

## SCIENTIFIC PROGRAMME

**Course Director**

Rob Tijssen (NL)

**Faculty**Cihan Gani (DE)  
Cynthia Ménard (CA)  
Christian Richter (DE)  
Patrick Brynolfsson (SE)  
Kathrine Røe Redalen (NO)**Guest Teacher**Kristin Stützer (DE)  
Rune Slot Thing (DK)**PRE-RECORDED LECTURES**

Time	Lecture	Topic	Speaker
50 min	Pre-recorded	MRI Basics: hardware and safety	Rob Tijssen
50 min	Pre-recorded	MRI Basics : signal generation	Rob Tijssen
50 min	Pre-recorded	MRI Basics: contrast formation	Tufve Nyholm
50 min	Pre-recorded	MRI Basics: space encoding	Lars Olsson
50 min	Pre-recorded	Adv. MR physics: acceleration methods	Rob Tijssen
50 min	Pre-recorded	CT for radiotherapy planning	Christian Richter
50 min	Pre-recorded	Basic Principles of PET	Eirik Malinen
50 min	Pre-recorded	PET image reconstruction and quantification	Eirik Malinen
50 min	Pre-recorded	Recommendations for use of PET in radiotherapy	Eirik Malinen

**DAY 1 – SUNDAY 26 MARCH**

Time	Lecture	Speaker
08.00 – 09.00	Registration	
09.00 – 09.30	Welcome and introduction	Rob Tijssen
09.30 – 10.10	Recap CT basics (Q&A)	Christian Richter
10.10 – 10.30	<i>Coffee break</i>	
10.30 – 11.10	recap PET basics (Q&A)	Kathrine Røe Redalen
11.10 – 11.50	CT-based in-room imaging	Christian Richter
11.50 – 12.30	recap MRI basics (Q&A)	Rob Tijssen
12.30 - 13.30	<i>Lunch</i>	
13.30 – 14.15	PET tracers and applications	Kathrine Røe Redalen
14.15 – 15.00	Geometric artifacts	Patrik Brynolfsson
15.00 – 15.20	<i>Coffee break</i>	
15.20 – 15.50	How to go from technical innovation to clinical impact	Cynthia Menard
15.50 – 17.20	Student assignments	All

## SCIENTIFIC PROGRAMME

### DAY 2 – MONDAY 27 MARCH

Time	Lecture	Speaker
09.00 – 09.50	MRI for treatment planning	Rob Tijssen
09.50 – 10.40	Dual-Energy CT for particle therapy planning and beyond	Christian Richter
10.40 – 11.00	<i>Coffee break</i>	
11.00 – 11.45	4D-CT (Online)	Kristin Stützer
11.45 – 12.30	(Q)MRI and PET in adaptive radiotherapy	Kathrine Røe Redalen
12.30 – 13.30	<i>Lunch</i>	
13.30 – 14.15	Image processing: image registration	Patrik Brynolfsson
14.15 – 15.00	MR and PET - What is going on? Where are we going?	Cihan Gani, DE
15.00 – 15.20	<i>Coffee break</i>	
15.20 – 16.00	Tumor board	Cynthia Menard + Cihan Gani
16.00 – 17.00	Student assignments	All

### DAY 3 – TUESDAY 28 MARCH

Time	Lecture	Speaker
09.00 – 09.45	EPI & diffusion	Rob Tijssen
09.45 – 10.30	Questions and Answers PET (+ open discussion)	Kathrine Røe Redalen / Patrik Brynolfsson
10.30 – 10.50	<i>Coffee break</i>	
10.50 – 11.40	AI in imaging for Radiation Therapy	Kathrine Røe Redalen
11.40 – 12.10	The future of imaging in radiotherapy	Cynthia Menard
<i>Free afternoon</i>		

### DAY 4 – WEDNESDAY 29 MARCH

Time	Lecture	Speaker
09.00 – 09.45	Cone-Beam CT acquisition and reconstruction	Rune Slot Thing
09.45 – 10.30	Questions and Answers CT (+ open discussion)	Christian Richter
10.30 – 10.50	<i>Coffee break</i>	
10.50 – 11.40	MR-Linac system design	Rob Tijssen
11.40 – 12.30	Treating with the MR-Linac	Cihan Gani
12.30 – 13.30	<i>Lunch</i>	
13.30 – 14.15	Image processing: image segmentation	Patrik Brynolfsson
14.15 – 15.00	Questions and Answers MRI (+ open discussion)	Rob Tijssen / Patrik Brynolfsson
15.00 – 15.20	<i>Coffee break</i>	
15.20 – 17.30	Student presentations (5)	All

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### Day 5 – THURSDAY 30 MARCH

Time	Lecture	Speaker
09.00 – 10.10	Student presentations (5)	All
10.10 – 10.30	<i>Coffee break</i>	
10.30 – 11.30	Artefact QUIZ	All
11.30 – 12.00	Course evaluation and wrap up	All Faculty