





Genesis Perez

Physicist

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 [genesis.perez\[at\]kit.edu](mailto:genesis.perez[at]kit.edu)

Languages

spanish

english

french

german

Software Skills

C/C++, Python, Fortran, HTML, Wolfram Language, MATLAB, ROOT, PolyVr, Blender, Git, L^AT_EX, MsOffice, OpenOffice, Prezi, Adobe Photoshop/Gimp.

Highlights

- PhD Researcher
- VBFNLO team member (Monte Carlo simulation for Particle Physics).
- Build of predictive models of physics and mathematics.
- Experience programming in different languages.

Research

2014-2017 **Research Scientist (Ph.D.)** KIT, Germany
 Institute for Theoretical Physics, Karlsruhe Institute of Technology.
 Project: **Models for Vector Boson Scattering @LHC**.
 Supervisor: Prof. Dr. D. Zeppenfeld.

- Study and analysis of theoretical and mathematical models for particle physics.
- Code writing for VBFNLO (Monte Carlo simulation framework).
- Programming in Fortran and Mathematica. Git collaboration.
- Simulations for particle collision and expected results for experimental analysis (data analysis).
- Yearly report of results and goals.

2014 **Research Scientist (Internship, Master)** LPSC, France
 Theory Group, Laboratory of Subatomic Physics and Cosmology, Grenoble. Master Internship.

Project: **The Simplified Models approach to constraining Supersymmetry**. Supervisor: Dr. S. Kulkarni.

- Study of theoretical models for particle physics.
- Data analyses using Python and C++. Comparison and optimization of different programs used to analyze the experimental data.
- <https://dumas.ccsd.cnrs.fr/dumas-01240903>

2012 **Research Scientist (Internship, Master)** Venezuela-Sweden
 Joint program: Universidad Simon Bolivar, Venezuela and Lund University, Sweden. Work in Collaboration with the ATLAS Experiment at the European Organization for Nuclear Research (CERN).

Project: **Study of an $e^- \mu$ resonance in a R-parity violating supersymmetric model using ATLFastII**.

- Supervisor: Dr. B. Meirose, Prof. Dr. F. Febres-Cordero.
- Monte Carlo simulations for the ATLAS experiment: fast simulations development for the detectors at the experiment.
 - Understanding of the physical response of materials and how to simulate them, for different components of the Large Hadron Collider (LHC).
 - Programming in C++ and ROOT.
 - International environment and experience, having regular meetings to discuss results.
 - <https://www.lu.se/lup/publication/3045061>

Teaching

2015 **C++ Teaching Assistant** KIT, Germany
 Programming for physicists: C++, applications in physics.
 Main lecturers: Prof. Dr. M. Steinhauser, Dr. A. Mildemberger.

Engineer Projects

- 2017 **Internship** KIT, Germany
Institute for Information Management in Engineering, Karlsruhe Institute of Technology.
Project: **Virtual Reality Solar System Model**.
- Supervision of the physics behind the VR Model (Solar System): planet's orbits design and simulations of physical laws projected on a Virtual Reality environment.
 - Programming in Python, using PolyVr and Blender software.
 - Cooperation with collaborators from different technical fields.
 - <https://youtu.be/3oepYM1tgA8>

Public Relations and Leadership

- 2015-2016 **KSETA Doctoral Spoke-woman** KSETA, Germany
Elected as doctoral representative for the Executive Board at the Karlsruhe School of Elementary Particle and Astroparticle Physics: Science and Technology (KSETA). Organized the Doctoral Workshop 2015 (20 participants) from KSETA and the KSETA Plenary workshop (more than 100 participants).

Volunteer Work

- 2012 **Volunteer Forest Ranger** Caracas, Venezuela
Eagerly organized diverse activities and events to preserve the forests around the Simón Bolívar University (Venezuela) and teaching children and adults about nature preservation and conservation.
- 2011 **Language Café Programme** Lund, Sweden
A joint program between Lund University and Fagelskola Elementary School, tutoring children to speak English and Spanish.

Education

- since 2014 **Ph.D. candidate in Theoretical Physics** KIT, Germany
Karlsruhe Institute of Technology, Karlsruhe.
PhD candidate and fellow at Karlsruhe School of Elementary Particle and Astroparticle Physics: Science and Technology (KSETA).
 - **Expected:** December, 2017.
- 2013-2014 **Master 2 Sciences de la Matière** UBP, France
Université Blaise-Pascal, Clermont-Ferrand.
Master in Sciences of the Matter.
- 2006-2012 **Licenciatura en Física** USB, Venezuela
Universidad Simon Bolívar, Caracas.
Physics Diploma.
 - Exchange Student at Lund University, Sweden (2011-2012).

Accepted Grants and Fellowships

- 2014-2017 **KSETA Doctoral Fellowship** Karlsruhe, Germany
Fellowship directly funded by the Karlsruhe School of Elementary Particle and Astroparticle Physics: Science and Technology (KSETA) for outstanding researchers. The funds are given to few out of hundred applicants each year
- 2013-2014 **LPC Master Fellowship** Clermont-Ferrand, France
Master studentship for outstanding students.

Software Skills

Languages: C/C++, Python, Fortran, Wolfram Language (Mathematica), HTML

Others: MATLAB, L^AT_EX, MsOffice, OpenOffice, Prezi (software presentation), PolyVr (VR software), Blender, ROOT (CERN Analysis Framework), Adobe Photoshop/Gimp, Git

International Talks and Posters

- March 2017 **German Physics Society, DPG Spring Meeting**
Münster, Germany.
Talk: Unitarization for Vector Boson Scattering at the LHC.
- Oct. 2016 **625. WE-Heraeus-Seminar: The High Energy LHC**
Bad Honnef, Germany.
Poster Contribution: Unitarization for Vector Boson Scattering at the LHC.
- Aug. 2016 **MITP Summer School: New Physics on Trial @LHC Run II**
Mainz, Germany.
Student Talk: EFTs for Vector Boson Scattering.
- March 2015 **German Physics Society, DPG Spring Meeting**
Wuppertal, Germany
Talk: The Simplified Models Approach to Constraining Supersymmetry.
- Nov. 2014 **Asia-Europe-Pacific School on High Energy Physics, AEPSHEP 2014**
Puri, India.
Student project talk (speaker).
- Nov. 2012 **Sciences Outreach: Why Sciences?**
Caracas, Venezuela.
Talk: Why to choose a career in physics?

Publications

D. de Florian et al., *Handbook of LHC Higgs Cross Sections: 4. Deciphering the Nature of the Higgs Sector*, LHC Higgs Cross Section Working Group, arXiv:1610.07922, 2016.

G. Perez, B. Meirose and F. Febres-Cordero, *Estudio de resonancia electrón-muón en modelo supersimétrico que viola paridad-R utilizando ATLFast-II*, Acta Científica Venezolana, 65(4):184-191, 2014. www.actacientificavenezolana.org.ve/assets/pdf/65/4/articulo2.pdf.

Hobbies and Interests

- Passionate about sciences: actively participated in different outreach activities for high schools and elementary schools in Venezuela and Germany.
- Joined the 1st Annual University Physics Competition (2010) and accomplished 13th place out of 27th.
- Enthusiast about languages and world culture.
- Rock Climber and amateur climbing blogger.