AbstractID: 14460 Title: X-ray Imaging Dose from IGRT

With the advance of technology, image guided radiation therapy (IGRT) has emerged as the new paradigm in radiotherapy. The increased clinical availability of new emerging image guidance procedures such as cone beam CT, etc., has resulted in a dramatic growth in its usage. The radiation exposure to patients resulting from x-ray image guidance procedures may also entail risk to radiosensitive organs. Unlike diagnostic imaging in radiology, image guidance procedures are performed much more frequently.

Knowledge of X-ray Imaging Dose from IGRT and accurate dosimetry of imaging dose to organs from different imaging procedures is becoming increasingly important for clinicians as information to make informed decisions and to manage the additional exposure to radiosensitive organs.

This lecture will provide an overview of the commonly used image-guided procedures and discuss recent developments in the dosimetry for these imaging procedures, especially for kilovoltage cone-beam CT (kV-CBCT) scans. The measurements and calculations of the imaging doses resulting from these imaging procedures will be addressed.

Learning Objectives:

1. Understand the origin of dose distributions between kV and MV imaging,
2. Obtain the knowledge and have a perspective view on the magnitude of the imaging dose related to the therapeutic dose,
3. Learn the techniques to reduce the imaging dose in clinical applications.