19th International Symposium on Particles, Strings and Cosmology (PASCOS-2013)*, Taipei, Taiwan, 20-26 Nov, 2013.
9. "Recent results from MiniBooNE on neutrino oscillations", IX Latin American Symposium on High Energy Physics (SILAFEA 2012), 10-14 December, 2012, São Paulo, Brasil.
10. "Dark matter experiment with CCD detectors", 1st Workshop for the Design of the ANDES Underground Laboratory, Buenos Aires, Argentina, April 11-14, 2011.
11. "Oscillations results from the MiniBooNE Experiment", VIII Latin American Symposium on High Energy Physics (SILAFEA 2010), Valparaíso, Chile, December 6-12, 2010.
12. "An Analytical treatment for Three Neutrino Oscillations in the Earth", sent Poster, presented by J.C. D'Olivo (coauthor) at the XXIV International Conference on Neutrino Physics and Astrophysics (Neutrino 2010), Athens, Greece, June 14-19, 2010.
13. "Magnus approximation for neutrino oscillations with three flavors in matter", International Conference on Topics on Astroparticle and Underground Physics (TAUP), Rome, Italy, July 1-5, 2009.
14. "Study of the Decay  $\pi \rightarrow e\nu$ ", Sub-Atomic Physics Experiment Evaluation Committee (SAP-EEC) TRIUMF, Vancouver, B.C. Canada, July 12, 2008.
15. "Results of the MiniBooNE Experiment", PASCOS'08, Perimeter Institute for Theoretical Physics, Waterloo, Ontario, June 3, 2008.
16. "Results from MiniBooNE", Rencontres de Physique de la Vallée d'Aoste, La Thuile, Aosta Valley, Italy, February 25, 2008.
17. Poster: "The Combined  $\nu_{\mu} \rightarrow \nu_e$  oscillations fit for the BDT analysis in MiniBooNE", 40<sup>th</sup> Fermilab Users' Meeting, Fermi National Accelerator Laboratory, Batavia, IL, June 6-7, 2007.

18. "Neutrinos from the NuMI beamline in the MiniBooNE Detector", Particles and Nuclei International Conference (PANIC'05), Santa Fe NM, 23-30 October, 2005.
19. "BooNE", PANIC'05 Neutrino Satellite Meeting, Santa Fe NM, October 31, 2005.
20. Poster "The MiniBooNE Experiment"; XXIV Physics In Collision Conference; Boston University, Boston MA, June 24-29, 2004.
21. Poster "The MiniBooNE Experiment"; New Perspectives 2004; Fermilab, June 2, 2004.
22. "On the Implications of recent SNO results" VIII Mexican Workshop on Particles and Fields, Zacatecas Zac., Mexico, November 14-20, 2001.
23. Poster "The DAR Analysis of the LSND Experiment", International Workshop on observing Ultra-High Energy Cosmic Rays; Metepec, Puebla, Aug 2000.
24. Poster "An improvement in the data analysis of LSND"; XIX Symposium of Nuclear Physics; Oaxtepec, Morelos (Jan 10, 1999).

### **Presentations in National (Mexico) Conferences and meetings**

1. "Search for Dark Matter in the beam-dump of a proton beam with MiniBooNE", XXXI *Meeting of the Division of Particles and Fields of the Mexican Physical Society*, 24-26 May, 2017, CINVESTAV, Zacatenco, México.
2. "Status of the CONNIE experiment", Reunión General de la Red de Física de Altas Energías (Red FAE), Pachuca, Hidalgo, Nov 10-12, 2016.
3. Short course "Física de Neutrinos", 3 hr, *IX Mexican School on Nuclear Physics*, Instituto de Ciencias Nucleares, UNAM, June 22-23, 2015.
4. "Searching for light Dark Matter in a neutrino beam", *XXVIII Meeting of the Division of Particles and Fields of the Mexican Physical Society*, México D.F. 26-28 May, 2014.
5. "Neutrinos y búsquedas de Materia Oscura: caso Mexicano", 3er Congreso Nacional de la Red de Física de Altas Energías y Taller Temático de Vinculación "Física y Astrofísica de Partículas: Retos y oportunidades en México y Latinoamérica", Guanajuato, Gto. 23-28 Enero, 2014.
6. Course "Neutrino Physics", 5 hrs, *VIII Escuela de Física Fundamental*, Hermosillo, Sonora, México, 5-9 August, 2013.
7. "Experimentos en Física de Neutrinos", Workshop on Cosmic Ray Physics, Program *Jóvenes hacia la Investigación*, DGDC-UNAM, Instituto de Ciencias Nucleares, UNAM, México D.F., July 23-27, 2012.
8. "Resultados Experimentales de Oscilaciones de Neutrinos", VI Mexican School on Nuclear Physics, Instituto de Ciencias Nucleares, UNAM, June 24-25, 2009.
9. "Neutrino Oscillations, Review and Current Status", *XXIII Meeting of the Division of Particles and Fields of the Mexican Physical Society*, UNAM, Mexico City, May 20-22, 2009.
10. "Detección de neutrinos y materia oscura con gases nobles líquidos", 1er Congreso Nacional de la Red de Física de Altas Energías, Taxco Guerrero, México, March 4-7, 2009.
11. "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.

### **Seminars and Colloquia**

1. "Searches for low-mass dark matter with DAMIC and MiniBooNE", Dark Matter Day, Instituto de Física, UNAM, October 31, 2017.
2. "Dark matter detection: a bridge between technology and basic science", Conference series for the XXXIX anniversary of the FCBIyT, Universidad Autónoma de Tlaxcala, 12 September, 2017.
3. "Dark matter search with an accelerator and a neutrino detector", Research Colloquium, Instituto de Ciencias Nucleares, UNAM. June 9, 2017.
4. "Dark matter and neutrinos with CCD sensors", *Almuerzeminario*, Instituto de Física UNAM, Oct 4 2016.

