

CV Date

12/01/2025

Part A. PERSONAL INFORMATION

First Name	Fernando		
Family Name	Hueso González		
Sex	Male	Date of Birth	24/10/1989
ID number Social Security, Passport	29210313Z		
URL Web	http://ific.uv.es/~ferhue		
Email Address	fernando.hueso@uv.es		
Open Researcher and Contributor ID (ORCID)	0000-0003-3217-0090		

A.1. Current position

Job Title	Distinguished Researcher		
Starting date	2020		
Institution	Instituto de Física Corpuscular		
Department / Centre	Experimental / CSIC - Universitat de València		
Country	Spain	Phone Number	963544193
Keywords	Dosimetric; Fuentes de radiacion y detectores [eng; physical instrumentation in biomedicine]		

A.2. Previous positions (Research Career breaks included)

Period	Job Title / Name of Employer / Country
2017 - 2019	Postdoc fellow / Massachusetts General Hospital and Harvard Medical School
2016 - 2016	Research internship / Target Systemelektronik
2012 - 2015	Marie Curie Fellow - PhD student / Technische Universität Dresden
2012 - 2012	Master trainee in the medical physics lab / Universitat de València - IFIC
2010 - 2011	Fellowship in the Atomic, Molecular and Nuclear Physics Departament / Universitat de València

A.3. Education

Degree/Master/PhD	University / Country	Year
Dr. rer. medic.	Technische Universität Dresden / Germany	2016
M. Sc.	Facultat de Física - Universitat de València / Spain	2012
Graduado	Facultat de Física - Universitat de València / Spain	2011

Part B. CV SUMMARY

I did my Phd in Dresden with a Marie Curie - Initial Training Network fellowship. I specialized in the field of range verification in proton therapy, with the goal to improve the quality of the treatment of cancer patients. I received training in programming, analysis, medical physics, proton therapy, data acquisition systems and electronics.

Between January 2017 and December 2019, I was hired by Harvard Medical School and Massachusetts General Hospital as a postdoctoral research fellow. In this centre, we are translating for the first time a prompt gamma-ray spectroscopy prototype to the clinics, with the goal to verify the proton range with 1 millimeter precision, thus improving the treatment delivered to the patients. In June 2020, I started my position as Distinguished Researcher,

obtaining a funding grant of 357250 EUR for the project 'Novel cost-effective proton range verification based on coaxial prompt gamma-ray monitoring (CDEIGENT/2019/011)'.

In 2022, I applied for an ERC starting grant and was evaluated positively at Phase I, advancing to the interviewing stage (Phase II). Proof of my maturity is the R3 certificate obtained and the prestigious award handed over by the IEEE society in 2022: the Bruce H. Hasegawa Young Investigator Medical Imaging Science Award.

Part C. RELEVANT ACCOMPLISHMENTS

C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (n° x / n° y): position / total authors. If applicable, indicate the number of citations

