

17th EURADOS School

The importance of dosimetry in innovative medical applications

Thursday, April 11th, 2024

Scope

Since their initial discovery in 1895, X-rays provided a sound contribution in developing medical practices. Their first application dates back to 1896 when battlefield physicians began using them, only six months after their revelation, and their use increased rapidly. The amazing physics discoveries of the beginning of the 20th century, besides opening a new world of radiation, atoms and particles, brought to medical practice other powerful tools for medical imaging and the treatment of various diseases, including tumours. The rapid spread of these applications has been accompanied by continuous technological development that led to CT, LINAC and radiopharmaceuticals implementation. And on the side of radiation detection and dosimetry, the original etched film and fluoroscopic tubes have given way to solid state and digital imaging equipment.

Today new technologies and modalities are entering the clinics, such as Flash Therapy or spatially fractionated radiotherapy and new radiopharmaceuticals in theranostics, posing new challenges to radiation dosimetry matter. They require new knowledge and a better understanding of the underlying physical phenomena. The dosimetric issues related to these emerging techniques and new modalities (innovative procedures associated with a “traditional” practice, e.g. small fields in RT or sub-mSv CT) require new and updated skills.

With the intention to offer an overview of some of the latest developments in this field, EURADOS AM2024 Spring School is aimed at giving the status of the art, focusing on the dosimetric aspects these new medical practices imply.

The topics of the school will try to cover the different elements and levels of the problem, from radiobiology and risk assessment questions, charged particle tracking in a microdosimetry framework, the matter of detecting fast pulsed radiation, the development of suitable dosimetry for multi-modal applications and the role of new numerical techniques in evaluating an accurate dose distribution in the patient.

Scientific Committee

- David Broggio (Institut de Radioprotection et de Sûreté Nucléaire – IRSN, France)
- Paolo Ferrari (Italian National Agency for New Technologies, Energy and Sustainable Economic Development – ENEA, Italy)
- Weibo Li (Federal Office for Radiation Protection - BfS, Germany)
- Liliana Stolarczyk (Danish Centre for Particle Therapy at the Aarhus University Hospital, Denmark)
- Rick Tanner (UK Health Security Agency – UKHSA, United Kingdom)
- Filip Vanhavere (Belgian Nuclear Research Centre – SCK CEN, Belgium)

Event Accreditation

We have requested the EURADOS School to be accredited by EBAMP as CPD event for Medical Physicists. More information will be distributed later.

Although the Annual Meeting is scheduled as a full live event, the EURADOS School can be followed online as well. A fee for online attendance of the School will be asked (see p. 17).

Please, register for this event via the EURADOS AM2024 registration platform.

Preliminary programme of the 17th EURADOS School

Time	Topic	Speaker
9:00	Welcome on behalf of the Scientific Committee	Liliana Stolarczyk DCPT (Denmark)
9:05	Some basic aspects of dosimetry for radiobiology	Hans Rabus PTB (Germany)
9:30	Dosimetry challenges for FLASH therapy	Anna Subiel NPL (UK)
10:00	Spotionally fractionated RT (grid therapy): what are the dosimetric challenges?	Niels Bassler DCPT (Denmark)
10:30	Coffee break	
11:00	Dosimetry for ion beam therapy	Oliver Jäkel DKFZ (Germany)
11:30	LET optimization in proton therapy: from LET painting to active dosimetry for LET determination	Ana Vaniqui SCK CEN (Belgium)
12:00	Passive detectors for LET determination	Jeppe Brage Christensen PSI (Switzerland)
12:30	Lunch	
13:30	Targeted radionuclide therapy: the importance of dosimetry to make the treatment patient specific (tbc)	Mark Konijnenberg ERASMUS University (The Netherlands)
14:00	New ICRP patient dose coefficients for radiology and diagnostic nuclear medicine	Nina Petoussi-Henss BfS (Germany)
14:30	Dosimetry for Boron Neutron Capture Therapy (BNCT) (tbc)	Hanna Koivunoro Neutron Therapeutics (Finland)
15:00	Coffee break	
15:30	Monte Carlo for patient absorbed dose estimation and imaging in radionuclide therapy	David Sarrut CREATIS (France)
16:00	On the journey to sub mSv CT imaging: how far have we got?	Elly Castellano Royal Marsden Hospital (UK)
16:30	Closure of the EURADOS School	









EURADOS Sponsors

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 <p>KIT - Karlsruhe Institute of Technology</p>	 <p>Landauer</p>	 <p>LPS - Landesanstalt für Personendosimetrie und Strahlenschutz Ausbildung Berlin</p>

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