5. "What is a neutrino?", Coloquio de Divulgación del Instituto de Ciencias Nucleares, UNAM, 25 February, 2016.
6. "DAMIC: búsqueda de materia oscura con sensores CCD", Colloquium, Institute of Astronomy, UNAM, 9 December 2015.
7. "Física de Neutrinos: masas y oscilación", Seminario del grupo de Partículas Elementales y Cosmología (PEyCOS), Universidad del Atlántico, Barranquilla, Colombia, 19 and 26 November, 2015.
8. "Hunting for dark matter with digital cameras: the DAMIC experiment at SNOLAB", Outreach Colloquium, Instituto de Ciencias Nucleares, August 21, 2015.
9. "Dark matter search with CCD devices: the DAMIC experiment". Seminario Manuel Sandoval Vallarta, Instituto de Física, UNAM, September 19, 2014.
10. "Búsquedas de oscilaciones de neutrinos y antineutrinos con el experimento MiniBooNE", Manuel Sandoval Vallarta Seminar, Instituto de Física, UNAM, November 9, 2012.
11. "Búsquedas de oscilaciones de neutrinos con el experimento MiniBooNE", Seminar of the High Energy Physics group, Department of Physics, CINVESTAV-IPN, México D.F., May 29, 2012.
12. "Neutrinos Faster Than Light? Comments on the OPERA result", Colloquium of the *Instituto de Ciencias Físicas*, UNAM, Cuernavaca Morelos, november 30, 2011, y Colloquium of the *Instituto de Ciencias Nucleares*, UNAM, Ciudad Universitaria, México D.F., December 1st, 2011.
13. "Neutrinos Faster than light?" Online *Chat*, Internet portal of newspaper El Universal, DGDC-UNAM, October 4, 2011.
14. "Las búsquedas de oscilaciones de neutrinos de MiniBooNE", Colloquium of the Department of Physics, CINVESTAV-IPN, México D.F., April 27, 2011.
15. "The MiniBooNE neutrino oscillations search ", TRIUMF special seminar, Vancouver, B.C., September 27, 2007.
16. "Active Neutrino Oscillations and the SNO NC measurement", Physics Department Columbia University, Particle Physics Seminar, February 2003.

### Schools and workshops attended

1. *Mini-Workshop on Neutrino Physics*, Instituto de Física, UNAM, 8-10 November 2017.
2. *Workshop Towards a kg-size dark matter detector with CCDs*, University of Chicago, Jan 25-27, 2017.
3. *Mini-Dark Matter Workshop*, Instituto de Física, UNAM, Nov 7-9, 2016.
4. *Neutrinos-Latin America Workshop*, Fermilab, April 27-28, 2016.
5. *Taller de Integración de Física Teórica-Experimental de la RedFAE*, León, Guanajuato, Aug 27-29, 2015.
6. 4th International Workshop for the Design of the ANDES Underground Laboratory, Unidad de Seminarios Dr. Ignacio Chávez, UNAM, México D.F. January 30-31, 2014.
7. 1st International Workshop for the Design of the ANDES Underground Laboratory, Centro Atómico Constituyentes, Buenos Aires, Argentina, April 11-14, 2011.
8. SLAC GEANT4 Tutorial, FCFM Benemérita Universidad Autónoma de Puebla, June 14-18, 2010.
9. *Workshop Towards neutrino Technologies*, Trieste, Italy, July 13-18, 2009.
10. *Taller de Introducción a la Instrumentación en Física Experimental de Altas Energías*, Universidad Iberoamericana, México City, April 2-3, 2009.
11. *School on Instrumentation for Elementary Particle Physics ICFA 2001*, National Accelerator Centre, Cape Town, South Africa. March 26 to April 6, 2001.
12. *SLAC Summer Institute*, Stanford University, August 2-13, 2004.

### Event organization experience and support activities

1. Seminar coordinator, Department of High Energy Physics, Instituto de Ciencias Nucleares, UNAM, since Aug 2010.



2. Member of the organizing committee for the contest “*Veranos Científicos en Laboratorios Extranjeros 2018*” organized by the Division of Particles and Fields of the Mexican Physical Society, FES-UNAM Acatlán. 13-15 December 2017.
3. Member of the organizing committee for the contest “*Veranos Científicos en Laboratorios Extranjeros 2016*” organized by the Division of Particles and Fields of the Mexican Physical Society, Facultad de Ciencias Físicas y Matemáticas, Universidad Autónoma de Chiapas, Tuxtla Gtz. Chiapas. 13-15 November 2015.
4. Member of the organizing committee “*Workshop on Integration of Theoretical and Experimental Physics of the HEP Network (Red-FAE)*”, Red Temática de Investigación CONACYT en Física de Altas Energías (Red-FAE), Guanajuato, Gto. 27-29 de agosto, 2015.
5. Member of the organizing committee for the contest “*Veranos Científicos en Laboratorios Extranjeros 2015*” organized by the Division of Particles and Fields of the Mexican Physical Society, Facultad División de Ciencias e Ingenierías, Universidad de Guanajuato, León, Gto. 11-13 December 2014.
6. Member of the organizing committee for the *4th International Workshop for the Design of the ANDES Underground Laboratory*, Unidad de Seminarios Dr. Ignacio Chávez, UNAM, México D.F. Jan 30-31, 2014.
7. Member of the organizing committee Thematic Workshop: “*Particle Physics and Astrophysics: challenges and oportunities in Mexico and Latin America*”, Guanajuato, Gto. 23-28 Jan, 2014.
8. Member of the national organizing committee for the contest “*Veranos Científicos en Laboratorios Extranjeros 2014*” organized by the Division of Particles and Fields of the Mexican Physical Society (DPyC-SMF), Centro de Ciencias e Ingenierías, Universidad de Guadalajara, Guad. Jalisco, January 9-11, 2014.
9. Member of the national organizing committee for the contest “*Veranos Científicos en Laboratorios Extranjeros 2013*” organized by the Division of Particles and Fields of the Mexican Physical Society (DPyC-SMF), Universidad Iberoamericana, Mexico City, January 10-12, 2013.
10. Member of the organizing committee for the *II CINVESTAV-UNAM Symposium “Particles and neutrinos in an astrophysical context”*, Oct 8-9, 2012, Instituto de Ciencias Nucleares, UNAM, Distrito Federal, México.
11. Member of the national organizing committee and tutor/judge in the contest “*Veranos Científicos en Laboratorios Extranjeros 2012*” organized by the Division of Particles and Fields of the Mexican Physical Society (DPyC-SMF), Universidad Autónoma de Sinaloa, Culiacán, Sin., 8-10 december 2011.
12. Head of the local and national organizing committees of the contest “*Veranos Científicos en Laboratorios Extranjeros 2011*” organized by the Division of Particles and Fields of the Mexican Physical Society (DPyC-SMF), Instituto de Ciencias Nucleares and Facultad de Ciencias, UNAM, 15-17 December, 2010.
13. Member of the organizing committee for the *XIV Mexican School on Particles and Fields*, Morelia, Mich. Nov. 8-12, 2010
14. Member of the national organizing committee and tutor in the contest “*Veranos Científicos en Laboratorios Extranjeros 2010*” organized by the Division of Particles and Fields of the Mexican Physical Society (DPyC-SMF), Benemérita Universidad Autónoma de Puebla, Puebla, Pue., 9-12 december 2009.
15. Member of the organizing committee for the *XII Mexican Workshop on Particles and Fields*, Mazatlán, Sin. Nov 9-14, 2009.
16. Poster Session of the 2006 Fermilab Users' Meeting, May 31, 2006. New Perspectives 2006, Fermi National Accelerator Laboratory, June 2-3, 2006.
17. Staff member, NUFAC'T'03, 5th International Workshop on Neutrino Factories & Superbeams. Columbia University, New York. 5-11 June 2003.

