

ESMPE European School for Medical Physics Experts

School for Radiation Biology

19th-21st February 2026, Porto, Portugal

EFOMP in collaboration with the Portuguese association for Medical Physics (APFISMED) would like to invite you to the next ESMPE on 19th-21st February 2026. 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.

This two-and-half day event will be accredited by EBAMP (European Board of Accreditation for Medical Physics) and is intended for practicing clinical Medical Physicists who are involved or interested in diagnostic and interventional radiology. There will be an optional examination at the end for those seeking a higher level of certification beyond attendance.

ESMPE have decided this event will be in a hybrid format. All lecturers will give their talks on-site in Porto, Portugal, but participants can choose if they want to attend the school on-site or online, it will be live-streamed.

Please note: All times shown are in CET

Content

Physics of radiation interaction

Microdosimetric aspects

Molecular basis of radiation response

Molecular approaches to radiation therapy

Basic radiobiology, which includes an overview survival fractions, RBE, LET, etc.

Clinical radiobiology, which introduction to fractionation, oxygen effect, TCP, NTCP, etc

Final examination

The final exam is voluntary. Participants can gain additional credits when successfully pass the test.

Organisers

Joao Seco, Iuliana Toma-Dasu (Scientific Chairs)

Joao Seco (Chair of the School)

(DFA/FCUP)

Local organisers

APFISMED <https://apfismed.pt/>

Department of Physics & Astronomy of the Sciences Faculty – Porto University

Faculty

Joao Seco	DKFZ, Heidelberg, Germany
Iuliana Toma-Dasu	Stockholm University and Karolinska Institutet, Stockholm, Sweden
Christian Karger	DKFZ, Heidelberg, Germany
Emily Kjellsson Lindblom	Stockholm University and Karolinska Institutet, Stockholm, Sweden.
Francesca Ballarini	Universita di Pavia, Pavia, Italy
Thomas Schmidt	TUM, Munich, Germany.
Brigida Costa Ferreira	Faculdade de Ciências, Universidade de Lisboa, Portugal
Isabel Bravo	IPO Porto, Porto Portugal.
Alejandro Bertolet	Massachusetts General Hospital, Boston USA

Thursday 19th February 2026

CET	Session Title	Lecturer
08:30-9:00	<i>Registration</i>	
9:00-9:15	Course introduction	J. Seco/ I. Toma-Dasu
9:15-10:30	Radiation Biology meets the Hallmarks of Cancer : Molecular Biology for the Medical Physicist	I. Bravo
10:30-11:00	<i>Coffee break</i>	
11:00-12:00	Effects of radiation in cells, discussed from a point of view of a Biologist	T. Schmidt
12:00-13:00	Molecular basis of radiation response: 1) Genetic pathways, 2) DNA response 3) Apoptosis and checkpoints	T. Schmidt
13:00-14:30	<i>Lunch break</i>	
14:30-15:30	Basic Radiobiology I: 1) Clonogenic cells, cell death and survival, models 2) Repair of radiation damage and dose-rate effect	E. Lindblom
15:30-16:30	Basic Radiobiology II: 1) LET and RBE 2) Biological dosimetry and management of radiation accidents	E. Lindblom
16:30-17:00	<i>Coffee break</i>	
17:00-18:00	Introduction to Microdosimetric aspects	A. Bertolet

Friday 20th February 2026

CET	Session Title	Lecturer
08:00-09:00	Biologically Effective Dose and Biological Models for different radiotherapy techniques	I. Toma-Dasu
09:00-10:00	Dose-volume and tumor response models in radiotherapy	C. Karger
10:00-10:30	<i>Coffee break</i>	
10:30-11:30	Experimental dose-response studies to address clinical questions	C. Karger
11:30-12:30	Biological Models for particle therapy applications	F. Ballarina
12:30-13:00	The role of oxygen in radiation biology and radiation therapy	J. Seco
13:00-14:30	<i>Lunch break</i>	
14:30-15:30	The BIANCA biophysical model for ion therapy	F. Ballarina
15:30-16:30	Radiation biology in radionuclide therapy	A. Bertolet
16:30-17:00	<i>Coffee break</i>	
17:00-18:00	Inverse Treatment Planning Beyond Dose–Volume Metrics: The role of gEUD, TCP, NTCP,	B. Costa Ferreira
20:00	<i>Social dinner - participants + lecturers</i>	

Saturday 21st February 2026

CET	Session Title	Lecturer
08:30-09:00	Challenges in Biologically Based Treatment Planning: The Impact of Uncertainties in Dose-Response Models and Patients Radiosensitivity	B. Costa Ferreira
09:00-10:00	Major Challenges in Radiation Biology in the Era of Precision Radiation Oncology	I. Bravo
10:00-10:30	<i>Coffee break</i>	
10:30-11:30	Revising the radiation biology of novel RT techniques such as FLASH, Spatial Fractionated radiotherapy (SFRT)	J. Seco
11:30-12:00	Final discussion with participants	Faculty
12:00-13:00	Assessment	

Course language	English
Level	Medical Physics / Medical Physics Expert
Registration fee* (2 main meals, 5 coffee breaks, 1 social dinner)	400 € (*VAT included)
Reduced registration fee* · first-come, first-served policy	200 € (*VAT included) - for the first 40 participants (max. 3 from one country) coming from the following European countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Estonia, Greece, Hungary, Latvia, Lithuania, Moldova, North Macedonia, Poland, Portugal, Romania, Serbia, Slovak Republic, Spain, Ukraine. 200 € (*VAT included) - for 30 young persons (under 35y)
Maximum number of on-site/online participants	80/100
Duration	19 th -22 st February 2026
Study load	20 hours of lectures and case examples, 1h optional exam
Venue	Ferreira da Silva Auditorium, Department of Computer Science at the Faculty of Sciences, University of Porto More information here
Accommodation	Participants are responsible for arranging their own accommodation
Information, programme at:	www.efomp.org
Registration	Electronic registration via www.efomp.org
Registration period	1 st July 2025 – 5 th February 2026 (10 th February 2026 for online participation only)

* payment must be done in 7 days following the pre-registration, otherwise pre-registration will be cancelled and neither free place nor subsidized or ordinary fee can be granted for repeated registration

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