



PHYSICS

2023 ESTRO Physics workshop

Methods to combine and sum external beam and brachytherapy dose distributions

13-14 October 2023, Turin, Italy

Chairs: Vania Batista, Åsa Carlsson Tedgren

During October, I had the pleasure of traveling to Torino, Italy to participate in the ESTRO Physics Workshop 2023 on the topic of "Methods to combine and sum external beam and brachytherapy dose distributions". Being a brachytherapy enthusiast with an interest also in advanced methods of image registration and dose accumulation, attendance at this workshop was a near must for me. However, when examining the program, it became clear that I could have just as enthusiastically registered for any of the other 4 topics being discussed during the workshop.

The highlight for me was the format of the workshop, which allowed ample time for discussion between participants. This discussion was supplemented by case studies presented by participants, multi-disciplinary presentations from world leading experts, and presentations of vendor perspectives from vendor representatives. I was very glad to continue this lively discussion with the workshop participants into the evening whilst enjoying the local cuisine on offer in Torino.

Summing dose distributions between external beam and brachytherapy certainly has its challenges, so our group was presented with a significant task. In particular, the presence of brachytherapy applicators in some image datasets and not in others, the multi-modality nature of the images, and the steep dose gradients of the dose grids being accumulated pose considerable risk. Nonetheless, several stimulating ideas were raised during the 2-day workshop which could be implemented to assist in overcoming these challenges.

The workshop has served as a launching point for our group to continue communication on this topic, and I am confident we will continue this momentum to work together to assist the community in implementing summation of external beam and brachytherapy dose distributions in the clinic.



Figure 1: Participants discussing during the workshop.

This track of the Physics workshop gathered around 20 participants, the majority being medical physicists but also one physician and treatment planning vendors were represented. Engagement in the room was high. The outcome was to form a working group aiming to formulate a “wishlist”, in manuscript form, on software tools but also to review knowledge gaps in need of further investigations required in order to move the topic forward.

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