Edgar Carrera

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EDUCATION

- Florida State University, Tallahassee, FL, US.
  Ph.D. Experimental High Energy Physics, May 2009.
  Doctoral Dissertation:
  Topic: *Search for Large Extra Dimensions via Single Photon plus Missing Energy Final States.*
  Adviser: *Professor Dr. Yuri Gershtein.*
- Florida State University, Tallahasee, FL, US.
  M.S. Experimental Physics, April 2006
- National Polytechnic School, Quito-Ecuador.
  B.S. Physics, April 2004.

PROFESSIONAL APPOINTMENTS AND WORK EXPERIENCE

- Research Professor; Universidad San Francisco de Quito, Ecuador; 2016 – present.
- Visiting Research Scientist; Boston University; 2011 – present
- Assistant Professor; Universidad San Francisco de Quito, Ecuador; 2012 – 2016.
- "Prometeo" Researcher; Universidad San Francisco de Quito, Escuela Politécnica Nacional and Secretaría De Educación Superior, Ciencia Tecnología e Innovación, Ecuador; 2011 – 2012.
- Postdoctoral Research Associate; Boston University; 2009 – 2010
- Graduate Research Assistant; Florida State University; 2005 – 2009

RESEARCH INTERESTS AND EXPERIMENTS

- CMS Experiment; Searches for physics beyond the standard model, top physics, test beam studies, trigger studies and operations, beam monitoring studies; 2004 – 2006, 2009 – present.
- LAGO Project; Gamma Ray Burst searches, space weather physics, low cost detector development; 2011 – present
- DØ Experiment; Searches for physics beyond the standard model, photon identification, calorimeter studies; 2006–2009.

SELECTED PUBLICATIONS*

- V. Khachatryan *et al.* (CMS Collaboration), "Search for Resonant Production of High-Mass Photon Pairs in Proton-Proton Collisions at $\sqrt{s}$ =8 and 13 TeV," **Phys. Rev. Lett.** 117, no. 5, 051802 (2016).
- S. Chatrchyan *et al.* (CMS Collaboration), "Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC", **Phys. Lett. B** 716, 30 (2012).
- Serguei Chatrchyan *et al.* (CMS Collaboration), "Search for a W' boson decaying to a muon and a neutrino in pp collisions at $\sqrt{s} = 7$ TeV", **Phys. Lett. B** 701, 160-179 (2011).
- E. Carrera Jarrin (for the CMS Collaboration),"Performance of the CMS high-level trigger", Prepared for the 35^{th} International Conference on High Energy Physics: ICHEP 2010, Paris, France, 21-28 Jul 2010, **PoS ICHEP2010:008,2010**.
- G. Brooijmans *et al.*, "New Physics at the LHC", A Les Houches Report: Physics at TeV Colliders 2009 - New Physics Working Group, May 7, 2010, **arXiv:1005.1229 [hep-ex].**
- V.M. Abazov *et al.* (DØ Collaboration), "$Z\gamma \to \nu\bar{\nu}\gamma$ production and limits on anomalous $ZZ\gamma$ and $Z\gamma\gamma$ couplings in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV", **Phys. Rev. Lett.** 102, 201802 (2009).
- V.M. Abazov *et al.* (DØ Collaboration), "Search for Large Extra Dimensions via Single Photon plus Missing Energy Final States at $\sqrt{s} = 1.96$ TeV", **Phys. Rev. Lett.** 101, 011601 (2008).
- E. Carrera for the DØ Collaboration, "Searching for the elusive graviton", Contributed to the 34^{th} International Conference on High Energy Physics, Philadelphia, Pennsylvania, 30 Jul - 5 Ago 2008, **arXiv:0810.1331 [hep-ex]**

* For a complete list of publications visit INSPIRE: `http://inspirehep.net/search?p=find+a+edgar+carrera+or+a+edgar+carrera+jarrin`

SELECTED CONFERENCE PRESENTATIONS

- *Status and Perspectives of the LAGO Project*, presented at the 5^{th} Workshop on Air Shower Detection at High Altitude, Paris, France. May 27, 2014.
- *Searching for a New Force of Nature with the CMS Detector*, presented at the IX Latin American Symposium on Nuclear Physics and Applications, Quito, Ecuador. July 20, 2011.
- *Performance of the CMS High-Level Trigger*, presented at the 35^{th} International Conference on High Energy Physics, Paris, France. July 22, 2010.
- *Physics with Single Photons plus Missing Energy Final States at DØ*, presented at Lake Louise Winter Institute 2009, Lake Louise, Alberta, Canada. February 19, 2009.
- *Searching for the elusive graviton*, poster presented at the 34^{th} International Conference on High Energy Physics, Philadelphia, PA. July 31, 2008.
- *Search for Large Extra Dimensions in the monophoton channel using the DØ detector*, presented at Pheno Symposium 2008, Madison, WI. April 29, 2008
- *Search for Large Extra Dimensions in the monophoton final state*, presented at APS April Meeting, St. Louis, MO. April 14, 2008.

