Date of the CVA	21/01/2021

Section A. PERSONAL DATA

Name and Surname	JORGE DUARTE CAMPDERROS		
DNI/NIE/Passport		Age	
Researcher's identification number	Researcher ID	F-5025-2018	
	Scopus Author ID	35221294800	
	ORCID	0000-0003-0687-5214	

* Obligatorio

A.1. Current professional situation

Institution	Consejo Superior de Investigaciones Científicas		
Dpt. / Centre	Particle Physics / Instituto de Física de Cantabria		
Address			
Phone		Email	
Professional category	Maria de Maeztu Postdoctoral Fellow	Start date	2019
Keywords	Interaction mechanisms; Fuentes de radiacion y detectores [eng; Future experiments; Physics - High energies - Phenomenology; Electronic structure; Data analysis methods; Instrumentations and detectors for experiments in physics, astrophysics, etc; Statistics and probability		

A.2. Academic education (Degrees, institutions, dates)

Bachelor/Master/PhD	University	Year
Doctor en Ciencias, Tecnología y Computación en Programa Oficial de Posgrado en Ciencias, Tecnología y Computación	Universidad de Cantabria	2014
Máster en física y tecnología física por la Universidad de Cantabria	Universidad de Cantabria	2008
Licenciado en Física	Universitat de Barcelona	2007

A.3. General quality indicators of scientific production

I am member of the CMS (one of the main experiments of the Large Hadron Collider at CERN) collaboration, and was previously member of the ATLAS collaboration. I also have been part of the proposals of two new experiments, ILD and SiD, for the future linear collider (ILC) and in a R&D collaboration in extreme radiation detectors, RD50. I am signing more than 950 articles, with a h-Index of 99 from Scopus (https://www.scopus.com/authid/detail.uri?authorId=35221294800), or h-index of 105 from Web of Science (https://publons.com/researcher/1952080/jordi-duarte-campderros), and with a total number of citations of 57229, and an average of 2861.45 citations/year . Out of those articles, I am the main author, editor or I directly contributed in **around 26 papers,**which are only ones I listed in this CVA. I have a large number of internal or technical reports, reflecting my personal contribution and degree of participation in the collaborations. I have reviewed proceedings contributions for the Vertex 2017 conference and asked to act as external referee for the Peruvian national projects call. I am also member of the editorial board of the Journal of Nuclear Engineering.

I gave **20 talks** and presented **3 posters** on several renewed **international conferences and workshops**, being selected by the collaborations to present on its behalf. I also have been invited to present on international workshops personal or co-authored contributions.

Section B. SUMMARY OF THE CURRICULUM

As an experimental physicist, my scientific interests broadly lies in the physics frontier, in the field of Elementary Particle Physics (EPP), and can be summarize into two main lines of

research: the **study** of potential **new phenomena** in EPP and the **R&D** of technology **to detect particles** in EPP experiments.

I started my PhD at IFCA (Spain) around end-2007, to work on both of those lines, granted with a University of Cantabria pre-doctoral fellowship. During my PhD I was devoted to study Standard Model (SM) processes within the **CMS** experiment and R&D for **future linear collider** (ILC). I was involved in several SM analysis topics which includes **flavor physics**, event selection (**trigger**) on **Higgs searches** and production properties for some key electroweak processes, in particular the **WZ cross section measurement**, which became the thesis of my PhD dissertation, defended in February 2014 and remarked as "Excellent Cum Laude". The R&D line was covered by incorporating myself into the **ILC collaboration** where I developed the **software**simulation of the forward tracker disks' silicon sensors and carried out physics bench-marking studies on the forward tracker.

In my post-doctoral stay at the Tel Aviv University (September 2014-April 2019, Israel), I followed the next natural step and joined an unconventional new physics search of long-lived particles within the SUSY group of the **ATLAS** collaboration to eventually lead and be responsible for the long-lived particle search on **displaced vertices**. In the context of this search, and linking with the instrumental line, I worked on the improvement of new tracking algorithms for particles not coming from the interaction point. Those developments were eventually included as part of the **official ATLAS software** reconstruction.

My next post-doctoral position was at CERN as Project Associate with University of Cantabria (May 2017-October 2019), followed by my current position as Maria de Maeztu Post-doctoral fellow with IFCA (since November 2019). In there, I have focused on the **characterization** of new extreme **radiation-tolerant** pixel **sensors** for tracker detectors to be mounted in the CMS upgrade project for the HL-LHC. I participated with a leading position and responsibility in all test beam campaigns for the CMS Inner Tracker (IT) upgrade at CERN and DESY. I am responsible as well of the **implementation** of the **3D pixel** technology in the **CMS** full **simulation**. I have been carrying out a parallel line of work by studying the new **Inverse-LGADs** sensor technologies as time and position detectors, while, exploring its possibilities in the CMS reconstruction chain with the new **MTD** detector. During this period, I have been awarded with two Corresponding Associate periods at CERN. I am also member of a R&D collaboration in extreme radiation sensors, **RD50**.

