

# DIEGO MENDOZA GRANADA

Date of birth: 2 April 1999  $\diamond$  Citizenship: Spanish  
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## EDUCATION

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**Sorbonne Université & Université Paris Cité**, Paris, France. September 2022 - July 2024  
Master year 2: Nuclei, Particles, Astroparticles and Cosmology (NPAC). Average: 16.32/20  
Master year 1: Paris Physics Master. Average: 16.128/20

**Universidad de Granada**, Granada, Spain  
Bachelor's Degree in Physics (240 ECTS). Average: 84.2/100 September 2017 - July 2022

**École Polytechnique Fédérale de Lausanne**, Lausanne, Switzerland  
Exchange year. September 2020 - July 2021

## HONORS AND SCHOLARSHIPS

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**Doctoral School Physique en Île-de-France** 2024/2027  
Funding to pursue a doctoral thesis in the Laboratory of Nuclear and High Energy Physics (LPNHE) at Sorbonne University .

**Initiative Physique des Infinis, Alliance Sorbonne Université** 2023/2024  
Funding of 10k Euros to pursue Master year 2 studies at Sorbonne Université.

**Université Paris Cité Scholarship** 2022/2023  
Funding of 4k Euros to pursue Master year 1 studies at Université Paris Cité.

**Research Awards for Undergraduate Students 2021. GEFES-RESEF**  
**Swiss-European Mobility Programme** 2020/2021  
Grant of 4400 CHF to participate in the exchange program at École Polytechnique Fédérale de Lausanne.

## RESEARCH EXPERIENCE

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**Master's thesis. LPNHE, Sorbonne University.** *March 2024- present*  
Dalitz-plot analysis of the three-body charmless decay  $B^0 \rightarrow K^+ K^- K_S^0$ . Contribution to the real-time analysis system of the LHCb experiment in track reconstruction efficiency.  
Supervisor: Prof. Eli Ben-Haim (LPNHE)

**Short Term Internship. EP-LBD, CERN.** *May - September 2023*  
Development of high-performance algorithms in GPUs for Long and Downstream track reconstruction in the high-level trigger of the LHCb experiment.  
Supervisor: Dr. Christina Agapopoulou (CERN)

**JAE Intro ICU Internship, Spanish National Research Council.** *January - October 2022*  
Signal Reconstruction in particle physics experiments with Machine Learning in FPGAs and GPUs.  
Supervisors: Prof. Arantza Oyanguren (IFIC), Prof. Luca Fiorini (IFIC)

**Summer Student Programme, CERN.** *July - October 2021*  
Study of the LHCb detector sensitivity for long-lived particles signatures.  
Supervisors: Prof. Arantza Oyanguren (IFIC), Dr. Louis Henry (CERN)

## PUBLICATIONS

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V. Gorkavenko et al. **LHCb potential to discover long-lived new physics particles with lifetimes above 100 ps.** *Eur. Phys. J. C* 84, 608 (2024).

L. Calefice, et al. **Impact of the High Level Trigger for detecting Long-Lived Particles at LHCb.** *Front. Big Data* 5:100873 (2022).

## OTHER PROJECTS

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**Study of Lambda Hypernuclei from mean-field theory.** Undergraduate dissertation, University of Granada.

Supervisor: Prof. Marta Anguiano Millán (UGR) February - July 2022

**Brain performance and criticality in a neuronal model of dynamic synaptic nodes.** Research Awards for Undergraduate Students 2021. GEFES-RESEF.

Supervisor: Prof. Joaquín Marro (UGR) September - December 2022

**Searching for hidden signatures of physics beyond the Standard Model.** Summer Student Programme, CERN.

Supervisor: Dr. Louis Henry (CERN), Prof. Arantza Oyanguren (IFIC) July - October 2021

## CONFERENCE CONTRIBUTIONS

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**Impact of the High Level Trigger for detecting Long-Lived Particles at LHCb,** Twelfth workshop of the Long-Lived Particle Community. October 2022.

**Trigger challenges for detecting long-lived particles at LHCb,** XXXVIII Bienal Meeting of the Spanish Royal Physics Society. July 2022, Murcia, Spain.

## TEACHING EXPERIENCE

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**Teacher's Assistant, Biomedical Imaging Group, EPFL.**

Development of Python projects for laboratory sessions in the courses "Signals and System I and II". (210 hours) Supervisor: Prof. Michael Unser February - July 2021

## OUTREACH AND MENTORING

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**Scientific Animation in Parque de las Ciencias, Granada, Spain**

Internship. Coordination of open day activities and guidance of foreign visitors.

(100 hours, 2 ECTS) Supervisor: Gonzalo Rodríguez Morillas February - July 2019

**University of Granada:**

Contribution in two talks delivered to high school students titled "The origin of the elements". Coordination of the workshop "Recreational Physics" along with Prof. Miguel Cabrerizo (UGR).

## RELEVANT COURSES AND ATTENDANCES

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Python for scientific computing (30 + 45 hours). C++ for scientific computing (15 hours). Summer School on Quantum Computing: Software for Near Term Quantum Devices by International University Menéndez Pelayo (25 hours). Fundamentals of accelerated computing with CUDA C/C++ (NVIDIA Deep Learning Institute)

107<sup>th</sup> LHCb week (CERN). 2<sup>nd</sup> Computing Challenges for the HL-LHC School (IFIC). Summer Student Lecture Program (CERN). Student Session (LHCb, CERN). Introduction to Semiconductor Detectors for High-Energy Physics with the Educational Alibava System EASy.

## SKILLS

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**Programming languages:** C++, Python, Fortran, C, CUDA, VHDL (notions), Bash (notions)

**Languages:** Spanish (native), English (C1), French (B2)