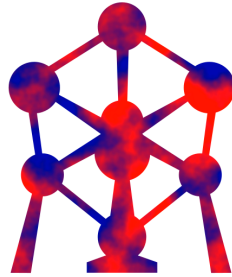
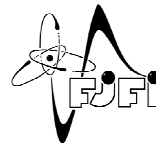




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ESMPE

European School for
Medical Physics Experts

ESTRO recommended event

ESMPE European School for Medical Physics Experts – Prague January 2017

Imaging in Radiotherapy

January 26 – January 28, 2017
Prague, Czech Republic

The 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 would like to invite you to the next **ESMPE_RT 2017**.

The school will be aimed at advanced tasks connected with **Imaging in Radiotherapy**. The school will cover the main physics aspects of the different imaging technologies used to support target volume definition, patient positioning and response to treatment assessment, during radiotherapy. This two-and-half day event will be accredited and is intended for practicing clinical Medical Physicists who are at the level of a Medical Physics Expert (MPE) in Radiotherapy or working towards becoming an MPE. As in last year's school, there will be an optional examination at the end for those seeking a higher level of certification beyond attendance.

Content

Advanced structural imaging for radiotherapy simulation and planning - 4DCT and MRI imaging for simulation and planning. Technological requirements, protocol optimization for radiotherapy applications, imaging issues, Quality Assurance.

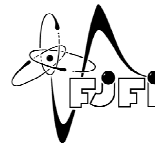
Advanced quantitative imaging for radiotherapy planning - PET and fMRI imaging for radiotherapy planning. Methods for automatic functional volume segmentation with clinical examples. MRI diffusion and perfusion techniques for target volume definition and response to treatment assessment

Advanced imaging for treatment adaptation - MRI Image guided radiotherapy. Applications of quantitative imaging provided by PET and MRI in treatment adaptation according to early response.

Imaging for treatment guide and verification - IGRT, CBCT, Ultrasound, EPID and fluoroscopy, Optical surface imaging : Devices, practices, Quality assurance, clinical



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examples.

Cone beam CT - Acceptance testing and Quality controls, dosimetry, use of CBCT in adaptive radiotherapy, motion management

Tools for image integration in the radiotherapy workflow - Overview of image registration methods, deformable image registration, clinical application of DIR, ROI propagation in adaptive radiotherapy, atlas based segmentation, practical demonstrations.

Final exam

The final exam is voluntary. Participants can gain double MPE credits when successfully pass the test. The basic number of CPD credits (for attendance only) is 18.

Organizers

Jaroslav Ptáček, Tereza Hanušová (Czech Republic)
Gianfranco Loi (Scientific Chair), **Alberto Torresin** (Chair of the School), **Marco Brambilla** (EFOMP Secretary General), **John Damilakis** (EFOMP President)

Lecturers

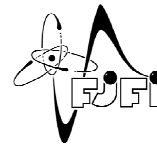
Jens M. Edmund	Herlev and Gentofte Hospital, University of Copenhagen, Department of Oncology, Division of Radiotherapy, Copenhagen, Denmark
Christian Fiandra	University of Torino, Department of Oncology, Torino, Italy
Rob Tijssen	University Medical Center - Utrecht, The Netherlands
Gianfranco Loi	University Hospital of Novara, Department of Medical Physics – Novara, Italy
Emiliano Spezi	University of Cardiff, School of Engineering – Cardiff, UK
Alberto Torresin	Hospital of Niguarda, Department of Medical Physics – Milano, Italy
Uulke van der Heide	Netherlands Cancer Institute - Amsterdam, The Netherlands
Stina Svensson	Raysearch Laboratories, Stockholm, Sweden
Dimitris Visviskis	INSERM - Brest, France

Time-table

26th January 2017 Thursday	Title	Description	Lecturer
8:00-9:00	Registration		
9:00-10:00	The state of art of imaging for radiotherapy	An overview of structural and functional imaging for tumor volume definition and advanced applications in radiotherapy	Dimitris Visviskis
10:00-10:30	Coffee break		