I am main author or direct contributor of **26** articles, out of more than 1000, including the technical reports for proposing two new experiments (ILD and SiD for the ILC). As a result of my leadership and contributions, I have given many talks in international conferences and workshops (**23**), and I have acquired responsibilities and leading roles in several projects. I have **mentored** and **supervised** 3 undergraduate students' projects, including a **Summer Student** project at CERN, and I am currently **co-supervising** 2 PhD theses and 2 Final Degree projects. I am also **teaching** 1 undergraduate and 1 Master degree physics courses at the University of Cantabria.

Section C. MOST RELEVANT MERITS (ordered by typology)

C.1. Publications

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores

1 **Scientific paper**. Duarte-Campderros, J.; Perez, G.; Schlaffer, M.; Soffer, A.2020. Probing the Higgs--strange-quark coupling at e+ e- colliders using light-jet flavor tagging Physical Review D. American Physical Society. 101-11, pp.115005-115011.

2 **Scientific paper**. CMS Tracker Group of the CMS Collaboration. 2020. Experimental study of different silicon sensor options for the upgrade of the CMS Outer Tracker Journal of Instrumentation. IOPScience. 15-P04017.

3 **Scientific paper**. Garcia Alonso, A.; Curras, E.; Duarte-Campderros, J.; et al; Manna, M.2020. Test beam characterization of irradiated 3D pixel sensors Journal of Instrumentation. {IOP} Publishing. 15-03, pp.C03017-C03017.

4 **Scientific paper**. Duarte-Campderros, J.; Curras, E.; Fernandez, M.; et al; Manna, M.2019. Results on proton-irradiated 3D pixel sensors interconnected to RD53A readout ASIC Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment. Elsevier. 944-162625.

5 **Scientific paper**. Curras, E.; Carulla, M.; Centis Vignali, M.; et al; Vila, Iván. 2019. Inverse Low Gain Avalanche Detectors (iLGADs) for precise tracking and timing applications Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment. ISSN 0168-9002.

6 **Scientific paper**. E. Curras; J. Duarte-Campderros; M. Fernández; et al; S. Wiederkehr. 2019. Study of small-cell 3D Silicon Pixel Detectors for the High Luminosity LHC Nuclear Inst. and Methods in Physics Research, A. Elsevier. 931, pp.127-134.

7 **Scientific paper**. Meschini, MM.; Ceccarelli, R.; Dinardo, M.; et al; Boscardin, M.2019. First Results on 3D Pixel Sensors Interconnected to the RD53A Readout Chip after Irradiation to 1×10E16 neq cm?2 Journal of Instrumentation. IOP Publishing Ltd and Sissa Medialab. 14-06, pp.C06018-C06018.

8 **Scientific paper**. ATLAS Collaboration. 2018. Search for long-lived, massive particles in events with displaced vertices and missing transverse momentum in $\sqrt{s}$ = 13 TeV pp collisions with the ATLAS detector Physical Review D. APS Physics. D-97.

9 **Scientific paper**. ATLAS Collaboration. 2017. Study of the material of the ATLAS inner detector for Run 2 of the LHC Journal of Instrumentation. 12, pp.12009.

10 **Scientific paper**. ATLAS Collaboration. 2016. A measurement of material in the ATLAS tracker using secondary hadronic interactions in 7 TeV pp collisions Journal of Instrumentation. International School for Advanced Studies, Institute of Physics. 11.

11 **Scientific paper**. CMS Collaboration. 2014. Measurement of Higgs boson production and properties in the WW decay channel with leptonic final states Journal of High Energy Physics. Springer Berlin Heidelberg. 01.

12 **Scientific paper**. CMS Collaboration. 2013. Measurement of the W+W- cross section in pp collisions at vs = 7 TeV and limits on anomalous WWgamma and WWZ couplings European Physical Journal C. Springer Berlin Heidelberg. 73, pp.1-22. ISSN 1434-6044.

13 **Scientific paper**. S. Aplin; M. Boronat; D. Dannheim; et al; M. Vos. 2013. Forward tracking at the next e+e? collider part II: experimental challenges and detector design Journal of Instrumentation. SISSA and IOP Publishing. 8-6.

14 **Scientific paper**. CMS collaboration. 2012. Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC Physics Letters B. Elsevier. 716-1, pp.30-61.

15 **Scientific paper**. CMS collaboration. 2011. Upsilon production cross section in p p collisions at ? s = 7 ? ? TeV Physical Review D. American Physical Society. 83-11.

16 **Scientific paper**. CMS collaboration. 2011. Measurement of WW Production and Search for the Higgs Boson in pp Collisions at sqrt(s) = 7 TeV Physics Letters B. Elsevier. 699-1-2, pp.25-47.

17 **Scientific paper**. CMS collaboration. 2011. Measurement of the lepton charge asymmetry in inclusive W production in pp collisions at ?s=7TeV Journal of High Energy Physics. Springer. 04.

18 **Scientific paper**. JORGE DUARTE CAMPDERROS; SVEN HEINEMEYER; RICHARD WILLIAM JARAMILLO ECHEVERRIA; MARIA AMPARO LOPEZ VIRTO; CELSO MARTINEZ RIVERO; ALBERTO RUIZ JIMENO; IVAN VILA ALVAREZ. 2009. Infrared-transparent microstrip detectors Nuclear Instruments & Methods in Physics Research Section A-Accelerators, Spectrometers, Detectors and Associated Equipment. 598-1, pp.84-85. ISSN 0168-9002.

