



## ESMPE European School for Medical Physics Experts

### Computed Tomography

**26<sup>th</sup>-28<sup>th</sup> January 2023, Prague, Czech Republic**

EFOMP, in collaboration with COCIR, 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 **26<sup>th</sup>-28<sup>th</sup> January 2023**.

The school will be aimed at different aspects of CT imaging, from the basics to advanced level in different areas. Moreover, it will cover current hot topics, such as lung cancer screening and photon-counting CT. And finally, attendees should get to know what the role of medical physicists can be in the future.

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 CT imaging. 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. All lecturers will give their talks on-site in Prague but participants can choose if they want to attend the school on-site (limited number of participants) or online, it will be live-streamed.

***Please note: All times shown are in CET***

#### **Content**

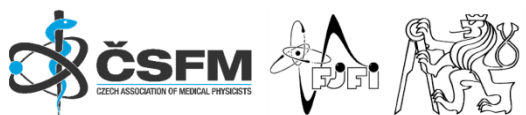
- CT technology, image reconstruction and optimization
- Dual-energy and spectral imaging
- Lung cancer screening
- CT interventional procedures
- Artificial intelligence

#### **Final exam**

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

#### **Organisers**

- Brendan McClean (Chair of the School)
- Marc Kachelrieß, Lucie Sukupova (Scientific Chairs)
- Jaroslav Ptáček, Tereza Hanušová (CAMP)



## Faculty

Christian	Hohl	Marien Gesellschaft Siegen
Harry	de Koning	Erasmus University Rotterdam
Joel	Greffier	CHU Nimes
Ilia	Diakov	Acibadem City Clinic
Ioannis	Sechopoulos	Radboud University Medical Center
Irene	Hernández-Girón	Leiden University Medical Center
Ivana	Isgum	Amsterdam University Medical Center
Lucie	Sukupova	Institute for Clinical and Experimental Medicine
Lynn	Bateman	BCUHB – North Wales Medical Physics
Marc	Kachelrieß	German Cancer Research Center (DKFZ)
Mika	Kortesniemi	Helsinki University Central Hospital
Oswaldo	Rampado	Azienda Ospedaliero Citta' della Salute e della Scienza di Torino
Rolf	Behling	XtraininX
Sebastian	Faby	Siemens Healthcare GmbH
Simona	Avramova-Cholakova	Imperial College Healthcare NHS Trust
Theresa	Hunger	Bundesamt für Strahlenschutz
Timothy	Szczykutowicz	University of Wisconsin Madison
Witold	Rzyman	Medical University of Gdańsk

**Thursday 26<sup>th</sup> January 2023**

	<b>Session</b>	<b>Title</b>	<b>Description</b>	<b>Lecturer</b>
8:00-9:00	Registration			
9:00-9:10	Introduction	Presentation of the ESMPE and introduction to the course		Brendan Mc Clean
9:10-9:50	Technology	X-ray tubes, cathode limit, anode limit; operating parameters  TCM (strong, weak), organ-based TCM, tube voltage selection		Rolf Behling
9.50-10.30		CT detectors, data channels, cover and speed of acquisition (axial vs. spiral acquisition mode)  Future technologies for tube current modulation and prefilters		Marc Kachelrieß
10:30-11:00	Coffee break			
11:00-11:40	Image Reconstruction, Optimization, DRLs	Reconstruction techniques		Oswaldo Rampado
11.40-12.00		Artifacts - how to identify and avoid (reduce) them		Tim Szczykutowicz
12:00-12:30		Imaging protocols and clinical based DRLs		Tim Szczykutowicz
12:30-14:00	Lunch break			
14.00-14.25	Spectral Imaging	Dual-energy imaging - types of acquisition, pros and cons		Marc Kachelrieß
14.25-14.50		Photon-counting CT - technology		Sebastian Faby
14.50-15.15		DECT and PCD-CT in clinical practice		Sebastian Faby
15.15-15.30		First experience with PCCT		Lucie Sukupova
15:30-16:00	Coffee break			
16.00-16:45	Quality Assurance	Quality Control in CT		Mika Kortensniemi
16:45-17:30		Model observers, perception and their use in CT		Irene Hernández-Girón
19:30-22:30	Social dinner - participants + lecturers			

Friday 27<sup>th</sup> January 2023

	Session	Title	Description	Lecturer
09:00-09:45	Dose and Dose Tracking Systems	CT dose quantities, dose estimation and dose tracking systems		Simona Avramova-Cholakova
09:45 – 10:30		3 speakers talking about experience with DTS	Radimetrics / DoseWatch / Qaelum	Simona Avramova-Cholakova / Ilia Diakov / Lynn Bateman
10:30-11.00	Coffee break			
11.00-11.45	Cardiac CT		Canon, GE	
11.45-12.30			Philips, Siemens	
12:30-14:00	Lunch break			
14:00-14:22	Lung Cancer Screening	NELSON study		Harry de Koning
14:23-14:45		The Poland lung cancer screening program		Witold K. Rzyman
14:46-15:08		Implementation of a national screening programme in Germany		Theresa Hunger
15:09-15:30		Requirements on CT technology for LCS		Marc Kachelrieß
15:30-16:00	Coffee break			
16:00-16.45	Interventional Procedures	Optimization and DRLs in interventional CT and CT fluoroscopy		Joel Greffier
16.45-17.30		Occupational safety in interventional CT and CT fluoroscopy		Christian Hohl

Saturday 28<sup>th</sup> January 2023

	Session	Title	Description	Lecturer
09:00-09:45	Artificial Intelligence	AI in CT Image formation		Marc Kachelrieß
09:45-10:30		Image processing and analysis		Ivana Isgum
10:30-11:00	Coffee break			
11:00-11:45	Medical Physics 3.0: Expanding role of Physicists in Imaging: Informatics, Technology, Clinical Practice and Research			Ioannis Sechopoulos
11:45-12:30	Future directions in CT			Mika Kortensniemi
12:30-13:30	Final examination			

Course language	English
Level	MPE
Registration fee* (2 main meals, 5 coffee breaks, 1 social dinner)	300 € 350 € (from 22 <sup>nd</sup> December 2022)
Reduced registration fee* • subsidized by EFOMP • first-come, first-served policy	150 € - for the first 15 attendees (max. 2 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, Slovenia, Ukraine.
Number of onsite participants	50
Number of online participants	No limit
Duration	26 <sup>th</sup> -28 <sup>th</sup> January 2023
Study load	16 hours of lectures and demonstrations
Venue	Department of Dosimetry and 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> October 2022 – 26 <sup>nd</sup> December 2022

- Payment must be done in **5 days** following the pre-registration, otherwise pre-registration will be cancelled.
- Payment must be done via EFOMP online payment system using a credit card; no bank transfers are accepted.

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