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

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

Timetable

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

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

Further information

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