AbstractID: 4404 Title: Accurate dosimetry in photon build-up region

Accurate measurements in the dose build-up region for high energy photon beams are not easily obtained. While dosimetry in situations where electronic equilibrium exists is well understood, there is in general no consensus on the most accurate method for measuring doses in the build-up region. In the past, data acquired with an extrapolation chamber were regarded as the benchmark by which the data from other more commonly used dosimeters are evaluated. As extrapolation chambers are clinically impractical devices there is a need to study the behaviour of commercially available and clinically suitable detector systems for accurate dosimetry in the build-up region.

This lecture will provide an overview on the characteristics of the dose build-up region measurements for photon beams, the suitability of several clinical dosimeters for build-up dose measurement and limitations in measurement accuracy.

Educational Objectives:

1. Understanding the reasons why doe measurements in the build-up region are challenging.
2. Grasp issues of the suitability of several dosimeters for measurements in the dose build-up region.
3. Discussion of ongoing research on dosimetry in the dose build-up region.
4. Discussion of the associated uncertainties and their clinical relevance.