

# ANA PAULA VIZCAYA HERNANDEZ

<https://anavizcaya.github.io/>

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## EDUCATION

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### **Carnegie Mellon University**

*2016 - Present*

Ph.D. in Physics

Advisor: Diana Parno

Field: Experimental physics, neutrino physics

### **Carnegie Mellon University**

*2016 - 2018*

M. Sc. in Physics

### **Universidad Nacional Autónoma de México**

*2010 - 2016*

Licenciatura en Física (B.S. in Physics)

Advisor: Andrés Sandoval Espinosa

### **University of Groningen**

*Spring 2014*

Study Abroad Program at the Netherlands

## RESEARCH EXPERIENCE

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- Member of the KATRIN Collaboration (August 2017 - Present)
  - Characterization, monitor and simulations of background in the experiment created by ions.
  - Data taking and characterization of the plasma created in the KATRIN Source Section
  - Dis/re-assembled KATRIN main detector to exchange wafer.
- Member of the TRIMS Collaboration (January 2017 - Present)
  - Detector simulations with SRIM software and data analysis
- SUMMER RESEARCH (July 2018) at Max-Planck-Institut für Physik in Munich working with Dr. Susanne Mertens on fitter analysis for the KATRIN experiment.
- SUMMER RESEARCH (Jun, Oct 2018) at Karlsruhe Institute of Technology (KIT) working with Dr. Kathrin Valerius and Dr. Magnus Schlösser on ion detection and monitoring for the KATRIN experiment.
- UNDERGRADUATE RESEARCH (2014-2016) at Instituto Nacional de Física (UNAM) as part of the High Altitude Water Cherenkov (HAWC) Collaboration, working on data analysis and monitoring the experiment.

## PAPERS

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### **Published papers**

1. Beta Decay of Molecular Tritium  
The TRIMS Collaboration, Phys. Rev. Lett. 124, 222502 (2020)
2. First operation of the KATRIN experiment with tritium  
The KATRIN Collaboration, Eur. Phys. J. C 80, 264 (2020)
3. An improved upper limit on the neutrino mass from a direct kinematic method by KATRIN  
The KATRIN Collaboration, Phys. Rev. Lett. 123, 221802 (2019)

4. Suppression of Penning discharges between the KATRIN spectrometers  
The KATRIN Collaboration, Eur. Phys. J. C 80 (2019) 9, 821
5. High-resolution spectroscopy of gaseous  $^{83m}\text{Kr}$  conversion electrons with the KATRIN experiment  
The KATRIN Collaboration, J.Phys.G 47 (2020) 6, 065002
6. Gamma-induced background in the KATRIN main spectrometer  
The KATRIN Collaboration, Eur. Phys. J. C 79 (2019) 9, 807
7. Muon-induced background in the KATRIN main spectrometer  
The KATRIN Collaboration, Astroparticle Physics, Vol. 108, pp. 40-49 (2019)
8. The KATRIN Superconducting Magnets: Overview and First Performance Results  
The KATRIN Collaboration, Journal for Instrumentation, 13(8), T08005 (2018)
9. Reduction of stored-particle background by a magnetic pulse method at the KATRIN experiment  
The KATRIN Collaboration, Eur. Phys. J. C, 78:778 (2018)
10. Calibration of high voltages at the ppm level by the difference of  $^{83m}\text{Kr}$  conversion electron lines at the KATRIN experiment  
The KATRIN Collaboration, Eur. Phys. J. C, 78:368 (2018)
11. First transmission of electrons and ions through the KATRIN beamline  
The KATRIN Collaboration, JINST 13 P04020 (2018)

## GRANTS AND AWARDS

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KSETA grant (For a summer research at KIT, Karlsruhe Germany)	2018
Poster finalist at Neutrino 2018	2018
Juan Manuel Lozano Mejía Diploma (Recognition for the excellent work in bachelor thesis)	2016
Becario Internacional (Scholarship to study abroad for one semester given by UNAM-DGESI)	2014

## CONTRIBUTED TALKS AND POSTERS

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- *Talk:* Studies of background ions of the KATRIN experiment  
APS April Meeting (Future virtual meeting 2021)
- *Poster:* Ion monitoring with the KATRIN experiment  
XXIX International Conference on Neutrino Physics (Virtual meeting 2020)  
Co-authors: Fabian Friedel and Magnus Schlösser
- *Poster:* Ion retention, blocking and monitoring within the KATRIN experiment  
Heraeus Seminar (Bad Honnef, Germany 2019)
- *Talk:* Ion retention, blocking and monitoring within the KATRIN experiment  
APS April Meeting (Denver, USA 2019)
- *Poster:* Detecting light ions and electrons with TRIMS silicon detectors  
XXVIII International Conference on Neutrino Physics and Astrophysics (Germany 2018)  
Co-author: Woo-Jeong Baek
- *Poster:* Monitoreo del Observatorio HAWC utilizando muones verticales  
Congreso Nacional de Física (México 2015)

## TEACHING EXPERIENCE

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- *Teaching Assistant:* Experimental Physics and Basic Experimental Physics  
Department of Physics, Carnegie Mellon University. Professor: Barry Luokkala  
2016 - 2017

- *Teaching Assistant:* Física Nuclear y Subnuclear

2015 - 2016

Universidad Nacional Autónoma de México. Professor: Hermes León Vargas

## SERVICE

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- 2020 Panellist in *Underrepresented Minorities Roundtable*  
APS Conference for Undergraduate Women in Physics (CUWiP), Pittsburgh PA
- 2019 Chair of FGSA APS April meeting session *Publishing in Areas Outside of Peer Reviewed Journals*
- 2019 Panellist in APS April meeting *A Panel Discussion on Physics Graduate School*
- 2019 FGSA representative at the annual leadership convocation of APS.
- 2018,2019 APS *Forum of Graduate Students Affairs* (FGSA) Treasurer.
- 2018 USA Organizer of *CAM 2018 conference* (Canadian American Mexican graduate student physics conference)
- 2017-2018 Organizer of *Constructive Interference* meetings for women and minorities in science at Carnegie Mellon University

## LANGUAGES

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**Spanish** (native); **English** (fluent).