- 1 **Scientific paper.** Pablo Martín-Luna; Daniel Esperante; José Vicente Casaña; et al; (16/16) Fernando Hueso-González (AC). 2025. Effects of the passive voltage divider in a photomultiplier tube: Analytical model, simulations and experimental validation. Sensors and Actuators A-Physical. 381-116057, pp.1-11. ISSN 0924-4247. <https://doi.org/10.1016/j.sna.2024.116057>
- 2 **Scientific paper.** (1/9) Fernando Hueso-González (AC); Jonathan Berthold; Patrick Wohlfahrt; et al; Christian Richter. 2024. Inter-center comparison of proton range verification prototypes with an anthropomorphic head phantom. Physics in Medicine and Biology. Taylor and Francis. 69-22, pp.225010. ISSN 0031-9155. <https://doi.org/10.1088/1361-6560/ad8856>
- 3 **Scientific paper.** Pablo Martín-Luna; Daniel Esperante; Antonio Fernández Prieto; et al; (15/15) Fernando Hueso-González (AC). 2024. Simulation of electron transport and secondary emission in a photomultiplier tube and experimental validation. Sensors and Actuators A-Physical. 365-114859, pp.1-10. ISSN 0924-4247. <https://doi.org/10.1016/j.sna.2023.114859>
- 4 **Scientific paper.** L. Barrientos; M. Borja-Lloret; J.V. Casaña; et al; G. Llosá.; (4/10) F. Hueso-González. 2023. System characterization and performance studies with MACACO III Compton camera. Radiation Physics and Chemistry. ISSN 0969-806X. <https://doi.org/10.1016/j.radphyschem.2023.110922>
- 5 **Scientific paper.** (1/8) Fernando Hueso-González; José Vicente Casaña Copado; Antonio Fernández Prieto; Abraham Gallas Torreira; Edgar Lemos Cid; Ana Ros García; Pablo Vázquez Regueiro; Gabriela Llosá. 2022. A dead-time-free data acquisition system for prompt gamma-ray measurements during proton therapy treatments. Nuclear Instruments & Methods in Physics Research Section A-Accelerators Spectrometers Detectors and Associated Equipment. 1033, pp.166071. ISSN 0168-9002. <https://doi.org/10.1016/j.nima.2022.166701>
- 6 **Scientific paper.** R.Viegas; J.Roser; L.Barrientos; et al; G.Llosá.; (8/10) F.Hueso-González. 2022. Characterization of a Compton camera based on the TOFPET2 ASIC. Radiation Physics and Chemistry. 202, pp.110507. ISSN 0969-806X. <https://doi.org/10.1016/j.radphyschem.2022.110507>
- 7 **Scientific paper.** (1/4) Fernando Hueso-González; Damián Ginestar; José L. Hueso; Jaime Riera. 2021. Comments on 'SPICE Model of Photomultiplier Tube Under Different Bias Conditions'. IEEE Sensors Journal. 21-15, pp.17395-17402. ISSN 1530-437X. <https://doi.org/10.1109/JSEN.2021.3062428>
- 8 **Scientific paper.** (1/4) F. Hueso-González; Patrick Wohlfahrt; David Craft; Kyla Remillard. 2020. An open-source platform for interactive collision prevention in photon and particle beam therapy treatment planning. Biomedical Physics and Engineering Express. ISSN 2057-1976. <https://doi.org/10.1088/2057-1976/aba442>
- 9 **Scientific paper.** (1/2) Fernando Hueso-González; Thomas Bortfeld. 2020. Compact Method for Proton Range Verification Based on Coaxial Prompt Gamma-Ray Monitoring: a Theoretical Study. IEEE Transactions on Radiation and Plasma Medical Sciences. IEEE Xplore. 4-2, pp.170-183. ISSN 2469-7311. <https://doi.org/10.1109/TRPMS.2019.2930362>

