

Ana Catalán Benavent

Curriculum Vitae

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Education

- 2018–2019 **Master in advanced physics**, *Speciality of Nuclear and Particle Physics, University of Valencia, Valencia.*
- 2014–2018 **Degree in Physics**, *University of Valencia, Valencia.*
- 2008–2014 **High School**, *Colegio María Inmaculada, Carcaixent, Valencia.*

Academical Experience

- November 2019 –Present **CSIC (scientific research council) project contract**, *Development and tests of monolithic pixel technologies for the Belle II Vertex Detector upgrade, IFIC (Corpuscular Physics Institute), Paterna, Valencia.*
- April 6th-8th, 2021 **13th Terascale Detector Workshop**, *Online Workshop.*
- March 15th-18th, 2021 **International Workshop on Future Linear Coliders, LWSS2021**, *Online Workshop.*
- March 15th, 2021 **8th Linear Collider Physics School**, *Online Workshop.*
- December 15th-17th, 2020 **Belle II VXD RD Workshop**, *Online Workshop.*
- June 3rd-5th, 2020 **36th RD50 Workshop**, *Online Workshop.*
- December 17th- 18th, 2019 **Belle II CMOS upgrade workshop**, *IFIC (Corpuscular Physics Institute), Paterna, Valencia.*
- December 2nd-13th, 2019 **Research stay**, *CMOS vertex detector upgrade for the Belle II Experiment, Physics Institute, University of Bonn, Germany*
- March 2019 – September 2019 **Master Thesis**: "Simulations of scintillating fibers in GEANT4 to measure "Dark Current" in high-gradient accelerators" in the Future Colliders Group, IFIC (Corpuscular Physics Institute), University of Valencia.
- April 2018 –July 2018 **Bachelor Thesis**: "Characterization of LuAG:Ce scintillating fibre for the construction of a Compton Camera" in the RWTH Aachen University, Aachen, Germany.
- September 2017 –August 2018 **Eramus+ program** in the RWTH Aachen University, Aachen, Germany.
- July 2017 **Extracurricular practices in Aras de los Olmos' Observatory**. Including direct observations and data acquisition with telescopes and subsequent reconstruction and analysis of the images.
- September 2016 –June 2017 **"Entreiguals" program**, University of Valencia. Incoming Student Mentor of students from the Physics Degree.
- April 2016 and April 2017 **Volunteer at the "Experimenta"**, University of Valencia.
- 2016 **"Motivem" program**. Program for entrepreneurs who wants to start a new business.

- September 2015 **"Entreiguals" program**, University of Valencia. First Year Student Mentor of students from the Physics Degree.
–June 2016
- July 2013 **"Campus Científico" program**, University of Valencia, Summer School for High School Students, in my case, learning about basic physics.

Research Activity

- H. Abramowicz, A. Catalan *et al.* [ILD Concept Group], "International Large Detector: Interim Design Report," [arXiv:2003.01116 [physics.ins-det]].
- H. Abramowicz, A. Catalan *et al.* [ILD], "The ILD detector at the ILC," [arXiv:1912.04601 [physics.ins-det]].
- R. Marco, A. Catalan *et al.*, "First tests and characterization of the RD50-MPW2 active pixel matrix, bandgap voltage reference and SEU tolerant memory," 36th RD50 Workshop. 3-5 June 2020.
- M. Franks, A. Catalan *et al.*, "Initial I-V and e-TCT measurements of a depleted CMOS sensor within the CERN-RD50 collaboration," 36th RD50 Workshop. 3-5 June 2020.
- C. Irmler, A. Catalan *et al.*, "Data acquisition system for the characterization of the RD50 HV-CMOS active pixel matrix prototypes," 36th RD50 Workshop. 3-5 June 2020.
- C. Marinas, A. Catalan *et al.*, "Belle II CMOS Vertex Detector Upgrade," Belle II CMOS Upgrade Workshop, 17-18 December 2019.

IT Skills

Programming Languages MATLAB, C++, PYTHON
Operative system Windows, Linux
Others Wolfram Mathematica, LATEX, ROOT, GEANT4, Gate, VHDL

Languages

Spanish Mother Language
Catalan Mother Language
English C1 level; English Advanced Certificate. Cambridge English.

About me

During my Master thesis, I learned how to use GEANT4 in order to simulate scintillating fibres and other types of detectors. This tool is based in C++ language. The main goal was to test if it was possible to measure the radiation profile of a Faraday Cup, also simulated, by using scintillating fibres, and therefore obtain information about the dark-current energy distribution.

Since November, 2019, I have been working in my PhD. So far, I have developed Python scripts, to characterise a variety of CMOS pixels flavors, including the determination of the backside voltage breakdown and measuring the leakage currents of different substrate resistivities. I have also learned how to perform static measurements (IV and CV curves) using the probe station in the clean room.