## Publications in refereed journals

1. "Dark Matter Search in a Proton Beam Dump with MiniBooNE", A. A. Aguilar-Arevalo, M. Backfish, A. Bashyal, B. Batell, B. C. Brown, R. Carr, A. Chatterjee, R. L. Cooper, P. deNiverville, R. Dharmapalan, Z. Djuricic, R. Ford, F. G. Garcia, G. T. Garvey, J. Grange, J. A. Green, W. Huelsnitz, I. L. de Icaza Astiz, G. Karagiorgi, T. Katori, W. Ketchum, T. Kobilarcik, Q. Liu, W. C. Louis, W. Marsh, C. D. Moore, G. B. Mills, J. Mirabal, P. Nienaber, Z. Pavlovic, D. Perevalov, H. Ray, B. P. Roe, M. H. Shaevitz, S. Shamsavarani, I. Stancu, R. Tayloe, C. Taylor, R. T. Thornton, R. Van de Water, W. Wester, D. H. White, and J. Yu [MiniBooNE-DM Collaboration], *Phys. Rev. Lett.* **118**, 221803 (2017).
2. "First Direct-Detection Constraints on eV-Scale Hidden-Photon Dark Matter with DAMIC at SNOLAB", A. Aguilar-Arevalo, D. Amidei, X. Bertou, M. Butner, G. Cancelo, A. Castañeda Vázquez, B. A. Cervantes Vergara, A. E. Chavarria, C. R. Chavez, J. R. T. de Mello Neto, J. C. D'Olivo, J. Estrada, G. Fernandez Moroni, R. Gaïor, Y. Guardincerri, K. P. Hernández Torres, F. Izraelevitch, A. Kavner, B. Kilminster, I. Lawson, A. Letessier-Selvon, J. Liao, A. Matalon, V. B. B. Mello, J. Molina, P. Privitera, K. Ramanathan, Y. Sarkis, T. Schwarz, M. Settimo, M. Sofo Haro, R. Thomas, J. Tiffenberg, E. Tiouchichine, D. Torres Machado, F. Trillaud, X. You, and J. Zhou [DAMIC Collaboration], *Phys. Rev. Lett.* **118**, 141803 (2017).
3. "Search for low-mass WIMPs in a 0.6 kg day exposure of the DAMIC experiment at SNOLAB", A. Aguilar-Arevalo, D. Amidei, X. Bertou, M. Butner, G. Cancelo, A. Castañeda Vázquez, B. A. Cervantes Vergara, A. E. Chavarria, C. R. Chavez, J. R. T. de Mello Neto, J. C. D'Olivo, J. Estrada, G. Fernandez Moroni, R. Gaïor, Y. Guardincerri, K. P. Hernández Torres, F. Izraelevitch, A. Kavner, B. Kilminster, I. Lawson, A. Letessier-Selvon, J. Liao, V. B. B. Mello, J. Molina, J. Pena, P. Privitera, K. Ramanathan, Y. Sarkis, T. Schwarz, C. Sengul, M. Settimo, M. Sofo Haro, R. Thomas, J. Tiffenberg, E. Tiouchichine, D. Torres Machado, F. Trillaud, X. You, and J. Zhou [DAMIC Collaboration], *Phys. Rev. D* **94**, 082006 (2016).
4. "Results of the engineering run of the Coherent Neutrino Nucleus Interaction Experiment (CONNIE)", A. Aguilar-Arevalo, X. Bertou, C. Bonifazi, M. Butner, G. Cancelo, A. Castañeda Vázquez, B. Cervantes Vergara, C. R. Chavez, H. Da Motta, J. C. D'Olivo, J. Dos Anjos, J. Estrada, G. Fernandez Moroni, R. Ford, A. Foguel, K. P. Hernández Torres, F. Izraelevitch, A. Kavner, B. Kilminster, K. Kuk, H. P. Lima Jr., M. Makler, J. Molina, G. Moreno-Granados, J. M. Moro, E. E. Paolini, M. Sofo Haro, J. Tiffenberg, F. Trillaud and S. Wagner [CONNIE Collaboration], *JINST* **11**, No. 07, P07024 (2016).
5. "Antineutrino Flux from the Laguna Verde Nuclear Power Plant", M. Chávez-Estrada and A. A. Aguilar-Arevalo, *Adv. High Energy Phys.* 2015, 109738, (2015).
6. "Improved Measurement of the  $\pi^+ \rightarrow e^+ \nu_e$  branching ratio", A. Aguilar-Arevalo, M. Aoki, M. Blecher, D. I. Britton, D. A. Bryman, D. vom Bruch, S. Chen, J. Comfort, M. Ding, L. Doria, S. Cuen-Rochin, P. Gumpfinger, A. Hussein, Y. Igarashi, S. Ito, S. H. Kettell, L. Kurchaninov, L. S. Littenberg, C. Malbrunot, R. E. Mischke, T. Numao, D. Protopopescu, A. Sher, T. Sullivan, D. Vavilov, K. Yamada [PIENU Collaboration], *Phys. Rev. Lett.*, **115**, 071801 (2015).
7. "Measurement of radioactive contamination in the high-resistivity silicon CCDs of the DAMIC experiment", A. Aguilar-Arevalo, D. Amidei, X. Bertou, D. Bole, M. Butner, G. Cancelo, A. Castañeda Vázquez, A. E. Chavarria, J. R. T. de Mello Neto, S. Dixon, J. C. D'Olivo, J. Estrada, G. Fernandez Moroni, K. P. Hernández Torres, F. Izraelevitch, A. Kavner, B. Kilminster, I. Lawson, J. Liao, M. López, J. Molina, G. Moreno-Granados, J. Pena, P. Privitera, Y. Sarkis, V. Scarpine, T. Schwarz, M. Sofo Haro, J. Tiffenberg, D. Torres Machado, F. Trillaud, X. You and J. Zhou. [DAMIC Collaboration], *Journal of Instrumentation*, *JINST* **10** P08014 (2015).
8. "Detector for measuring the  $\pi^+ \rightarrow e^+ \nu_e$  branching fraction", A. A. Aguilar-Arevalo, M. Aoki, M. Blecher, D. vom Bruch, D. Bryman, J. Comfort, S. Cuen-Rochin, L. Doria, P. Gumpfinger, A. Hussein, Y. Igarashi, N. Ito, S. Ito, S. H. Kettell, L. Kurchaninov, L. Littenberg, C. Malbrunot, R. E. Mischke, A. Muroi, T. Numao, G. Sheffer, A. Sher, T. Sullivan, K. Tauchi, D. Vavilov, K. Yamada, M. Yoshida [PIENU Collaboration], *Nucl. Inst. Meth. Phys. Res. A* **791**, 38-46 (2015).
9. "Measurement of the Antineutrino Neutral-Current Elastic Differential Cross Section", A. A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], *Phys. Rev. D* **91**, 012004 (2015).
10. "Thermal modeling of a particle physics detector", Frededric Trillaud, Alexis Aguilar-Arevalo, Juan Carlos D'Olivo, Juan Cruz Estrada, *Ser. Inst. Ing. UNAM, SID* 688 (2014).

