

ESMPE European School for Medical Physics Experts

MRI in Radiation Therapy Planning

5th–6th May 2021

Online webinar course with *live* lectures

EFOMP would like to invite you to the next ESMPE in **MRI in Radiation Therapy Planning**. The school will be organized as a 2-day virtual meeting, which will be held on 5th–6th May 2021.

The school will be focused on the Medical Physics aspects of Radiation Therapy Planning using MRI and will be aimed at presenting the background, practical methodology, state-of-the-art and future developments. All of the lectures will be delivered live (i.e. not pre-recorded).

This two-day event is accredited by EBAMP (European Board of Accreditation for Medical Physics) as a CPD event for Medical Physicists at EQF Level 8 and awarded 18 CPD credit points. It is intended for Medical Physicists Experts who wish to expand their knowledge in radiation therapy planning using MRI. Certificates of attendance will be issued to those who attend the whole course.

Content

- MRI physics – basic and advanced
- Artefacts and spatial distortion
- Pulse sequences for RT planning
- Hardware and software for MRI RT planning
- Image segmentation techniques
- MRI in external beam, gamma knife and brachytherapy planning
- Workflow and quality control
- Real-time MR-guided external beam radiation therapy

Organisers

Alberto Torresin (Chair of the School),

David Lurie and Brendan McClean (Scientific Co-Chairs)

Efi Koutsouveli and Christos Alexakos (ESMPE online platform)

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Faculty

Name	Location
Paul Davenport	St. Luke's Hospital, Dublin / IE
Paddy Gilligan	Mater Hospital, Dublin / IE
Christian Kirisits	Medical University of Vienna / AT
David Lurie	University of Aberdeen / UK
Ian Paddick	Queen Square Radiosurgery Centre, London / UK
Geoffrey Payne	University Hospital Southampton / UK
Bas Raaymakers	University Medical Centre, Utrecht / NL
Maria Schmidt	Royal Marsden and Institute of Cancer Research, London / UK
Ioannis Seimenis	National and Kapodastrian University of Athens / GR
Maria Francesca Spadea	University Magna Graecia of Catanzaro / IT
Daniela Thorwarth	University of Tübingen / DE
Vincenzo Valentini	Università Cattolica S. Cuore, Rome / IT

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Schedule – day 1

Wednesday 5 th May 2021					
Slot	Time (CET)	Session	Title	Description	Lecturer
	9:30-10:15	Registration			
	10:15-10:30	Introduction to the EFOMP School			
1	10:30-10:50	MRI concepts	Reminder of basic MRI physics (1)	Gradients, selective excitation, gradient echo	David Lurie Aberdeen/UK
2	11:00-11:20		Reminder of basic MRI physics (2)	Phase encoding, 2DFT pulse sequence, data analysis	David Lurie Aberdeen/UK
3	11:30-11:50		Advanced MRI methods	Rapid pulse sequences, diffusion, fMRI	Ioannis Semenis Athens/GR
4	12:00-12:20		Artefacts & spatial distortion in MRI	MRI artefacts, spatial distortion and corrections	Ioannis Semenis Athens/GR
	12:20-12:50	Break			
5	12:50-13:15	Company lectures	Varian	Utilizing MRI in clinical practice	Ekta Jhala Steinhausen/CH
6	13:20-13:45		Raysearch	MR based planning in RayStation	Erik Traneus Stocholm/SE
	13:45-14:30	Break			
7	14:30-14:50	Pulse sequences	MRI pulse sequences	Pulse sequences used in MRI planning	Geoffrey Payne Southampton/UK
8	15:00-15:20	MRI safety	MRI safety	Key aspects of MRI safety, including patient exclusion criteria	Paddy Gilligan Dublin/IE
9	15:30-15:50	Hardware & software	Hardware & software for MRI planning	Hardware and software specific to MRI treatment planning	Paul Davenport Dublin/IE
10	16:00-16:20	Treatment outcomes	Prediction of treatment outcomes	Using MRI to monitor effect of treatment and predict patient outcomes	Daniela Thorwarth Tübingen/DE
11	16:30-17:15	Q&A	Live Q&A session with all first-day speakers		

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Schedule – day 2

Thursday 6 th May 2021					
Slot	Time (CET)	Session	Title	Description	Lecturer
	9:30-10:30	Registration			
12	10:30-10:50	MRI planning methods	Image segmentation	Image synthesis and workflow to produce electron density maps from MR images	Maria Francesca Spadea Catanzaro/IT
13	11:00-11:20		External beam planning	Techniques of external beam radiation therapy planning using MRI	Paul Davenport Dublin/IE
14	11:30-11:50		Gamma knife planning	Techniques of gamma knife radiation therapy planning using MRI	Ian Paddick London/UK
15	12:00-12:20		Brachytherapy planning	Techniques of brachytherapy planning using MRI	Christian Kirisits Vienna/AT
	12:20-12:50	Break			
16	12:50-13:15	Company lectures	Delta 4 by Scandidos	Patient QA for daily adaptive RT with an Elekta Unity MR Linac	David Tilly Uppsala/SE
17	13:20-13:45		Philips	Commissioning and implementation of MR-only simulation for RT planning in the pelvic and brain area	Grégory Bolard Switzerland/CH
	13:45-14:00	Break			
18	14:00-14:20	Workflow and QC	Workflow for MRI planning	Typical workflow of MRI planned radiation therapy	Maria Schmidt London/UK
19	14:30-14:50		Quality control	Quality control for MRI planned radiation therapy	Maria Schmidt London/UK
20	15:00-15:20	CT and MRI comparison	Comparison of CT and MRI planning	Comparison of methods and workflow between CT and MRI radiation therapy planning	Paul Davenport Dublin/IE
21	15:30-15:50	Real-time MRgRT	Real-time MR-guided radiation therapy	Hardware and techniques for real-time, MR-guided, external-beam radiation therapy	Bas Raaymakers Utrecht/NL
22	16:00-16:20		Clinical experience of MRgRT	Experience of using MR-guided, external-beam radiation therapy in a clinical setting	Vincenzo Valentini Rome/IT
23	16:30-17:15	Q&A	Live Q&A session with all second-day speakers		

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Further information

Course language	English
Level	Medical Physics Expert (MPE)
Registration fee*	Open to Individual Associate Members of EFOMP
Maximum number of participants	450
Duration	Wednesday 5 th – Thursday 6 th May 2021
Study load	8h
Venue	Online
Website:	www.efomp.org
Information, programme at:	www.efomp.org
Registration	Electronic registration via EFOMP website
Registration period	March 9 th – May 3 rd 2021

*Free registration is reserved for [Individual Associate Members of EFOMP](#), who must register for the online School on a first-come, first-served policy.

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