

Advanced Brachytherapy Physics

07-10 October 2018 | Valencia, Spain

Seeking to advance your expertise in brachytherapy physics? The Advanced Brachytherapy Physics course provides a modern update on the clinical standard-of-care and an in depth look into the scientific foundation necessary to qualify as a brachytherapy physics expert in practice and research.

TARGET GROUP

The course is primarily designed for medical physicists interested in expanding their knowledge in the field of brachytherapy physics. A basic background in the sub-specialty is required, as supported by (preferably) at least one year of experience in clinical practice, or participation in a relevant course (such as the Comprehensive and Practical Brachytherapy teaching course). The course could also serve as a refresher or an interactive update on recent developments in the field of brachytherapy for senior medical physicists.

COURSE AIM

The course aims to:

- Expand on the physics background of recent developments in conventional and contemporary dosimetry methods in modern brachytherapy (computational and experimental)
- Provide a detailed review of modern 3D treatment planning techniques and prescription concepts including: imaging,

anatomy segmentation and source localisation methods, optimisation methods and strategies, treatment plan evaluation, the need for quality assurance, and concepts of risk assessment

- Provide an overview of essential quality assurance aspects, in vivo dosimetry, treatment verification techniques and associated recent developments
- Review available knowledge on uncertainties and their clinical impact in modern brachytherapy
- Offer an overview of upcoming technological advancements in implantation and treatment delivery.

LEARNING OUTCOMES

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

- Define a QA-programme for 3D image based brachytherapy treatment planning
- Identify and understand the benefits and limitations of alternative 3D dose calculation algorithms
- Identify the benefits and limitations of using inverse optimisation and planning technology in specific disease sites
- Identify the need for, and implement, a verification process for specific brachytherapy treatment techniques
- Delineate the relative importance of different sources of uncertainty for specific brachytherapy applications

COURSE CONTENT

This is a 3,5 day course organised to attain a high level of understanding of the physics background of brachytherapy delivery and its technical aspects. The following items will be covered:

ROADMAP



RADIOTHERAPY TREATMENT PLANNING AND DELIVERY



MEDICAL PHYSICIST

COURSE DIRECTOR

Dimos Baltas (DE)

TEACHERS

Luc Beaulieu (CA)
Nicole Nesvacil (AT)
Panagiotis Papagiannis (GR)
Mark Rivard (USA)

LOCAL ORGANISERS

Jose Perez-Catalayud
Physicist, Hospital Universitario La Fe,
Valencia

Facundo Ballester
Physicist,
University of Valencia

PROJECT MANAGER

Alessandra Nappa, ESTRO office (BE)

WORKING SCHEDULE

The course starts on Sunday 7 October at 09:00 and finishes on Wednesday 10 October at 13:00.

LANGUAGE

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

COURSE ORGANISATION

For any further information please contact ESTRO:
Alessandra Nappa
E-mail: Anappa@estro.org
Tel: +32 2 775 93 43 Fax: +32 2 779 54 94

COURSE VENUE

To be confirmed, please visit course pages on the ESTRO website: <http://www.estro.org/school>

TECHNICAL EXHIBITION

Companies interested in exhibition opportunities during this teaching course should contact Alessandra Nappa – Project Manager
Email: Anappa@estro.org
Tel: +32 2 775 93 43
Fax: +32 2 779 54 94

ACCOMMODATION

To book your room, please visit course pages on the ESTRO website: www.estro.org/school

3D Imaging and localisation in brachytherapy:

- Overview of 3D imaging modalities and techniques for brachytherapy
- Tissue segmentation and characterisation for 3D calculations using 3D imaging
- Catheter/applicator and source localisation using 3D imaging
- Demands on QA of 3D imaging
- Practical session on 3D imaging based localisation methods (U/S, CT, MR).

Advanced 3D dose calculation:

- TG43: essentials and limitations
- Monte Carlo simulation based dosimetry
- The grid based Boltzmann equation solver algorithm (Acuros)
- The collapsed cone superposition algorithm (ACE)
- Commissioning of 3D algorithms beyond TG43 in clinical practice
- Practical session on evaluating alternative 3D dose calculation algorithms.

Dose optimisation, evaluation, prescription and reporting:

- Optimisation and inverse planning
- Dose plan evaluation
- Prescription and reporting
- Practical session on optimisation, prescription and evaluation.

Experimental methods and dosimetry:

- Source strength determination
- Experimental dosimetry in brachytherapy
- Treatment delivery verification
- *In vivo* dosimetry.

Uncertainties and quality management:

- Uncertainties and their clinical impact in brachytherapy
- Quality management.

Outlook to expected technological advancements.

PREREQUISITES

An understanding of basic concepts and methods of image based treatment planning in brachytherapy

- A basic understanding of computational and experimental dosimetry methods in the brachytherapy energy regime
- Familiarisation with recommendations and guidelines for the most common brachytherapy applications (gynaecological, prostate, breast, head and neck)..

TEACHING METHODS

Lectures, open discussion, practical sessions (including hands on).

METHODS OF ASSESSMENT

Interaction during practical sessions, open discussion, self-assessment questionnaire (multiple choice and open-ended questions).

KEY WORDS

Brachytherapy, imaging, segmentation, localisation, dosimetry, treatment planning, TG43, Monte Carlo, grid based Boltzmann equation solver Acuros, collapsed cone ACE, commissioning, optimisation, inverse planning, dose prescription, dose reporting, verification, *in vivo*, QA, uncertainty, quality management.

PARTICIPANTS SHOULD REGISTER ONLINE AT: WWW.ESTRO.ORG/SCHOOL

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 for more details) to settle your registration fee.

If online registration is not possible please contact us:

ESTRO OFFICE

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REGISTRATION FEES

Please check the early deadline date on our website

	EARLY FEE	LATE FEE
In-training members*	450 €	625 €
Members	600 €	725 €
Non members	750 €	850 €

*Radiation Therapist (RTT) members are eligible for the in-training fee

The fee includes the course material, coffees, lunches, and the social event.

Reduced fees are available for ESTRO members working in economically less competitive countries. Check the eligible countries and the selection criteria on the website of the ESTRO School.

ESTRO goes green: Please note that the course material will be available online. No 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 homework and/or 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 full registration fees to the participants, 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.