
Participation in PIANOFORTE Course on Particle Irradiation (Caen, July 2025)

As a graduate in Engineering Physics currently pursuing a specialization in Radiation Protection and Safety, I had the opportunity to attend the PIANOFORTE Intensive Course “*Particle Irradiation: Molecular, Cellular & Tissue Effects*”, held from 7–11 July 2025 in Caen, France. Organized by the Université de Caen Normandie and the Centre François Baclesse, the course was part of the PIANOFORTE Partnership for Radiation Protection Research and brought together young professionals and researchers from Europe and other international participants.

The program offered a comprehensive and structured overview of the molecular, cellular, and tissue-level effects of ionizing radiation, with particular focus on the unique biological impacts of protons and heavy ions. Lectures were delivered by leading experts in radiobiology and radiation oncology from institutions including the Technical University of Munich, CEA, Uppsala University, and CHU Grenoble. Topics ranged from the repair of complex DNA damage and radiation-induced cardiovascular effects to mechanisms of carcinogenesis, cytogenetic effects and the methodologies applied in their investigation, and the role of non-coding RNAs in radiation response.

Among the many valuable sessions, I found those addressing the clinical relevance and scientific challenges of proton therapy especially insightful. Discussions on the balance between the physical advantages of proton therapy and the current availability of clinical evidence highlighted ongoing considerations for its broader implementation. These insights deepened my understanding of the essential interplay between scientific research, clinical application, and public health policy—key components of the field of radiation protection.

The course also included group activities and presentations. As part of one group, we presented a brief overview of Boron Neutron Capture Therapy (BNCT), allowing me to explore a personal area of interest and contribute to collaborative learning. The experience was further enriched by a study visit to CYCLHAD, the Cyclotron for Hadron Therapy in Caen, which offered a rare opportunity to observe the technical infrastructure supporting advanced particle therapy.

Overall, the course was intellectually rigorous and professionally rewarding. Its multidisciplinary and international scope has strengthened my motivation to continue developing in the field of radiation protection. I am sincerely grateful to the PIANOFORTE Partnership for this valuable opportunity.