

Education

PhD Student in Particle Physics

2025 –

Inter-University Institute for High Energies (IIHE), Université libre de Bruxelles, Brussels, Belgium

- Thesis: Dosimetry challenges under ultra-high dose rate proton beam for FLASH therapy
- Supervisor: Prof. G. De Lentdecker
- Grant: PIT ProtherWal, No. 7289 (Walloon Region)

Teaching qualification for upper secondary education (AESS)

2021 – 2024

Université libre de Bruxelles, Brussels, Belgium

Master in Physics

2021 – 2024

Université libre de Bruxelles, Brussels, Belgium

- Master thesis: “Study of the charge collection efficiency in air vented ionization chambers in UHDR proton beams”
- Research project: “Dosimetry in proton therapy”

Bachelor in Physics

2017 – 2022

Université libre de Bruxelles, Brussels, Belgium

High School (CESS)

2011 – 2017

Athénée Royal Jean Absil, Brussels, Belgium

Publications

P. Gérard Ortega, G. De Lentdecker, Q. Flandroy, J. Nys

Charge Collection Efficiency in Air-Vented Plane-Parallel Ionisation Chambers at Ultra-High Dose Rates: A Self-Consistent Garfield++ Monte Carlo Model Including Space-Charge Effects and Ion Recombination

arXiv preprint, 2026. arXiv:2606.24384 [physics.med-ph]

I. Jayam, G. De Lentdecker, Q. Flandroy, N. Gérard, **P. Gérard**, J. Nys

Collection Efficiency of Large-Surface Plane-Parallel Ionization Chamber Used for Dose Monitoring in FLASH Non-Uniform Pulsed Proton Beam

Int. J. Part. Ther., 2024. doi:10.1016/j.ijpt.2024.100237

Software Contributions

Active contributor – *Garfield++* (CERN)

2025 –

Toolkit for the simulation of particle detectors in gaseous media

- Ion-ion recombination and space-charge effects

Teaching

Teaching Assistant – Particle Physics Laboratory
Université libre de Bruxelles, Brussels, Belgium

2025 –

- Supervision of laboratory sessions for undergraduate students
- Grading of laboratory reports

Invited tutor – DRD1 Gaseous Detectors Simulation School
University of Bari, Bari, Italy

May 2026

- Hands-on exercises on gaseous detector simulation (DRD1 collaboration, CERN/INFN)

Conferences

Poster presentation (*author, attended*)

Dec 2025

Flash Radiotherapy and Particle Therapy (FRPT 2025), Prague, Czech Republic

Poster presentation (*author, attended*)

Dec 2024

Flash Radiotherapy and Particle Therapy (FRPT 2024), Rome, Italy

Poster presentation (*co-author, online*)

Jun 2024

Particle Therapy Co-Operative Group (PTCOG 62), Singapore

Educational and Outreach Activities

Science facilitator – outreach workshops for secondary school students

Mar 2023

Physics Experimentarium, Université libre de Bruxelles

Scientific proofreader – French translation of *Les mystères de l'univers* by Jan Paul Schutten

Sep 2020

Translated by Maurice Lomré, *L'école des loisirs*

Skills & Languages

Languages: French (native), Spanish (native), English (fluent), Dutch (basic)

Programming languages and tools: Python (advanced), C++ (intermediate), Unix (intermediate), Garfield++ (advanced), ROOT (basic), L^AT_EX (advanced)