

Aaron Higuera

Postdoctoral Associate
University of Houston
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Research Interests

High energy physics: neutrino interactions, neutrino oscillation, muon physics, accelerator physics, detector design and construction.

Professional Employment

University of Houston
Researcher Associate. September 2014 — present.

University of Rochester
Researcher Associate. March 2014 — August 2014.

Education

University of Guanajuato
Ph.D., Physics (HEP-ex, neutrinos), February 2014.
Thesis: Search for Charged Current Coherent Pion
Production in the MINERvA Experiment.
Adviser: Dr. Jorge Morfin.
Collaboration: MINERvA.

University of Guanajuato
M.S., Physics (HEP-ex, hadron production), November 2009.
Thesis: First commissioning of the MINERvA Test Beam.
Adviser: Dr. Julian Felix.
Collaboration: MINERvA Test Beam.

Autonomous University of Zacatecas
B.S., Physics (Theory), September 2007.
Thesis: Semi-Classical Approach of Non Commutative
Quantum Mechanics.
Adviser: Dr. Oscar Sabido.

Experience with HEP

Hardware

During the first commissioning of the MINERvA test beam I was involved in testing, calibrating and monitoring of each detector in the beamline, gaining experience with NIM modules, ionization wire chambers, time of flight system and PMT's.

Software

C++, ROOT, G4Beamline, Python, Bash and LaTeX.
+1000 hrs, as MINERvA shifter.
+100 hrs. as MINERvA Test beam shifter.

Publications

Measurement of Coherent Production of π^\pm in Neutrino and Anti-Neutrino Beams on Carbon from Ev of 1.5 to 20 GeV

A. Higuera, A. Mislivec et al. (MINERvA Collaboration) **Phys. Rev. Lett.** **113** (2014) **261802**

Angular Dependence of Coherent Pion Production by Neutrinos

A. Higuera and E. A. Paschos, **Eur. Phys. J. Plus** **129**, **43** (2014).

Measurement of Ration ν_μ Charged-Current Cross Section on C, Fe and Pb to CH at Neutrino Energies 2-20 GeV

MINERvA Collaboration (B. G. Tice et al.) **Phys. Rev. Lett.** **112** **231801** (2014).

Design, Calibration and Performance of the MINERvA Detector

MINERvA Collaboration (L. Aliaga et al.) **Nucl. Instrum. Meth.** **A743**, **130** (2014).

Measurement of Muon Neutrino Quasi-Elastic Scattering on Hydrocarbon Target at Ev \sim 3.5 GeV

MINERvA Collaboration (G. Fiorentini et al.) **Phys. Rev. Lett** **111**, **022502** (2013).

Measurement of Muon AntiNeutrino Quasi-Elastic Scattering on Hydrocarbon Target at Ev \sim 3.5 GeV

MINERvA Collaboration (L. Fields et al.) **Phys. Rev. Let** **111**, **022501** (2013).

Demonstration of Communication Using Neutrinos

D.D. Stancil et al. **Mod. Phys. Lett.** **A27** **1250077** (2012).

Seminars

Fermilab, Joint Experimental - Theoretical Seminar, Fermi National Accelerator Laboratory, Batavia IL USA, August 1, 2014

Charged Current Coherent Pion Production at MINERvA.

Physics Colloquium, University of Colorado Boulder, Boulder CO, USA, August 18, 2014

Charged Current Coherent Pion Production in MINERvA.

Particle Physics Seminars, Physics Department, Brookhaven National Laboratory, Upton NY, USA, May 2014

Charged Current Coherent Pion Production in MINERvA.

Talks

International Workshop on Neutrino Factories, Super Beams and Beta Beams, NuFact 2013, Beijing, China

Neutrino Induced Pion Production in MINERvA.

New Perspectives 2013 Fermilab, Batavia IL, USA, June, 2013

Charged Current Coherent Pion Production at MINERvA.

APS April Meeting 2012

Exclusive Neutrino Charged Current Coherent Pion Production Cross Section Measurements in MINERvA.

New Perspectives 2012 Fermilab, Batavia IL, USA, June, 2012

MINERvA Test Beam.

International Neutrino Summer School, Geneva, Switzerland 2011

MINERvA Coherent Pion Production by Neutrinos.

CIPANP 2009 10th Conference on the Intersections of Particles and Nuclear Physics

MINERvA Test Beam Commissioning.

Languages

English.

Spanish.

References

Available upon request.