ESMPE European School for Medical Physics Experts

Treatment Planning systems

Jointly organised by ESMPE and COCIR

10th-12th October 2019, Warsaw, Poland

The EFOMP and COCIR (The European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry) in collaboration with the Polish Society for Medical Physics (PSMP) would like to invite you to the next ESMPE in **Radiotherapy 2019**.

The school will be aimed at advanced tasks connected with the use of Treatment Planning systems in radiotherapy planning. The school will cover the main physics aspects of the input data to treatment planning systems, an overview of the main dose calculation approaches, use of imaging in RT planning and delivery and future developments.

This edition is jointly organized by EFOMP and COCIR. Lecturers identified by COCIR will give insides on the technical solution adopted by manufacturers in the relevant fields of dose calculation and optimization.

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 in radiotherapy treatment planning. 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

Medical Physicist and vendor responsibilities for TPS – data input for TPS – common dose calculation approaches – QA of TPS

Imaging for treatment planning – imaging for treatment delivery - Use of CT and MRI in modern radiotherapy. Cone Beam CT. Implications of on treatment imaging for dose calculation.

Patient specific QA measurements - Patient Specific Dosimetry - Managing patient imaging dose. Optimisation of patient dose

Advances in TPS development– Automated planning and QA – Biological dose optimization.

Final exam

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

Organizers

Brendan McClean (Scientific Chair)**, Alberto Torresin** (Chair of the School)

Pawel Kukolowicz (Polish Society), **Efi Koutsouveli** (ESMPE Board)

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Faculty

Anders Ahnesjo	Uppsala University, Uppsala, Sweden
Mania Maria Aspradakis	Kantonsspital Graubunden, Chur, Switzerland
Eleonora Lanzi	Varian, COCIR
Dylan Casey	Accuray, COCIR
James Dolan	Elekta, COCIR
Ben Heijmen	Erasmus MC Cancer Institute, Rotterdam, The Netherlands
Efi Koutsouveli	Hygeia hospital , Athens, Greece
Pawel Kukolovicz	Maria Sklodowska-Curie Memorial Cancer, Warsaw, Poland
Matteo Maspero	University Medical Center, Utrecht, The Netherlands
Gloria Miori	Raysearch laboratories, COCIR
Brendan Mc Clean	St Luke's Radiation Oncology Network, Dublin, Ireland
Ian Norton	Philips, COCIR
Alberto Torresin	ASST Niguarda, Milano, Italy
Dirk Verellen	GZA Ziekenhuizen, Antwerp, Belgium

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10th October 2019				
	Session	**Title**	**Description**	**Lecturer**
8:00-9:00	Registration			
9:00-10:00	Setting the Scene	Requirements for TPS commissioning	MPE and vendor responsibilities for commissioning a TPS	E Koutsouveli
10:00-10:30	Coffee break			
10:30-11:30	Dose Calculation I	Multisource models	Particle energy fluence to the patient, Recommended data input for different TPS	A Ahnesjo
11:30-12:30	Dose Calculation II	Common dose calculation approaches	Collapsed Cone, AAA, Grid Based and Monte Carlo approaches to calculation in inhomogeneous media (inside TPS)	A Ahnesjo
			Dose to water and Dose to Tissue concepts	M Aspradakis
12:30-14:00	Lunch break			
14.00-15.00	Small Fields	Small field measurements and Verification tests for TPS	Recommended data input for different TPS, Small field measurements Verification tests for TPS (IAEA, AAPM, NCS) Periodic QC tests and QC following upgrades	M Aspradakis
15.00-15.30	Technology. Elekta	New trends in Data input and Commissioning	Dose calculation approaches as implemented in specific TPS. Key input data and common mistakes. QA tests carried out by vendor. Feedback processes. How to configure the relevant parameters. Future perspectives	J Dolan
15.30-16.00	Technology. Varian			E Lanzi
16:00-16:30	Coffee break			
16.30-17.00	Technology. Accuray	New trends in Data input and Commissioning	Dose calculation approaches as implemented in specific TPS. Key input data and common mistakes. QA tests carried out by vendor. Feedback processes. How to configure the relevant parameters. Future perspectives	D Casey
17.00-17.30	Technology. Philips			I Norton
17.30-18.00	Technology. Ray-Search			G Miori
20:00-23:00	Social dinner - participants + lecturers			

