



Contribution ID: 723

Type: **Oral (Non-Student) / orale (non-étudiant)**

A SYSTEMATIC APPROACH TO STANDARDIZING SMALL FIELD DOSIMETRY IN RADIOTHERAPY APPLICATIONS

Monday, June 15, 2015 4:45 PM (15 minutes)

Small field dosimetry is difficult, yet consistent data is necessary for the clinical implementation of advanced radiotherapy techniques. In this work we present improved experimental approaches required for standardizing measurement, Monte Carlo (MC) simulation based detector correction factors as well as methods for reporting experimental data. A range of measurements and MC modelling studies have been reported by our group. Based on these methods and results, recommendations are given as to: (1) commissioning/fine-tuning MC models for use in small field dosimetry, (2) correction factors for a range of shielded and unshielded diode detectors, (3) what constitutes a 'very small field size' - based on the different effects as field size gets smaller, (4) measurement methods necessary to control uncertainties at these very small field sizes and (5) reporting against an effective field size - taking into account measured dosimetric field size. The results of the work clearly show that measurement and modelling based methods can be standardized to improve the consistency in small field dosimetry. Through standardization the best accuracy possible can be achieved in these increasingly clinically-used conditions.

Primary author: Dr CRANMER-SARGISON, Gavin (Department of Medical Physics, Saskatchewan Cancer Agency)

Co-authors: Dr THWAITES, David (University of Sydney, Institute of Medical Physics School of Physics, Sydney, Australia); Dr TRAPP, Jamie (Queensland University of Technology, School of Chemistry Physics and Mechanical Engineering, Brisbane, Australia); Dr CHARLES, Paul (Radiation Oncology, Princess Alexandra Hospital, Brisbane, Australia); Dr KAIRN, Tanya (Genesis Cancer Care Queensland, Brisbane, Australia)

Presenter: Dr CRANMER-SARGISON, Gavin (Department of Medical Physics, Saskatchewan Cancer Agency)

Session Classification: M2-6 Radiation Therapy (DMBP-DNP) / Thérapie par rayonnement (DPMB-DPN)

Track Classification: Medical and Biological Physics / Physique médicale et biologique (DMBP-DPMB)