11. "Improved Search for  $\nu_{\mu} \rightarrow \nu_{e}$  Oscillations in the MiniBooNE Experiment". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. Lett. **110**, 161801 (2013)
12. "First Measurement of the Muon Anti-Neutrino Double Differential Charged Current Quasi-Elastic Cross Section". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. D **88**, 032001 (2013).
13. "Dual baseline search for muon antineutrino disappearance at  $0.1\text{eV}^2 < \Delta m^2 < 100\text{eV}^2$ ". G. Cheng, W. Huelsnitz, A.A. Aguilar-Arevalo, J.L. Alcaraz-Aunión, *et al.* [MiniBooNE and SciBooNE Collaborations], Phys. Rev. D **86**, 052009 (2012).
14. "Test of Lorentz and CPT violation with Short Baseline Neutrino Oscillation Excesses". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Lett. **B718** 1303 (2013)
15. "Dual baseline search for muon neutrino disappearance at  $0.5\text{eV}^2 < \Delta m^2 < 40\text{eV}^2$ ". K.B. Mahn, Y. Nakajima, A.A. Aguilar-Arevalo, J.L. Alcaraz-Aunión, *et al.* [MiniBooNE and SciBooNE Collaborations], Phys. Rev. D **85**, 032007 (2012).
16. "Measurement of the neutrino component of an anti-neutrino beam observed by a non-magnetized detector". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys.Rev.D **84**, 072005 (2011)
17. "Measurement of Neutrino-Induced Charged-Current Charged Pion Production Cross Sections on Mineral Oil at  $E_{\nu} \sim 1\text{ GeV}$ ". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys.Rev.D **83**, 052007 (2011)
18. "Measurement of  $\nu_{\mu}$ -induced charged-current neutral pion production cross sections on mineral oil at  $E_{\nu} \sim 0.5\text{-}2.0\text{ GeV}$ ". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys.Rev.D **83**, 052009 (2011).
19. "Measurement of the Neutrino Neutral-Current Elastic Differential Cross Section on Mineral Oil at  $E_{\nu} \sim 1\text{ GeV}$ ". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys.Rev.D **82**, 092005 (2010)
20. "Event Excess in the MiniBooNE Search for  $\nu_{\mu} \rightarrow \nu_{e}$  Oscillations". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. Lett. **105**, 181801 (2010).
21. "Study of a Large NaI(Tl) Crystal". A. Aguilar-Arevalo, M. Aoki, M. Blecher, D.A. Bryman, L. Doria, P. Gumplinger, A. Hussein, N. Ito, S. Kettell, L. Kurchaninov, L. Littenberg, C. Malbrunot, G.M. Marshall, T. Numao, R. Poutissou, A. Sher and K. Yamada [PIENU Collaboration], Nucl. Inst. Meth. Phys. Res. A **621**, 188-191 (2010).
22. "First Measurement of the Muon Neutrino Charged Current Quasielastic Double Differential Cross Section". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. D **81**, 092005 (2010).
23. "Measurement of  $\nu(\mu)$  and anti- $\nu(\mu)$  induced neutral current single  $\pi^0$  production cross sections on mineral oil at  $E(\nu) \sim O(1\text{-} \text{GeV})$ ". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. D **81**, 013005 (2010).
24. "A Search for Core-Collapse Supernovae using the MiniBooNE Neutrino Detector". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. D **81**, 032001 (2010).
25. "High Purity Pion Beam at TRIUMF". A. Aguilar-Arevalo, M. Blecher, D.A. Bryman, J. Comfort, J. Doornbos, L. Doria, A. Hussein, N. Ito, S. Kettell, L. Kurchaninov, C. Malbrunot, G.M. Marshall, T. Numao, R. Poutissou, A. Sher, B. Walker and K. Yamada [PIENU Collaboration], Nucl. Inst. Meth. Phys. Res. A **609**, 102-105 (2009).
26. "Measurement of the Ratio of the  $\nu_{\mu}$  Charged-Current Single-Pion Production to Quasielastic Scattering with a 0.8 GeV Neutrino Beam on Mineral Oil". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. Lett. **103**, 081801 (2009).
27. "A Search for Electron Antineutrino Appearance at the  $\Delta m^2 \sim 1\text{-eV}^2$  Scale", A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. Lett. **103**, 111801 (2009).
28. "A Search for muon neutrino and antineutrino disappearance in MiniBooNE". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. Lett. **103**, 061802 (2009).

