



Laboratori Nazionali di Legnaro

Legnaro, 24/10/2023

Mission Report Valencia – ICDA-4 (15.10.2023 - 21.10.2023)

The ICDA-4 conference is the fourth event of a series of conferences aimed to cover all the topics concerning dosimetry and its applications in several fields. A specific session on micro- and nanodosimetry was organized and I had the possibility of presenting my project on an innovative microdosimeter for multi-site measurements. Invited lectures were organized in the morning covering the highest number of topics possible. The plenary sessions were followed by two/three different parallel sub-sessions in three time slots (1 in the morning and 2 in the afternoon).

Multiple sessions were of interest for my project, and I mainly focused on those regarding medical applications.

The oral presentation that I held in this conference was the first opportunity I had to present the results of the young researcher grant of which I am the principal investigator that started at the beginning of 2023. It was an important step for my project, and it has been very useful because I had the possibility of discussing the future steps with an international community that gave me a lot of interesting ideas.

Most importantly I was able to present my project to some of the principal representatives of the micro- and nanodosimetry international community. Discussions were especially held with Hans Rabus from PTB and its group and Jan Lillhök from the Swedish Radiation Safety Authority and its colleagues. The former is an expert of nanodosimetry and microdosimetry from both the experimental and Monte Carlo point of view. He was surprised by the advanced status of my project and gave me interesting ideas for future applications. Jan Lillhök applies the variance-covariance method to microdosimetric and nanodosimetric measurements and he was interested in a comparative measurement campaign in which measurements performed with our multi-site TEPC and his variance-covariance detector are carried out in the same conditions. These comparative measurements will be useful to validate benchmark the results of both the new multi-site TEPC and the variance-covariance methodology with one detector. Thanks to our participation in this conference, we had the opportunity to establish the basis for a new European

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collaboration for microdosimetric and nanodosimetric measurements in clinical applications. We agreed that it is necessary to restart the collaboration that was present at the European level until a few years ago. The need of a broader collaboration is fundamental in order to help the innovation and progress in this field of application.

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