19 **Scientific-technical report**. 2019. A MIP Timing Detector for the CMS Phase-2 Upgrade CERN-LHCC-2019-003.

20 **Scientific-technical report**. ATLAS Collaboration. 2017. Performance of the reconstruction of large impact parameter tracks in the ATLAS inner detector ATLAS PUB Note.

21 **Scientific-technical report**. CMS Collaboration. 2013. Measurement of WZ production rate CMS Physics Analysis Summary.

22 **Scientific-technical report**. H. Baer et al.2013. The International Linear Collider Technical Design Report - Volume 2: Physics arXiv:1306.6352 [hep-ph].

23 **Scientific-technical report**. T. Behnke et el.2013. The International Linear Collider Technical Design Report - Volume 4: Detectors arXiv:1306.6329 [physics.ins-det].
24 **Scientific-technical report**. ILD Collaboration. 2010. The International Large Detector: Letter of Intent arXiv:1006.3396 [hep-ex].
25 **Scientific-technical report**. SiD Collaboration; H. Aihara (editor); P. Burrows (editor); M. Oreglia (editor). 2009. SiD Letter of Intent arXiv:0911.0006 [physics.ins-det].
26 **Scientific-technical report**. CMS collaboration. 2008. Measurement of the Muon Charge Asymmetry in the pp to W+- process at sqrt(s) = 14 TeV CMS Physics Analysis Summary.

C.2. Participation in R&D and Innovation projects

1 MDM-2017-0765: Proyecto Excelencia Maria de Maeztu Enrique Martinez Gonzalez. (Instituto de Física de Cantabria (IFCA)). 01/06/2018-30/06/2022. 2.000.000 €.
2 FPA2017-85155-C4-4-R: Participación en el experimento CMS del LHC: RUN 2 AEI; FEDER; UE. Celso Martinez Rivero. (Instituto de Física de Cantabria (IFCA)). 01/01/2018-31/12/2020. 502.150 €.
3 Frontier Particle Physics with the ATLAS Detector at the Large Hadron Collider, Israel Science Erez Etzion. (Tel Aviv University). 01/01/2017-31/12/2020. 1.288.450,35 €.
4 AIDA-2020. European Union's Horizon 2020 (Grant agreement ID: 654168) European National Reasearch and Educational entities. (CERN (Coordinated by)). 01/05/2015-30/05/2020. 29.800.000 €.
5 AIDA (Advanced European Infrastructures for Detectors at Accelerators) European Commision (FP7 Grant agreement 262025); European National Reasearch and educational Entities. Laurent Serin. (CERN (Coordinated by)). 01/02/2011-31/01/2015. 26.000.000 €.
6 FPA2014-55295-C3-1-R: Participación en el experimento CMS del LHC: RUN2 y pixel upgrade para alta luminosidad (MINECO/FEDER,UE) MINISTERIO DE ECONOMIA Y COMPETITIVIDAD. Celso Martinez Rivero. (Instituto de Física de Cantabria (IFCA)). From 01/01/2015. 1.344.189 €.
7 FPA2011-28694-C02-01: Física en colisionadores hadrónicos MINISTERIO DE ECONOMIA Y COMPETITIVIDAD - SECRETARIA DE ESTADO DE INVESTIGACION, DESARROLLO E INNOVACION. Celso Martinez Rivero. (Instituto de Física de Cantabria (IFCA)). From 01/01/2012. 839.740 €.
8 FPA2010-21638-C02-01: Centro de procesado de datos de colisiones del LHC: TIER-2 Federado para el experimento CMS Ministerio de Economia y Competividad. Francisco Matorras Weining. (Instituto de Física de Cantabria (IFCA)). From 01/01/2011. 718.619 €.
9 Física en Colisionadores Hadrónicos (Experimentos CMS y CDF) MINISTERIO DE EDUCACION Y CIENCIA; SOCIEDAD REGIONAL CANTABRIA I+D+I, S.L. (IDICAN). Maria Teresa Rodrigo Anoro. (Instituto de Física de Cantabria (IFCA)). From 01/01/2009. 1.199.469 €.
10 Centro Nacional de física de Partículas, Astropartículas y Nuclear (CPAN) CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS (CSIC); MINISTERIO DE EDUCACION Y CIENCIA; VICERRECTORADO DE INVESTIGACION. Alberto Ruiz Jimeno. (Instituto de Física de Cantabria (IFCA)). From 10/12/2007. 342.059,19 €.
11 Física en colisionadores hadrónicos (CDF y CMS) MINISTERIO DE EDUCACION Y CIENCIA; SOCIEDAD REGIONAL CANTABRIA I+D+I, S.L. (IDICAN). Maria Teresa Rodrigo Anoro. (Instituto de Física de Cantabria (IFCA)). From 15/10/2005. 764.820 €.

C.3. Participation in R&D and Innovation contracts

C.4. Patents