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10:30-11:30	4DCT imaging for simulation and planning	Technological requirements, commissioning, imaging issues and quality assurance.	Christian Fiandra
11:30-12:30	The state of art of imaging for IGRT	In room and Linac based imaging for advanced IGRT and IGART techniques, new challenges and developments.	Rob Tijssen
12:30-14:00	Lunch break		
14:00-15:00	PET imaging for radiotherapy planning	Methods for automatic functional volume segmentation with clinical examples, how to use the functional segmented volume in treatment optimization	Dimitris Visviskis
15:00-16:00	Advanced fMRI imaging for radiotherapy planning optimization	MRI diffusion and perfusion, assessing geometrical accuracy, reproducibility and parameter standardization. Acquisition protocols and data analysis with dedicated software.	Uulke van der Heide
16:00-16:30	Coffee break		
16:30-17:30	MRI Image guided radiotherapy	New technology of Hybrid delivery system with MRI on board. Commissioning, challenges and new developments for adaptive radiotherapy.	Rob Tijssen
17:30-18:30	5D Image for radiotherapy	Exploring the potentiality and the applications of quantitative imaging provided by PET and MRI in treatment adaptation according to early response. Clinical examples.	Uulke van der Heide
20:00-23:00	Social dinner - participants + lecturers		

27 th January 2017 Friday	Title	Description	Lecturer
8:00-9:00	CBCT in radiotherapy	CBCT acquisition and reconstruction. CBCT imaging issues: Implementation of clinical protocols for IGRT	Jens Edmund
9:00-10:00	MRI based simulation and planning	Technological requirements, protocol optimization for radiotherapy applications, imaging issues, synthetic CT generation methods for planning, quality assurance	Jens Edmund

10:00-10:30	Coffee break		
10:30-11:30	Ultrasound imaging in radiotherapy	Devices, practice, QA, clinical application: pelvis, breast.	Christian Fiandra
11:30-12:30	EPID and Fluoroscopic imaging	Hardware, software, QA clinical application, in vivo dosimetry, real time plan verification	Emiliano Spezi
12:30-14:00	Lunch time		
27th January 2017 Friday	Title	Description	Lecturer
14:00-15:00	Acceptance testing and QC of CBCT systems	Acceptance/commissioning testing: purpose, types, examples.	Alberto Torresin
15:00-16:00	CBCT imaging dose evaluation	Dosimetry methods for CBCT image dose evaluation for organ and tissues, demonstration, examples.	Emiliano Spezi
16:00-16:30	Coffee break		
16:30-17:30	CBCT for Image Guided Adaptive Radiotherapy	Protocol optimization, challenges and applications in head and neck, lung and pelvis.	Gianfranco Loi
17:30-18:30	4DCBCT for motion management	How to implement, protocol optimization, QA, application in Stereotactic Ablative Radiotherapy.	Christian Fiandra
28th January 2017 Saturday	Title	Description	Lecturer
8.00-9.00	Image registration in radiotherapy	Overview of image registration methods, deformable image registration, clinical application of DIR, ROI propagation in adaptive radiotherapy, atlas based segmentation.	Stina Svensson
9.00-10.00	Deformable image registration challenges: assessing the accuracy for contour propagation and dose mapping	Practical demonstration with examples.	Stina Svensson
10:00-10:30	Coffee break		
10.30-11:30	Optical surface imaging in radiotherapy	Devices, practice, QA, advanced application: Deep breath hold inspiration.	Gianfranco Loi
11.30-12.00	Image sharing in radiotherapy	Open discussion on real and future scenarios about image sharing with Image	Alberto Torresin



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		Departments (Radiology, Nuclear Medicine)	
12:30-14:00	Final examination		

Further information

Course language	English
Level	MP to MPE
Registration fee	300 € 2 main meals, 5 coffee breaks included, 1 social dinner
Reduced registration fee - subsidized by EFOMP - first-come, first-served policy	150 € - for the first 15 attendees (max. 3 from one country) coming from the following European countries: Albania, Belarus, Bosnia, Herzegovina, Bulgaria, Croatia, Cyprus, Estonia, Greece, Hungary, Kosovo, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, Ukraine.
Maximum number of participants	50
Duration	26th Jan 2017 – 28th Jan 2017
Study load	18 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, program, etc.	www.csfm.cz/winter2017.html
Registration	Electronic registration via www.csfm.cz/winter2017.html
Registration period	1 August 2016 – 20 Jan 2017

For all practical information, including accommodation and public transport in Prague, please contact Czech part of organizing committee: winter2017@csfm.cz.

Electronic registration and e-mail address will be functional from 1 Aug 2016.