29. "Unexplained Excess of electron-like events from a 1 GeV Neutrino Beam". A.A. Aguilar-Arevalo et.al [MiniBooNE Collaboration], Phys. Rev. Lett. **102**, 101802 (2009).
30. "Measurement of  $\nu(\mu)$  and  $\nu(e)$  Events in an Off-Axis Horn-Focused Neutrino Beam". P. Adamson, A. Aguilar-Arevalo et al. [Minos and MiniBooNE collaborations], Phys. Rev. Lett. **102**, 211801 (2009).
31. "The MiniBooNE Detector". A.A. Aguilar-Arevalo et.al [MiniBooNE Collaboration], Nucl. Instr. Meth. A **599**, 28-46 (2009).
32. "Neutrino Flux Prediction at MiniBooNE". A.A. Aguilar-Arevalo et.al [MiniBooNE Collaboration], Phys. Rev. D **79**, 072002 (2009).
33. "Compatibility of high  $Dm^2$   $n_e$  and anti- $n_e$  Neutrino Oscillations Searches". A.A. Aguilar-Arevalo et.al [MiniBooNE Collaboration], Phys. Rev. D **78**, 012007 (2008).
34. "First Observation of Coherent  $p^0$  production in Neutrino Nucleus Interactions with  $E_n < 2$  GeV". A.A. Aguilar-Arevalo et al. [MiniBooNE Collaboration], Phys. Lett. B **664**, 41 (2008)
35. "Physics at a future Neutrino Factory and super-beam facility", A Bandyopadhyay, S Choubey, R Gandhi, S Goswami, B L Roberts, J Bouchez, I Antoniadis, J Ellis, G F Giudice, T Schwetz, S Umasankar, G Karagiorgi, A Aguilar-Arevalo, J M Conrad, M H Shaevitz, S Pascoli, S Geer, J E Campagne, M Rolinec, A Blondel, M Campanelli, J Kopp, M Lindner, J Peltoniemi, P J Dornan, K Long, T Matsushita, C Rogers, Y Uchida, M Dracos, K Whisnant, D Casper, Mu-Chun Chen, B Popov, J Åystö, D Marfatia, Y Okada, H Sugiyama, K Jungmann, J Lesgourgues, M Zisman, M A Tórtola, A Friedland, S Davidson, S Antusch, C Biggio, A Donini, E Fernandez-Martinez, B Gavela, M Maltoni, J Lopez-Pavon, S Rigolin, N Mondal, V Palladino, F Filthaut, C Albright, A de Gouvea, Y Kuno, Y Nagashima, M Mezzetto, S Lola, P Langacker, A Baldini, H Nunokawa, D Meloni, M Diaz, S F King, K Zuber, A G Akeroyd, Y Grossman, Y Farzan, K Tobe, Mayumi Aoki, H Murayama, N Kitazawa, O Yasuda, S Petcov, A Romanino, P Chimenti, A Vacchi, A Yu Smirnov, E Couce, J J Gomez-Cadenas, P Hernandez, M Sorel, J W F Valle, P F Harrison, C Lunardini, J K Nelson, V Barger, L Everett, P Huber, W Winter, W Fetscher and A van der Schaaf (ISS Physics Working Group) , Rep. Prog. Phys. **72**, 10 (2009).
36. "Measurement of Muon Neutrino Quasi-Elastic Scattering on Carbon". A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Phys. Rev. Lett. **100**, 032301 (2008).
37. "A Search for Electron Neutrino Appearance at the  $\Delta m^2 \sim 1$  eV<sup>2</sup> Scale". A.A. Aguilar-Arevalo et al. [MiniBooNE Collaboration]; Phys. Rev. Lett. **98**, 231801 (2007)
38. "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. D **75**, 013011, (2007)
39. "Active Neutrino Oscillations and the SNO NC measurement". Alexis A. Aguilar-Arevalo, J.C. D'Olivo (Mexico U., ICN); Phys. Rev. D **66**, 113009, (2002)
40. "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. D **64**, 112007, (2001)

## Conference Proceedings

1. "Potential of CCDs for the study of sterile neutrino oscillations via coherent neutrino-nucleus elastic scattering ", Marisol Chávez Estrada and Alexis A. Aguilar-Arevalo, Proceedings of the 31<sup>st</sup> annual meeting of the Division of Particles and Fields of the Mexican Physical Society DPyC-SMF, Published in: J. Phys. Conf. Ser. **912**, 012031 (2017).
2. "Search for dark matter in the beam-dump of a proton beam with MiniBooNE", Alexis A. Aguilar-Arevalo, [for the MiniBooNE-DM Collaboration], Proceedings of the 31<sup>st</sup> annual meeting of the Division of Particles and Fields of the Mexican Physical Society (DPyC-SMF), Published in: J. Phys. Conf. Ser. **912**, 012017 (2017).
3. "Initial results from the PIENU experiment", T. Sullivan, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D.I Britton, D.A Bryman, D. vom Bruch, S. Chen, J. Comfort S. Cuen-Rochin, L. Doria, P. Gumplinger

(Unlisted) , A. Hussein (Northern British Columbia U.) , Y. Igarashi (Niigata U.) , S. Ito, S.H Kettell, L. Kurchaninov, L.S Littenberg, C. Malbrunot, R.E Mischke, T. Numao, D. Protopopescu, A. Sher, D. Vavilov [PIENU Collaboration], Proceedings of the 13th International Conference on Heavy Quarks and Leptons (HQL 2016), PoS HQL2016, 043 (2017).

