The Abdus Salam International Centre for Theoretical Physics

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United Nations Educational, Scientific and Cultural Organization

IAEA International Atomic Energy Agency

JOINT ICTP-IAEA WORKSHOP ON TRANSITIONING FROM 2-D BRACHYTHERAPY TO 3-D HIGH-DOSE-RATE BRACHYTHERAPY

16 - 20 November 2015

Miramare, Trieste, Italy

The aim of this Workshop is to offer the participants involved in the development, implementation and management of brachytherapy programmes who seek to improve the conventional approach with the aim of achieving higher precision by transition from simpler radiation treatment approaches to advanced brachytherapy. This Workshop will provide guidelines and will highlight the milestones to be achieved by radiotherapy centres in the transition from 2-D brachytherapy to 3-D high-dose-rate brachytherapy including treatment planning. Lecturers involved in medical physics education and clinical training programmes would also benefit from this Workshop.

Brachytherapy (BT) is one important method of radiotherapy treatment delivery along with external beam radiotherapy (EBRT). Brachytherapy is particularly beneficial for the treatment of gynaecological cancers, as well as head and neck and oesophageal cancers. Advances in computer technology have enabled the possibility of transitioning from basic 2-D treatment planning and delivery to a more sophisticated approach with 3-D brachytherapy based on volumetric patient data acquisition. The transition may also include a change in treatment delivery machine from low dose rate (LDR) treatment delivery to high dose rate (HDR) treatment delivery with a remote afterloader machine. Whereas 2-D brachytherapy can be applied with simple equipment, infrastructure and training, transfer to 3-D brachytherapy requires more resources in technology, equipment, staff and training. Medical physicists play an important role in the safe and effective delivery of treatments in brachytherapy including the implementation of quality assurance programs of the physical and technical aspects.

The Workshop will offer the participants a comprehensive review of the principles of radiation physics applied to brachytherapy and will inform participants about the criteria, milestones and practical implications of the transition from 2-D brachytherapy to 3-D brachytherapy. Specially designed practical activities will be organized at the local hospital.

PARTICIPATION

The Workshop is seeking to target clinical medical physicists working in radiotherapy departments as participants, as well as lecturers involved in medical physics education programmes.

Scientists and students from all countries which are members of the United Nations, UNESCO or IAEA may attend the Workshop. As it will be conducted in English, participants should have an adequate working knowledge of this language. Although the main purpose of the Centre is to help research workers from developing countries, through a programme of training activities within a framework of international cooperation, students and post-doctoral scientists from developed countries are also welcome to attend.

As a rule, travel and subsistence expenses of the participants should be borne by the home institution. Every effort should be made by candidates to secure support for their fare (or at least half-fare). However, limited funds are available for some participants from developing countries, to be selected by the organizers. There is no registration fee.

HOW TO APPLY FOR PARTICIPATION

The application form can be accessed at the activity website:

http://indico.ictp.it/event/a14291/

Once in the website, comprehensive instructions will guide you on how to fill out and submit the application form.

ACTIVITY SECRETARIAT:
E-mail: smr2744@ictp.it
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TOPICS

Image acquisition for BT treatment planning including image fusion

Patient position and immobilization in BT

Applicator reconstruction, target volume and OAR visualization and delineation

Dosimetric data acquisition

Treatment planning dose calculation algorithms and inverse planning algorithms

Treatment planning commissioning

Treatment planning strategies for 3-D HDR BT

Treatment plan evaluation in 3-D HDR BT

Guidelines for transitioning from 2-D BT to 3-D HDR BT

Quality assurance of physical and technical aspects of brachytherapy

Practical sessions on planning, dosimetry and quality control of 3-D HDR BT

APPLICATION DEADLINE

15 August 2015