



**ESMPE European School for Medical Physics Experts**  
**Radiation Shielding in Medical Installations**  
**10<sup>th</sup>-12<sup>th</sup> February 2022, Prague, Czech Republic**

EFOMP, in collaboration with the Czech Association of Medical Physicists and the Department of Dosimetry and Application of Ionizing Radiation of Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague invite you to the next ESMPE on **10<sup>th</sup>-12<sup>th</sup> February 2022**.

The school will be aimed at advanced tasks connected to site planning and shielding design in medical installation. The school will cover the main radioprotection aspects of the shielding calculations for typical medical installations.

This two-and-a-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 in the Radiation protection field as Radiation Protection Experts. As in past school editions, 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. Participants and lecturers will be on-site in Prague where possible, but the school will also be live-streamed so participants can join live online if they cannot travel to the venue.

### **Content**

- Radiation protection principles applied to radiation shielding design
- Methodology for Diagnostic and interventional X-ray Shielding (conventional, CT, IR)
- Methodology for Nuclear Medicine Shielding (conventional, PET, NM therapy)
- Methodology for Radiation Therapy Shielding (LINAC, special equipment, Proton)
- Radiation protection surveys
- Worked Examples

### **Final exam**

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

### **Organisers**

- Brendan McClean (Chair of the School)
- Paddy Gilligan, Marco Brambilla (Scientific Chairs)
- Jaroslav Ptáček, Tereza Hanušová (CAMP)





## Faculty

Brendan Mc Clean	Saint Lukes Radiation Oncology Network, Dublin/IE
Paddy Gilligan	Mater Misericordiae University Hospital, Dublin/IE
David Sutton	NHS Tayside Dundee, Scotland/UK
Pat Horton	Royal County Hospital Surrey/UK
Colin Martin	University of Glasgow Glasgow/UK
Brenda Byrne	Mater Misericordiae University Hospital, Dublin/IE
Susan Maguire	Mater Private Hospital, Dublin/IE
Jörn Meissner	Meissner Consulting, Munchen /DE
Ana Millan	Technicas Radiofísicas S.L., Zaragoza/ES



# ESMPE

Thursday 12<sup>o</sup> February 2022

	Session	Title	Description	Lecturer
8:00-9:00	Registration			
9:00-9:30	Introduction	Setting the scene	Presentation of the ESMPE and introduction to the course	
9.30-10.30	General Concepts in Shielding	Concepts and terminology	Shielding design goals; distance to the occupied area; Occupancy Factor; Workload and Workload distribution; Use Factor.	
10:30-11:00	Coffee break			
11:00-12:00	Diagnostic and Interventional Radiology	General methodology for diagnostic X-Ray shielding	Description of the BIR Shielding Book. General X-ray, Dental, Mammography. Examples of Shielding Calculations	
12:00-13:30	Lunch break + Company Lecture			
13.30-14.30	Diagnostic and Interventional Radiology	General Methodology for Diagnostic X-ray Shielding	Description of the BIR Shielding Model. Interventional Radiology and Cardiology. Examples of Shielding Calculations	
14.30-15.30	Diagnostic and Interventional Radiology	General Methodology for CT scanner Shielding	Description of the BIR Shielding Model. CTDI, Dose-Length Product, Isodose Map Methods. Examples of Shielding Calculations.	
15:30-16:00	Coffee break			
16:00-17:00	Diagnostic and Interventional Radiology	Radiation protection surveys	Visual inspections. Transmission Measurements. Survey reports	
20:00-23:00	Social dinner - participants + lecturers			





# ESMPE

Friday 11<sup>th</sup> February 2022

	Session	Title	Description	Lecturer
09:00-10:00	Nuclear Medicine	Site planning of a Nuclear Medicine Department	Classification of risk. Structural requirement for ventilation, plumbing, surfaces. Paths for workers and patients. Management of wastes	
10:00-10.30	Coffee break			
10:30-11.00	Nuclear Medicine	Shielding requirements for a typical Nuclear Medicine Department	Shielding of examination treatment rooms, hot lab, patient holding rooms	
11:00-12:00	PET/CT	Shielding requirements for a PET/CT facility	Shielding of examination rooms, patient holding rooms. Examples and problems	
12:00-13:30	Company Lecture + Lunch break			
13:30-14:30	Radiation therapy	Shielding of LINAC Vaults	Description of the shielding Model. Basic design principles, structural and safety concerns.	
14:30-15:30	Radiation therapy	Doors and mazes	Maze and door designs; Direct shielded doors, Neutrons, Materials	
15:30-16:00	Coffee break			
16:00-17:00	Radiation therapy	Proton therapy	Shielding of a proton therapy installation	
17:00-18:00	Radiation therapy	Brachytherapy and Non-conventional radiotherapy treatment units	Halcyon, HDR Brachytherapy Tomotherapy, MRI Linac, Gammaknife, Cyberknife;	





# ESMPE

Saturday 12<sup>th</sup> February 2022

	Session	Title	Description	Lecturer
09:00-10:00	Radiation Therapy	Shielding surveys	Construction Inspection; Interlocks, Restrictive Devices, and Radiation Warning Lights and Signs; Survey Reports	
10:00-11:00		Case Studies 1	Where shielding design has had an impact on good and bad patient and staff experience	
11:00-11:30	Coffee break			
11:30-12:30		Case studies 2	Where shielding design has had an impact on good and bad patient and staff experience	
12:30-13:30	Final examination			





# ESMPE

Course language	English
Level	MPE
Registration fee* (2 main meals, 5 coffee breaks, 1 social dinner)	300 € 350 € (from 22nd December 2021)
Reduced registration fee* <ul style="list-style-type: none"><li>• subsidized by EFOMP</li><li>• first-come, first-served policy</li><li>• deadline for application (20.12.2019)</li></ul>	150 € - for the first 15 attendees (max. 2 from one country) coming from the following European countries: Albania, Belarus, Bosnia & Herzegovina, Bulgaria, Croatia, Cyprus, Estonia, Greece, Hungary, Kosovo, Latvia, Lithuania, North Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, Ukraine.
Maximum number of participants	100
Duration	10th – 12th February 2022
Study load	17.5 hours of lectures and demonstrations
Venue	Online and Onsite at Department of Dosimetry & Application of Ionizing Radiation, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Břehová 7, 115 19 Prague 1, Czech Republic
GPS coordinates	50°5'27.737"N, 14°24'58.713"E
Accommodation	Individual
Information, programme at:	<a href="http://www.efomp.org">www.efomp.org</a>
Registration	Electronic registration via <a href="http://www.efomp.org">EFOMP website</a>
Registration period	22 <sup>nd</sup> November 2021 – 22 <sup>nd</sup> January 2022

\* payment must be done in 14 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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