- 10 **Scientific paper.** Theresa Werner; Jonathan Berthold; (3/10) Fernando Hueso-González; et al; Guntram Pausch. 2019. Processing of prompt gamma-ray timing data for proton range measurements at a clinical beam delivery. *Physics in Medicine and Biology*. Taylor and Francis. 64-10, pp.105023. ISSN 0031-9155. <https://doi.org/10.1088/1361-6560/ab176d>
- 11 **Scientific paper.** (1/5) Fernando Hueso González; Moritz Rabe; Ruggieri, Thomas A; Thomas Bortfeld; Verburg, Joost M. 2018. A full-scale clinical prototype for proton range verification using prompt gamma-ray spectroscopy. *Physics in Medicine and Biology*. Taylor and Francis. 63-18, pp.185019. ISSN 0031-9155. <https://doi.org/10.1088/1361-6560/aad513>
- 12 **Scientific paper.** E. Muñoz; J. Barrio; D. Bemmerer; et al; G. Llosá; (6/12) F. Hueso-González. 2018. Tests of MACACO Compton telescope with 4.44 MeV gamma rays. *Journal Of Instrumentation*. 13-05. ISSN 1748-0221. <https://doi.org/10.1088/1748-0221/13/05/P05007/pdf>
- 13 **Scientific paper.** (1/5) Hueso-González, F.; G. Pausch; J. Petzoldt; Römer, Katja Ellen; W. Enghardt. 2017. Prompt gamma rays detected with a BGO block Compton camera reveal range deviations of therapeutic proton beams. *IEEE Transactions on Radiation and Plasma Medical Sciences*. IEEE Xplore. 1-1, pp.76-86. ISSN 2469-7311. <https://doi.org/10.1109/TNS.2016.2622162>
- 14 **Scientific paper.** H. Rohling; M. Priegnitz; S. Schoene; A. Schumann; W. Enghardt; (6/8) Hueso-González, F.; G. Pausch; F. Fiedler. 2017. Requirements for a Compton camera for in-vivo range verification of proton therapy. *Physics in Medicine and Biology*. Taylor and Francis. 62-7, pp.2795. ISSN 0031-9155. <https://doi.org/10.1088/1361-6560/aa6068>
- 15 **Scientific paper.** (1/5) Fernando Hueso-González; Facundo Ballester; Jose Perez-Calatayud; Frank-André Siebert; Javier Vijande. 2017. Towards clinical application of RayStretch for heterogeneity corrections in LDR permanent 125-I prostate brachytherapy. *Brachytherapy*. 16-3, pp.616-623. ISSN 1538-4721. <https://doi.org/10.1016/j.brachy.2017.02.005>
- 16 **Scientific paper.** J Petzoldt; Roemer, Katja Ellen; W Enghardt; et al; G Pausch; (6/12) Hueso-González, Fernando. 2016. Characterization of the microbunch time structure of proton pencil beams at a clinical treatment facility. *Physics in Medicine and Biology*. Taylor and Francis. 61-6, pp.2432. ISSN 0031-9155. <https://doi.org/10.1088/0031-9155/61/6/2432>
- 17 **Scientific paper.** (1/8) Hueso González, Fernando; Fiedler, Fine; Golnik, Christian; Kormoll, Thomas; Pausch, Guntram; Petzoldt, Johannes; Römer, Katja Ellen; Enghardt, Wolfgang. 2016. Compton camera and prompt gamma ray timing: two methods for in vivo range assessment in proton therapy. *Frontiers In Oncology*. Frontiers Editorial Office. 6-80. ISSN 2234-943X. <https://doi.org/10.3389/fonc.2016.00080>
- 18 **Scientific paper.** G. Pausch; J. Petzoldt; M. Berthel; et al; T. Kormoll; (8/13) R. Lentering. 2016. Scintillator-Based High-Throughput Fast Timing Spectroscopy for Real-Time Range Verification in Particle Therapy. *IEEE Transactions on Nuclear Science*. Institute of Electrical and Electronics Engineers (IEEE). 63-2, pp.664-672. ISSN 0018-9499. <https://doi.org/10.1109/TNS.2016.2527822>
- 19 **Scientific paper.** C. Golnik; D. Bemmerer; W. Enghardt; et al; T. Kormoll; (5/11) Hueso-González, Fernando. 2016. Tests of a Compton imaging prototype in a monoenergetic 4.44 MeV photon field a benchmark setup for prompt gamma-ray imaging devices. *Journal Of Instrumentation*. 11-06. ISSN 1748-0221. <https://doi.org/10.1088/1748-0221/11/06/P06009>
- 20 **Scientific paper.** (1/5) Hueso-Gonzalez, F.; Vijande, J.; Ballester, F.; Perez-Calatayud, J.; Siebert, F.A.2015. A simple analytical method for heterogeneity corrections in low dose rate prostate brachytherapy. *Physics in Medicine and Biology*. Taylor and Francis. 60-14, pp.5455-5469. ISSN 0031-9155. <https://doi.org/10.1088/0031-9155/60/14/5455>
- 21 **Scientific paper.** K. Roemer; G. Pausch; D. Bemmerer; et al; F. Fiedler; (7/15) Hueso-González, F.2015. Characterization of scintillator crystals for usage as prompt gamma monitors in particle therapy. *Journal Of Instrumentation*. 10-10. ISSN 1748-0221. <https://doi.org/10.1088/1748-0221/10/10/P10033>

