Course Report

Advanced Physics for Brachytherapy

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Course directors:

- Dimos Baltas, physicist, University of Freiburg, Freiburg, Germany
- Panagiotis Papagiannis, physicist, National and Kapodistrian University of Athens, Athens, Greece

Could you please briefly introduce yourself?

My name is Fadoua Raouassi. I am a medical physicist in radiotherapy at the Iridium Network Centre in Antwerp, Belgium. I am in my third year of practice since I finished my medical physics training.

Why did you choose to attend this course?

The subject of my master's thesis was in-vivo dosimetry in brachytherapy. I am also part of the brachytherapy physics team in my centre, where we use high-dose-rate brachytherapy to treat cervical, intrauterine, keloid and skin cancers; and low-dose-rate to treat prostate tumours. Attendance of the course was an opportunity to get feedback on my planning skills, discuss the robustness of our quality controls and learn new techniques.

What aspects of the course were most interesting to you and why?

The voting tool was an engaging way to gain an idea of everyone's experience. Its use often led to interactive discussions between the physicists who attended the course.

The practical sessions that involved planning exercises were useful. Different cases were explained and two machine companies (Varian and Elekta) showed the advantages and limitations of their treatment planning systems.

The feedback from all the faculty members and the ways in which they made complicated concepts seem simple added to the quality of the scientific information provided.

Did your course meet your expectations? If so, how?

It was a great experience and I learned more than I had anticipated before I arrived.

The course was incredibly helpful. Some lectures served as refreshers, and others solidified the technical aspects that I have learned over the years. The format was great. All the lectures were interactive and involved discussion of real-life cases, which I found wonderfully effective.

List three important takeaways following the course.

- Brachytherapy workflow can be comparable to that of external radiotherapy, but the main difference is that the brachytherapy delivery system depends on the specific patient implant geometry (anatomy).
- There is a nuanced difference between the intended dose (planned) and the treatment dose (delivered) and it is important to report the delivered dose, voxel by voxel.
- Random uncertainties that can occur during brachytherapy treatment can be reduced through online verification of the delivery of the image-based treatment and verification of the dose of the in-vivo treatment.

How will what you have learned be implemented in your daily clinical practice?

The planning tools that were shown during the practical sessions added value to my daily brachytherapy planning skills.
The quality control and quality assurance methods will be the subjects of a brainstorming session in my clinic.

I will pay extra attention to quality management through the implementation of the tree analysis, and the use of the procedure to perform the failure mode, which was shown at the European SocieTy for Radiotherapy and Oncology (ESTRO) School.

How would you encourage someone who has never been to an ESTRO course to join this course?

I encourage you to attend this course whether you have practised brachytherapy for a few years or you are a beginner. The lectures cover every aspect of brachytherapy, from commissioning, dose calculation algorithms and imaging techniques to delivery of high-quality treatment. The amount of knowledge that was shared has inspired me to question, compare, evaluate and improve the delivery of brachytherapy treatment in my hospital.

Fadoua Raouassi
Medical Physicist
GZA Ziekenhuizen - Iridium Kankernetwerk Antwerpen
Antwerp, Belgium
Fadoua.raouassi@gza.be