

## Advanced Imaging for Physicists

26 – 30 March 2023, Brussels, Belgium.

Novotel Brussels

Modern radiotherapy is becoming more and more reliant on advanced imaging methods. CT, MRI and PET play a vital role in treatment planning as well as onboard image guidance.

This course highlights key technical challenges of the (combined) use of PET, MRI and CT for radiotherapy. The latest developments are discussed as well as the clinical impact of these imaging modalities.

### Target group

The course is aimed at trainees in radiotherapy physics, researchers and also more experienced radiotherapy physicists with an interest in the application of advanced imaging techniques in their radiotherapy practice.

### Course aim

The course aims to:

- Improve the understanding of the physics principles of MRI, PET and CT
- Explore the applications of these imaging modalities in clinical practice and discuss the clinical impact in high precision radiotherapy
- Highlight recent developments like spectral CT, quantitative MRI and AI based image processing

### Course content

- Basic principles
  - CT, PET, and MRI refresher on acquisition and reconstruction
  - Current use of CT, MRI and PET for treatment planning
- Advanced Imaging in radiotherapy
  - Real-time MRI
  - PET tracers other than FDG
  - Dual Energy CT
  - Image registration and segmentation
  - Quantitative MRI and PET imaging

- Clinical applications
  - MRI-guided radiotherapy (MR-Linac)
  - How to go from technical innovation to clinical impact
  - AI in imaging for radiotherapy
- Case assignments, Q&A sessions

### Learning outcomes

By the end of this course participants should be able to:

- Understand the basic concepts of MRI, PET, and CT physics
- Understand the key challenges and solutions unique to the application of MRI, PET and advanced CT in radiotherapy
- Understand the potential and challenges of biological imaging methods in radiotherapy treatment planning and follow-up.

### Teaching methods

- 17 lectures (30-45 minutes each)
  - 6 hours of discussions including case assignment presentations.
- The course consists of didactic lectures, interactive sessions and case assignments. Preparatory pre-recorded lectures on the basics of MRI, CT, and PET imaging will be made available in advance (optional)

### Prerequisites

Before commencing this course, participants should have a basic knowledge MRI, CT, and PET physics. Pre-recorded lectures will be provided in advance for this purpose.

### Methods of assessment

- MCQ
- Evaluation form
- Case assignments
- Quiz

### Key words

- MRI • PET • CT

### ROADMAP

- ◆ PHYSICISTS
- MEDICAL PHYSICISTS

### COURSE DIRECTOR

Rob Tijssen, Physicist, (NL)

### TEACHERS

Cynthia Ménard, Radiation Oncologist, (CA)  
Christian Richter, Physicist, (DE)  
Cihan Gani, Radiation Oncologist, (DE)  
Patrik Brynolfsson, Radiation Physicist, (SE)  
Kathrine Røe Redalen, Physicist, (NO)

### PROJECT MANAGER

Karolina Kowalska, ESTRO Office (BE)  
kkowalska@estro.org  
M +32 477250417

### WORKING SCHEDULE

Sunday 26 March:  
09:00 – 18:00  
Monday 27 March:  
08:30 – 17:00  
Tuesday 28 March:  
08:30 – 12:30  
Wednesday 29 March:  
08:30 – 17:00  
Thursday 30 March:  
09:00 – 13:00

### LANGUAGE

The course is conducted in English. No simultaneous translation will be provided.

### COURSE ORGANISATION

For any further information, contact ESTRO:  
Karolina Kowalska  
kkowalska@estro.org  
M +32 477250417

### TECHNICAL EXHIBITION

Companies interested in exhibition opportunities during this teaching course should contact Karolina Kowalska, Project Manager  
kkowalska@estro.org  
M +32 477250417

## PARTICIPANTS SHOULD REGISTER ONLINE [HERE](#)

These pages offer the guarantee of secured online payments.

The system will seamlessly redirect you to the secured website of OGONE (see [www.ogone.be](http://www.ogone.be) for more details) to settle your registration fee.

If online registration is not possible, please contact us:  
ESTRO OFFICE: [education@estro.org](mailto:education@estro.org)

### Registration fees

Please check the registration deadline date on our website

	STANDARD RATE	DESK RATE
In-training members *	€ 500	€ 675
Members	€ 650	€ 775
Non members	€ 800	€ 900

REDUCED FEES Members from emerging countries may register at a preferential rate of 350 Euro. Emerging country fee applies to individuals from low-income and lower-middle-income economies according to the World Bank listing. [HERE](#)

## ESTRO

**ESTRO GOES GREEN** Please note that the course material will be available online. No printed course book will be provided during the courses.

### Advance registration and payment are required.

#### On-site registration will not be available.

Since the number of participants is limited, late registrants are advised to contact the ESTRO office before payment, to inquire about availability of places. Access to Moodle and course material will become available upon receipt of full payment.

### Insurance and cancellation

The organiser does not accept liability for individual medical, travel or personal insurance. Participants are strongly advised to take out their own personal insurance policies.

In case an unforeseen event would force ESTRO to cancel the meeting, the Society will reimburse the participants fully the registration fees. ESTRO will not be responsible for the refund of travel and accommodation costs.

In case of cancellation, full refund of the registration fee minus 15% for administrative costs may be obtained up to three months before the course and 50% of the fee up to one month before the course. No refund will be made if the cancellation request is postmarked less than one month before the start of the course.

**Don't miss the early registration deadline:  
11 January 2023**