4. "Initial results from the PIENU experiment", T. Sullivan, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D.I. Britton, D.A. Bryman, D. vom Bruch, S. Chen, J. Comfort, S. Cuen-Rochin, L. Doria, P. Gumplinger, A. Hussein, Y. Igarashi, S. Ito, S. H. Kettell, L. Kurchaninov, L.S. Littenberg, C. Malbrunot, R.E. Mischke, T. Numao, D. Protopopescu, A. Sher, D. Vavilov [PIENU Collaboration], Proceedings of the 6th International Symposium on Symmetries in Subatomic Physics (SSP 2015) , *Hyperfine Interact.* **238**, no. 1, 3 (2017).
5. "Search for massive neutrinos in  $\pi^+ \rightarrow e^+ \nu_e$  decay", S. Ito, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D.I. Britton, D.A. Bryman, D. vom Bruch, S. Chen, J. Comfort, S. Cuen-Rochin, L. Doria, P. Gumplinger, A. Hussein, Y. Igarashi, S. Kettell, L. Kurchaninov, L. Littenberg, C. Malbrunot, R.E. Mischke, T. Numao, D. Protopopescu, A. Sher, T. Sullivan, D. Vavilov [PIENU Collaboration], Proceedings of the 6th International Symposium on Symmetries in Subatomic Physics (SSP 2015), *Hyperfine Interact.* **238**, no.1, 1 (2017).
6. "The CONNIE experiment", A. Aguilar-Arevalo, X. Bertou, C. Bonifazi, M. Butner, G. Canelo, A. Castaneda Vazquez, B. Cervantes Vergara, C.R. Chavez, H. Da Motta, J.C. D'Olivo, J. Dos Anjos, J. Estrada, G. Fernandez Moroni, R. Ford, A. Foguel, K. P. Hernandez Torres, F. Izraelevitch, A. Kavner, B. Kilminster, K. Kuk, H. P. Lima Jr., M. Makler, J. Molina, G. Moreno-Granados, J. M. Moro, E. E. Paolini, M. Sofo Haro, J. Tiffenberg, F. Trillaud, and S. Wagner [CONNIE Collaboration], in Joint Proceedings of the XV Mexican Workshop on Particles and Fields & the XXX Annual Meeting of the Division of Particles and Fields of the Mexican Physical Society. *J. Phys. Conf. Ser.* **761**, 010257 (2016) [arXiv:1608.01565].
7. "Measurement of radioactive contamination in the CCD's of the DAMIC experiment", A. Aguilar-Arevalo, D. Amidei, X. Bertou, D. Bole, M. Butner, G. Canelo, A. Castañeda Vásquez, A.E. Chavarría, J.R.T. de Mello Neto, S. Dixon, J.C. D'Olivo, J. Estrada, G. Fernandez Moroni, K.P. Hernández Torres, F. Izraelevitch, A. Kavner, B. Kilminster, I. Lawson, J. Liao, M. López, J. Molina, G. Moreno-Granados, J. Pena, P. Privitera, Y. Sarkis, V. Scarpine, T. Schwarz, M. Sofo Haro, J. Tiffenberg , D. Torres Machado, F. Trillaud, X. Yol, J. Zhou [DAMIC Collaboration], *J. Phys. Conf. Ser.* **718**, no.4, 042057 (2016).
8. "The DAMIC Dark Matter Experiment", J.R.T. de Mello Neto, A. Aguilar-Arevalo, D. Amidei, X. Bertou, D. Bole, M. Butner, G. Canelo, A. Castaneda Vazquez, A.E. Chavarría, S. Dixon, J.C. D'Olivo, J. Estrada, G. Fernandez Moroni, K.P. Hernandez Torres, F. Izraelevitch, A. Kavner, B. Kilminster, I. Lawson, J. Liao, M. Lopez, J. Molina , G. Moreno-Granados, J. Pena, P. Privitera, Y. Sarkis, V. Scarpine, T. Schwarz, M. Sofo Haro, J. Tiffenberg, D. Torres Machado, F. Trillaud, X. You, J. Zhou [DAMIC Collaboration], in Proceedings of the 34th International Cosmic Ray Conference (ICRC 2015), eConf C15-07-30, [physics.ins-det: arXiv:1510.02126].
9. "Status of the DAMIC direct dark matter search experiment", A. Aguilar-Arevalo , D. Amidei, X. Bertou, D. Boule, M. Butner, G. Canelo, A. Castañeda Vásquez, A.E. Chavarría, J. R. T. de Melo Neto, S. Dixon, J.C. D'Olivo, J. Estrada, G. Fernandez Moroni, K. P. Hernández Torres, F. Izraelevitch, A. Kavner, B. Kilminster, I. Lawson, J. Liao, M. López, J. Molina, G. Moreno-Granados, J. Pena, P. Privitera, Y. Sarkis, V. Scarpine, T. Schwartz, M. Sofo Haro, J. Tiffenberg, D. Torres Machado, F. Trillaud, X. You, J. Zhou, [DAMIC Collaboration], in Proceedings of the 12th Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2015), edited by B. Fleming, eConf C15-05-19, CIPANP2015-Aguilar-Arevalo (2015). [physics.ins-det: arXiv:1510.00044].
10. "Neutrino and Dark Matter experiments: the Mexican case", Alexis A. Aguilar-Arevalo, in proceedings of the "Workshop on Particle Physics and Astrophysics: Challenges and Opportunities in Mexico and Latin America", Editors: Aguilar-Arevalo, Castilla Valdés, D'Olivo Saez and Napsuciale Mendivil, 146 pages, Universidad Nacional Autónoma de México, D.F. México, 2015. [ISBN: 978-607-02-6896-0]
11. "Status of the TRIUMF PIENU experiment", S. Ito, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D.I. Britton, D.A. Bryman, D. vom Bruch, S. Chen, J. Comfort, S. Cuen-Rochin, L. Doria, P. Gumplinger, A. Hussein, Y. Igarashi, S. Kettell, L. Kurchaninov, L. Littenberg, C. Malbrunot, R.E. Mischke, T. Numao, D.

Protopopescu, A. Sher, T. Sullivan, D. Vavilov, in Proceedings of the 12th Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2015), edited by B. Fleming, eConf C15-05-19, CIPANP2015\_ITO (2015).