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11th October 2019				
	Session	**Title**	**Description**	**Lecturer**
9:00-10:00	Images as input to TPS for Radiotherapy	CT, MRI and PET in RT	QA of CT/MRI based treatment planning. Protocols for imaging. Image Fusion Implications for patient dose calculation.	D Verellen
10:00-10:30	Coffee break			
10.30-11.15	On-treatment imaging	Cone Beam CT and kV imaging	CBCT and implications for patient dose calculation Frequency of imaging and margin determination Dose optimization for daily imaging	M Maspero
11.15-11.45		MV Imaging	Artifact Reduction Implications for Dose Calculation	P Kukolovicz
11.45-12.30		MRI guided treatments	Atlas based and Pseudo CT. Implications for patient dose calculation. Uncertainties	M Maspero
12:30-14:00	Lunch time			
14.00-14.30	Optimizing dose distributions	Optimization approaches for modern TPS	IMRT Fluence optimization Dose Optimization approaches. Help volumes. Multicriteria Optimization	D Verellen
14.30-15.00		Out of Field	Calculation of dose out of primary field. Dose to implantable devices	B McClean
15.00-15.30	Optimisation Elekta	Optimization approaches in TPS.	Image handling and patient representation in TPS. Volume derivation, margin application, DVH binning and metrics. Tools available for optimization, volume definition, DVH analysis. What the MPE must know from manufacturers	J Dolan
15.30-16.00	Optimisation Varian			E Lanzi
16:00-16:30	Coffee break			
16.30-17.00	Optimisation Accuray	Optimization approaches in TPS.	Image handling and patient representation in TPS. Volume derivation, margin application, DVH binning and metrics. Tools available for optimization, volume definition, DVH analysis. What the MPE must know from manufacturers	D Casey
17.00-17.30	Optimisation Philips			I Norton
17.30-18.00	Optimisation Ray-Search			G Miori

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12th October 2019				
	Session	**Title**	**Description**	**Lecturer**
9.00-10.00	Developments and Research	Automated Planning		B Heijmen
10.00-11.00		Biological Optimization and Evaluation tools	Biological Optimization and Evaluation tools	B Heijmen
11:00-11:30	Coffee break			
11:30-13:00	Inter disciplinary	Round Table	Data archiving and sharing for clinical trials: Prerequisites. Involvement of computer scientists, IT personnel Further Education and training	B McClean A Torresin/ J Dolan E Lanzi D Casey I Norton G Miori
13:00-15:00	Final examination			

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Further Information

Course language	English
Level	MPE
Registration fee* (2 main meals, 5 coffee breaks, 1 social dinner)	300 € 350 € (from 12.08.2019)
Reduced registration fee* • subsidized by EFOMP • first-come, first-served policy • deadline for application (23.09.2019)	150 € - for the first 10 attendees (max. 2 from one country) coming from the following European countries: Albania, Belarus, Bosnia & Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Kosovo, Latvia, Lithuania, FYR Macedonia, Moldova, Montenegro, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, Ukraine.
Maximum number of participants	80
Duration	10th October 2019 – 12th October 2019
Study load	16 hours of lectures
Venue	Centre for Innovation and Technology Transfer Management of Warsaw University of Technology, ul. Rektorska 4,00-614,Warsaw, Poland
Website:	CZIITT
Accommodation	Individual
Information, programme at:	www.efomp.org
Registration	Electronic registration via EFOMP website
Registration period	1st February 2019 – 23rd September 2019

* 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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