

# Participation in Interdisciplinary Radiation Research on Radon – InterRad 2024

The 12th edition of InterRad, held in Germany from 22<sup>nd</sup> – 27<sup>th</sup> May 2024, provided extensive lectures and knowledge on the detection of radiation and its effects in humans, food and environment. The pre-course consisted of one week (May 15<sup>th</sup> – 19<sup>th</sup>) of online lectures covering different subjects: Radiation Epidemiology, Radiation Physics, Radiation Biology, Cytogenetic methods in Biodosimetry, mFISH analysis with exercises, Internal Dosimetry, Radiation Risk Assessment, Molecular Epidemiology, Proteome Research in Radiation Research and International regulation and mitigation strategies. These lectures were delivered by experts from *Bundesamt für Strahlenschutz (BfS)*, in Munich. During the second week of InterRad, I attended the practical sessions in the BfS, in Munich. On the first day, we had a session on detecting radiation in the human body, using the High Purity Germanium detector (HPGe), and were introduced to various models used to simulate the human body. The second day focused on helicopter-borne measurements to detect environmental radiation, including methods to identify and analyze radiation from sites exposed to radiation (eg. Chernobyl). We practiced using this equipment by searching for hidden radiation sources within the building. On the third day, we learnt about detecting radiation in food, including the steps to determine the activity of radioactive elements in food and plants. We used apples and mushrooms collected from radiation-exposed areas, dried them, analyzed the samples with HPGe, and discussed the results.

Biology lab sessions took place on the first and second days. We learnt the Gamma H2AX assay, working with cell samples exposed to varying levels of radiation, staining them, and evaluating the number of double-strand breaks. As predicted, samples exposed to higher radiation had more double strand breaks. On the third and fourth day, we learnt how to detect the various types of chromosomal malfunctions caused by radiation. On the final day, we had a lecture on devices used to detect radon in the air, followed by hands-on experience with various radiation detection devices, measuring radon concentration in the building, and disassembling and reassembling the equipment to understand its functionality.

As a first-year PhD student, this course was invaluable for gaining insights not only for my project but also for sharing with my research group. Additionally, the interaction with colleagues from diverse backgrounds provided me with new techniques applicable to my work.