- 22 Scientific paper.** (1/13) Fernando Hueso González; Biegun, A K; Peter Dendooven; et al; Guntram Pausch. 2015. Comparison of LSO and BGO block detectors for prompt gamma imaging in ion beam therapy. Journal Of Instrumentation. 10-9. ISSN 1748-0221. <https://doi.org/10.1088/1748-0221/10/09/p09015>
- 23 Scientific paper.** (1/13) Fernando Hueso Gonzalez; Wolfgang Enghardt; Fine Fiedler; et al; Guntram Pausch. 2015. First test of the prompt gamma ray timing method with heterogeneous targets at a clinical proton therapy facility. Physics in Medicine and Biology. Taylor and Francis. 60-16, pp.6247. ISSN 0031-9155. <https://doi.org/10.1088/0031-9155/60/16/6247>
- 24 Scientific paper.** Rohling, H.; Golnik, C.; Enghardt, W.; (4/8) Hueso-González, F.; Kormoll, T.; Pausch, G.; Schumann, A.; Fiedler, F.2015. Simulation Study of a Combined Pair Production - Compton Camera for In-Vivo Dosimetry During Therapeutic Proton Irradiation. IEEE Transactions on Nuclear Science. Institute of Electrical and Electronics Engineers (IEEE). 62-5, pp.2023-2030. ISSN 0018-9499. <https://doi.org/10.1109/TNS.2015.2448235>
- 25 Scientific paper.** A Schumann; J Petzoldt; P Dendooven; et al; F Fiedler; (6/10) F Hueso-González. 2015. Simulation and experimental verification of prompt gamma-ray emissions during proton irradiation. Physics in Medicine and Biology. Taylor and Francis. 60-10, pp.4197. ISSN 0031-9155. <https://doi.org/10.1088/0031-9155/60/10/4197>
- 26 Scientific paper.** Christian Golnik; (2/11) Hueso-González, Fernando; Andreas Muller; et al; Guntram Pausch. 2014. Range assessment in particle therapy based on prompt gamma-ray timing measurements. Physics in Medicine and Biology. Taylor and Francis. 59-18, pp.5399. ISSN 0031-9155. <https://doi.org/10.1088/0031-9155/59/18/5399>
- 27 Scientific paper.** (1/13) Fernando Hueso-González; Christian Golnik; Marc Berthel; et al; Guntram Pausch. 2014. Test of Compton camera components for prompt gamma imaging at the ELBE bremsstrahlung beam. Journal Of Instrumentation. 9-05. ISSN 1748-0221. <https://doi.org/10.1088/1748-0221/9/05/P05002>
- 28 Book chapter.** 2021. Compton Cameras and Their Applications. Radiation Detection Systems. Taylor Francis. ISBN 9781003218364. <https://doi.org/10.1201/9781003218364-7>

C.3. Research projects and contracts

- 1 Project.** CDEIGENT/2019/011, Novel cost-effective proton range verification based on coaxial prompt gamma-ray monitoring. Generalitat Valenciana. Fernando Hueso González. (Instituto de Física Corpuscular (IFIC), CSIC-Universitat de València). 01/06/2020-31/05/2026. 357.250 €. Principal investigator.
- 2 Project.** PDC2021-121839-I00, VALID - Validation of medical imaging detectors (PDC2021-121839-I00). Agencia Estatal de Investigación del Ministerio de Ciencia e Innovación. Gabriela Llosá. (Instituto de Física Corpuscular (IFIC), CSIC-Universitat de València). 01/12/2021-30/11/2023. 115.000 €.
- 3 Project.** PID2019-110657RB-I00, Monitorización y Dosimetría en terapia hadrónica (MONDO). Ministerio de Ciencia e Innovación. Gabriela Llosá. (Instituto de Física Corpuscular). 01/06/2020-31/05/2023. 98.010 €.
- 4 Project.** INNVA1/2021/37, VALMONT - Valorización de un sistema de monitorización para terapia hadrónica (INNVA1/2021/37).. Generalitat Valenciana, Agencia Valenciana de Innovación (AVI). Gabriela Llosá. (Instituto de Física Corpuscular (IFIC), CSIC-Universitat de València). 01/01/2021-31/03/2023. 337.926,35 €.
- 5 Project.** FECYT/2023/18895, El tragaluz cuántico. Jaime Riera. (UPV and IFIC (CSIC-UV)). From 01/03/2024. 27.000 €.

C.4. Activities of technology / knowledge transfer and results exploitation

Patent of invention. Guntram Pausch; Wolfgang Enghardt; Christian Golnik; Guillaume Janssens; Damien Prieels; Julien Smeets; François Vander Stappen; Fernando Hueso González. WO2015040225A1. Method and apparatus for the range control of particle radiation of a radiation device for radiation therapy United States of America. 26/03/2015. Technische Universitat Dresden. Helmholtz-Zentrum Dresden-Rossendorf; Ion Beam Applications.