12. "Status of the PIENU experiment at TRIUMF", S. Ito, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D. I. Britton, D. A. Bryman, D. vom Bruch, S. Chen, J. Comfort, S. Cuen-Rochin, L. Doria, P. Gumplinger, A. Hussein, Y. Igarashi, S. Kettell, L. Kurchaninov, L. Littenberg, C. Malbrunot, R. E. Mischke, T. Numao, D. Protopopescu, A. Sher, T. Sullivan and D. Vavilov, in Proceedings of the 4th Symposium on Prospects in the Physics of Discrete Symmetries (DISCRETE 2014), eConf C14-12-02.1, Edited by Nick Mavromatos, Vasiliki Mitsou, Dimitri Skirlos and Antonio Di Domenico, Rome, 2015, J. Phys. Conf. Ser. **631**, 1, 012044 (2015).
13. "The DAMIC-100 dark matter detection experiment with CCDs at SNOLAB", Ben Kilminster, Alexis Aguilar-Arevalo, Dan Amidei, Xavier Bertou, Melissa Butner, Gustavo Cancelo, Alvaro E. Chavarria, Juan Carlos D'Olivo, Juan Estrada, Guillermo Fernandez Moroni Federico Izraelevitch, Yashmanth Langisetty, Junhui Liao, Jorge Molina, Paolo Privitera, Carolina Salazar, Youssef Sarkis, Vic Scarpine, Tom Schwarz, Miguel Sofo Haro, Javier Tiffenberg, Frederic Trillaud, Jing Zhou [DAMIC collaboration], Proceedings, 10th Patras Workshop on Axions, WIMPs and WISPs (AXION-WIMP 2014), DESY PUBDB-2016-05903, eConf C14-06-29.1, p.25-28 (2014).
14. "DAMIC at SNOLAB", Alvaro Chavarria, Javier Tiffenberg, Alexis Aguilar-Arevalo, Dan Amidei, Xavier Bertou, Gustavo Cancelo, Juan Carlos D'Olivo, Juan Estrada, Guillermo Fernandez Moroni, Federico Izraelevitch, Ben Kilminster, Yashmanth Langisetty, Junhui Liao, Jorge Molina, Paolo Privitera, Carolina Salazar, Youssef Sarkis, Vic Scarpine, Tom Schwarz, Miguel Sofo Haro, Frederic Trillaud, Jing Zhou, Proceedings of the 13th International Conference on Topics in Astroparticle and Underground Physics (TAUP2013), Phys. Procedia **61**, 21-33 (2015).
15. "Status of the PIENU experiment", T. Numao, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D. I. Britton, D. A. Bryman, D. vom Bruch, S. Chen, J. Comfort, S. Cuen-Rochin, L. Doria, P. Gumplinger, A. Hussein, Y. Igarashi, S. Ito, S. Kettell, L. Kurchaninov, L. Littenberg, C. Malbrunot, R. Mischke, D. Protopopescu, A. Sher, T. Sullivan and D. Vavilov; J. Phys. Conf. Ser. **556** 012002 (2014).
16. "PIENU experiment at TRIUMF: A sensitive probe of new physics", A. Sher, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D. I. Britton, D. A. Bryman, D. von Bruch, S. Chen, J. Comfort, M. Ding, L. Doria, P. Gumplinger, A. Hussein, Y. Igarashi, N. Ito, S. Ito, S. Kettell, Y. Kuno, L. Kurchaninov, L. Littenberg, C. Malbrunot, R. Mischke, T. Numao, A. Sandorfi, T. Sullivan, D. Vavilov, K. Yamada and Y. Yoshida, AIP Conf. Proc. 1560,125-127 (2013).
17. "A new investigation of electron neutrino appearance oscillations with improved sensitivity in the MiniBooNE+ experiment", R. Dharmapalan, S. Habib, C. Jiang, I. Stancu, Z. Djurcic, R. A. Johnson, A. Wickremasinghe, G. Karagiorgi, M. H. Shaevitz, B. C. Brown, F.G. Garcia, R. Ford, W. Marsh, C. D. Moore, D. Perevalov, C. C. Polly, J. Grange, J. Mousseau, B. Osmanov, H. Ray, R. Cooper, R. Tayloe, R. Thornton, G. T. Garvey, W. Huelsnitz, W. C. Louis, C. Mauger, G. B. Mills, Z. Pavlovic, R. Van de Water, D. H. White, R. Imlay, M. Tzanov, B. P. Roe, A. A. Aguilar-Arevalo, T. Katori, P. Nienaber (MiniBooNE+ Collaboration), Proceedings, Community Summer Study 2013: Snowmass on the Mississippi (CSS2013), Edited by N.A. Graf, M.E. Peskin, J.L. Rosner, eConf:C13-07-29.2 (2013).
18. "Juan Carlos D'Olivo: a portrait", Proceedings of the 2nd Cinvestav-UNAM Symposium on High Energy Physics, Particles and Neutrinos in an Astrophysical Context: In Honor of Juan Carlos D'Olivo, A.A. Aguilar-Arevalo, AIP Conf. Proc. **1540**, 3 (2013).
19. "An analytical treatment for three neutrino oscillations in the Earth", A.A. Aguilar-Arevalo, J.C. D'Olivo, and A.D. Supanitsky, Nucl. Phys. Proc. Suppl. 229-232, 464 (2012).
20. "Precision tests of electron-muon universality with pions", T. Numao, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D. I. Britton, D. A. Bryman, S. Chen, J. Comfort, M. M. Ding, L. Doria, P. Gumplinger, A. Hussein, Y. Igarashi, S. H. Kettell, L. Kurchaninov, L. Littenberg, C. Malbrunot, A. Sher, T. Sullivan, V. Vavilov, Y. Yoshida, K. Yamada [PIENU Collaboration], Nuovo Cim. C035N04, 60-67 (2012).
21. "Measurement of the pion branching ratio at TRIUMF", C. Malbrunot, A.A. Aguilar-Arevalo, M. Aoki, M. Blecher, D.I. Britton, D.A. Bryman, S. Chen, J. Comfort, M. Ding, L. Doria, P. Gumplinger, A. Hussein, Y.

Igarashi, S. Ito, S.H. Kettell, Y. Kuno, L. Kurchaninov, L. Littenberg, T. Numao, A. Sher, T. Sullivan, D. Vavilov, M. Yoshida, AIP Conf. Proc. 1441, 564-566 (2012).

