



## ESMPE European School for Medical Physics Experts

### Radiation Biology in Radiotherapy

**September 11, 2024**

Munich, Germany

The school will provide an overview of radiation biology, from the basics models to the clinically applied models such as the LQM. In addition, the course reviews the impact of oxygen in radiation therapy of tissues/cells. This one-day event will be accredited by EBAMP (European Board of Accreditation for Medical Physics) as CPD event for Medical Physicists at EQF Level 8 and is intended for practicing clinical Medical Physicists who are involved in Radiotherapy.

#### Faculty

<b>Joao Seco</b>	German Cancer Research Center, DKFZ, Heidelberg, Germany
<b>Iuliana Toma-Dasu</b>	Stockholm University and Karolinska Institutet, Stockholm, Sweden
<b>Thomas Schmid</b>	TUM, Munich, Germany
<b>Francesca Ballarini</b>	Universita di Pavia, Pavia, Italy
<b>Christian Karger</b>	DKFZ, Heidelberg, Germany
<b>Emely Kjellsson Lindblom</b>	Stockholm University and Karolinska Institutet, Stockholm, Sweden

#### Timetable

<b>11th September Wednesday</b>	<b>Title</b>	<b>Description</b>	<b>Lecturer</b>
<b>8:00-9:00</b>	<b>Registration</b>		
Morning chairs: Joao Seco (DE), Iuliana Toma-Dasu (SE)			
<b>Overview of Radiation Biology in Radiotherapy</b>			
<b>9:00-9:45</b>	<b>Introduction to School</b>	What is radiation biology and why is it important in radiotherapy? Overview of different approaches	Joao Seco (DE) / Iuliana Toma-Dasu (SE)
<b>09:45-10:30</b>	<b>Biologist overview of radiation cell damage and DNA repair</b>	Effects of radiation in cells, discussed from a point of view of a Biologist	Thomas Schmid

10:30-11:00	<b>The role of oxygen in radiation biology</b>	describing the role of oxygen in radiation cell damage and cell death	Joao Seco
11:00-12:00	<b>Models for Radiation Cell Kill, BED, EQ2 and Isoeffects</b>	Cell Survival Curves: Models for Radiation Cell Kill	Emely Kjellsson Lindblom
12:00-13:30	<b>Lunch break- Available at participants expense in the Congress venue</b>		
Afternoon chairs: Joao Seco (DE), Iuliana Toma-Dasu (SE)			
<b>Application of Radiation Biology Models</b>			
13:30-14.15	<b>Biological Models for different radiotherapy techniques.</b>	Application of the models to brachytherapy, stereotactic, etc	Iuliana Toma-Dasu
14.15-15.00	<b>Biological Models for particle therapy applications</b>	Provide an overview of the various biological models used in particle therapy	Francesca Ballarini
15.00-15.15	<b>Coffee Break- Available at participants expense in the Congress venue</b>		
15:15-16.00	<b>Relative biological effectiveness of ion beams in normal tissue and tumors</b>	Provide an overview of radiobiology models for both tumors and healthy tissue	Christian Karger
16:00-16.30	<b>Debate: The future of radiation biology in new techniques such as FLASH and SFRT</b>	Overcoming the challenges and looking to the future	All faculty

#### Further information

<b>Course language</b>	English
<b>Level</b>	MPE – Level 8
<b>Maximum number of participants</b>	80
<b>Duration</b>	11 <sup>th</sup> September 2024
<b>Study load</b>	6 hours of lectures and discussions
<b>CPD Points</b>	Points to be confirmed (EBAMP Accreditation)