TEACHING EXPERIENCE

- Department of Physics, San Francisco University, Quito-Ecuador. Lecturer of undergraduate courses: General Physics I, II; Physics II for Sciences; Optics and Waves; Thermodynamics, Quantum Mechanics I, II; Statistical Mechanics; Introduction to Experimental High Energy Physics, Modern Physics.
- Department of Physics, National Polytechnic School, Quito-Ecuador. Invited Lecturer for the course "Particle Physics", 2011.
- Department of Physics, Boston University; University of Geneva; CERN. Gave a seminar in Computational Methods for Statistical Analysis in Experimental Physics to junior and senior students in the exchange program between Boston University and University of Geneva. Held at CERN with a full-semester hands-on project, 2010.

GRANTS

- "LPC Guest and Visitors Program", 2012–2016; Fermilab, US; Support for six partial internships awarded to my students, and four to myself in order to visit the LPC Center at Fermilab (Chicago) and work on CMS-related activities like physics analysis and upgrade work.
- "CECIRA Program 2012–2013", CEDIA (Consortium for the Advanced Internet), Quito-Ecuador; Awarded for the development of a training program in astroparticle physics.
- "CLAF Complementary Support", CLAF (Centro Latinoameircano de Física), 2013; Complementary funds awarder for the development of a training program in astroparticle physics
- "Chancellor Grant 2012–2013", Universidad San Francisco de Quito, Ecuador; Awarded as PI to start on a new astroparticle physics project named LAGO.

AWARDS

- "Premio Matilde Hidalgo" to the best emergent researcher, February 2017; awarded by the National Secretariat for Higher Education, Science, Technology and Innovation of Ecuador.
- "Premio Politécnico al Emprendimiento", May 2016; awarded by Universidad San Francisco de Quito and Colegio de Ciencias e Ingeniería for the entrepreneurship in science.

SERVICE AND LEADERSHIP POSITIONS

- Team Leader for Universidad San Francisco de Quito; CMS Experiment; 2015 – present.
- Country Representative for Ecuador; CMS Experiment; 2015 – present.
- Member of the "Collaboration Grants" Selection Committee; Universidad San Francisco de Quito; 2013 — 2015.

EVENT ORGANIZATION EXPERIENCE

- Member of the Internationl Organizing Committee; "First COFI Advanced Instrumentation and Analysis Techniques Summer School"; July 2016.
- Local Director; "8^{th} CERN Latin American School of High Energy Physics (CLASHEP 2015)"; Ibarra, Ecuador; March, 2015. Thirteen-days School with more than 60 students from around the world.

- Local Director; School "Astropartículas en LAGO: Rayos Cósmicos, GRBs, y Física Solar"; held in Quito, Ecuador; January 2014. One-week School of astroparticle physics with 40 students from 4 Southamerican countries.

ADVISED UNDERGRADUATE STUDENTS AND PROFESSIONAL DESTINATION

- Jorge Martínez (graduated 2017, Universidad San Francisco de Quito). Destination: ICTP Postgraduate Diploma Program, Trieste, Italy (2017).
- Cristina Mantilla (graduated 2016, Escuela Politécnica Nacional). Destination: Ph.D. program in particle physics at Johns Hopkins University, Baltimore, USA (2016).
- Raquel Quishpe (graduated 2015, Universidad San Francisco de Quito). Destination: Ph.D program in particle physics at University of Houston, Houston, USA (2016).
- Santiago Paredes (graduated 2015, Universidad San Francisco de Quito). Destination: Ph.D. program in particle physics at Oxford University, Oxford, United Kingdom (2016).
- Daniel Guerrero (graduated 2015, Escuela Politécnica Nacional). Destination: Ph.D. program in particle physics at University of Florida, Gainesville, USA (2016).
- Alejandro Gómez (graduated 2012, Escuela Politécnica Nacional). Destination: obtained Ph.D. in particle physics from Rutgers University, New Yersey, USA (2018); accepted posdoc position at ETH, Zurich, Switzerland (2018).

OUTREACH ACTIVITIES

- National Quarknet Coordinator; lead a group of high school teachers who work with home-made cosmic ray detectors in order to increase local interest in particle physics and motivate students in the field; 2011-present.
- National CMS Masterclass Coordinator; Lead activities with high school teachers aiming at the pedagogical study of CMS outreach data in order to increase local interest in the field; 2013-present.
- Coorganizer of the anual "Open House of Physics" at Universidad San Francisco de Quito; 2012-present.

COMPUTER SKILLS

Programming languages (C++, Python); scripting languages (Python, shell, Latex, CGI/HTML, CSS, AWK, PERL); operating systems (Unix/Linux and Windows systems); analysis, simulations and mathematical packages (ROOT, Matlab/Octave, Maple, Fluka)

LANGUAGES

- English: fluent
- French: basic
- Spanish: native

EXTRACURRICULAR ACTIVITIES

- Official "Quantum Diaries" blogger `http://www.quantumdiaries.org/bio/?user=EdgarCarrera`, Oct 2009 - Mar 2010.
- Vice president of the Physics Student Association, National Polytechnic School. Quito-Ecuador, 2003-2004.
- Practice sports and music.