22. "The PIENU experiment at TRIUMF: a sensitive probe for new physics", Chloe Malbrunot, A.A. Aguilar-Arevalo, M. Aoki, M. Blecher, D.I. Britton, D.A. Bryman, S. Chen, J. Comfort, M. Ding, J. Doornbos, L. Doria, P. Gumplinger, C. Hurst, A. Hussein, Y. Igarashi, N. Ito, S. Kettell, Y. Kuno, L. Kurchaninov, L. Littenberg, T. Numao, R. Poutissou, A. Sher, T. Sullivan, D. Vavilov, K. Yamada, M. Yoshida, J. Phys. Conf. Ser. 312, 102010 (2011).
23. "Earth matter effect on active-sterile neutrino oscillations", Mario A. Acero, Alexis A. Aguilar-Arevalo, J.C. D'Olivo, proceedings of the VI International Workshop on the Dark Side of the Universe (DSU 2010), León Gto. 1-6 June, 2010, J. Phys. Conf. Ser. 315, 012015 (2011).
24. "Magnus approximation in neutrino oscillations", Mario A. Acero, Alexis A. Aguilar-Arevalo, J.C. D'Olivo, Proceedings of the XIV Mexican School on Particles and Fields, Morelia, Michoacán, 8-12 November 2010, J. Phys. Conf. Ser. 287, 012024 (2011).
25. "Results from neutrino oscillations experiments", Alexis Aguilar-Arevalo, Proceedings of the 6th Mexican Nuclear Physics School, Mexico City, AIP Conf. Proc. 1271, 251-278 (2010).
26. "Magnus approximation for neutrino oscillations with three flavors in matter", Alexis A. Aguilar-Arevalo y J.C. D'Olivo, proceedings of the International Conference on Topics on Astroparticle and Underground Physics, TAUP 2009, J. Phys. Conf. Ser. 203, 012096,(2010).
27. "Measurement of  $\pi \rightarrow e \nu / \pi \rightarrow \mu \nu$  branching ratio", T. Numao, A. Aguilar-Arevalo, M. Aoki, M. Blecher, D.I. Britton, D.A. Bryman, J. Comfort, J. Doornbos, L. Doria, P. Gumplinger, A. Hussein, Y. Igarashi, N. Ito, Steven H. Kettell, Y. Kuno, L. Kurchaninov, L. Littenberg, C. Malbrunot, G. Marshall, A. Muroi, R. Poutissou, F. Retiere, A. Sandorfi, A. Sher, B. Walker, K. Yamada, Proceedings of the 18th Particles and Nuclei International Conference, PANIC08, eConf: C08-11-09, p. 874-876 (2008).
28. "Results from MiniBooNE", Alexis A. Aguilar-Arevalo [for the MiniBooNE Collaboration], proceedings of Les Rencontres de Physique de la Vallée d'Aoste: Results and perspectives in particle physics, 47th, La Thuile, Aosta Valley, Italy, Feb 24 - Mar 1, 2008, INFN, Frascati Phys. Ser. Vol. 47, pp. 683 (2008).
29. "Neutrinos from the NuMI beamline in the MiniBooNE detector", Alexis A. Aguilar-Arevalo [for the MiniBooNE Collaboration]; proceedings of the Particles and Nuclei International Conference (PANIC 05), Santa Fe, New Mexico, 24-28 Oct 2005. Published in AIP Conf. Proc. 842:834-836 (2006).
30. "The MiniBooNE Experiment", Alexis Aguilar-Arevalo [for the MiniBooNE Collaboration]; proceedings of the 24th International Conference on Physics in Collision (PIC 2004), Boston, Massachusetts, 27-29 Jun 2004, SLAC eConf, C0406271, hep-ex/0408074 (2004).
31. "On the Implications of Recent SNO Results", Alexis A. Aguilar, J.C. D'Olivo, proceedings of the Particles and Fields: Eight Mexican Workshop, AIP Conference Proceedings, vol. 623, iss. no. 1, p. 337-340, AIP Conf. Proc. 623:337-340 (2002).
32. "Magnus Expansion and Three-Neutrino Oscillations in Matter", L.G. Cabral-Rosetti, Alexis A. Aguilar-Arevalo, 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).

## Articles for the general public

1. "Neutrinos: mysterious particles with fascinating features, which led to the Physics Nobel Prize 2015", Alexis A. Aguilar-Arevalo and Wolfgang Bietenholz, Rev. Cub. Fis. 32 (2015) 127-136

## Edited books

1. "Workshop on Particle Physics and Astrophysics: Challenges and Opportunities in Mexico and Latin America", Editors: Aguilar-Arevalo, Castilla Valdés, D'Olivo Saez and Napsuciale Mendivil, 146 pages,

## Languages

Fluent in **English**, and **Spanish** (First Language). Elementary knowledge of **French**.

## 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](mailto:doug@triumf.ca)

Prof. Michael H. Shaevitz, Professor of Physics, Department of Physics, Columbia University, 538 West 120<sup>th</sup> Street, New York, NY,10027; e-mail: [shaevitz@nevis.columbia.edu](mailto:shaevitz@nevis.columbia.edu)

Prof. Janet M. Conrad, Professor of Physics, Department of Physics, Massachusetts institute of Technoligy, 77 Massachusetts Ave. Bldg. 26-537, Cambridge MA02139; e-mail: [conrad@mit.edu](mailto:conrad@mit.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](mailto:louis@lanl.gov)

Dr. Richard Van de Water; Los Alamos National Laboratory, Los Alamos, New México, U.S.A.: e-mail: [vdwater@lanl.gov](mailto:vdwater@lanl.gov)

Dr. Stephen Brice, Fermi National Accelerator Laboratory, Batavia, IL, U.S.A, e-mail: [sbrice@fnal.gov](mailto: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](mailto:mills@lanl.gov)

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

Dr. Jorge Gustavo Hirsch Ganievich, Investigador Titular C, Tiempo Completo, *Instituto de Ciencias Nucleares, UNAM*; e-mail: [hirsch@nucleares.unam.mx.gov](mailto:hirsch@nucleares.unam.mx.gov)

Dr. Jörg Wotschack, Experiments: ATLAS, PS214, 40 2-D24 Mailbox:E27100, *CERN*, Geneva, Switzerland, [Joerg.Wotschack@cern.ch](mailto:Joerg.Wotschack@cern.ch)

Dr. Hywel D. White; *Los Alamos Neutron Science Center*, Los Alamos National Laboratory; Los Alamos, New Mexico, e-mail: [Hywel.White@mciworld.com](mailto:Hywel.White@mciworld.com)