

**AbstractID: 2051 Title: A fast Monte Carlo code for multi-seed brachytherapy treatments, including inter-seed effects**

A Monte Carlo code based on EGSnrc has been developed to model multi-seed interstitial brachytherapy treatments. Using this code the perturbations of dose distributions around I-125 seeds due to the absorption in other seeds was investigated. We have performed a number of Monte Carlo calculations for more than 100 model 6711 seeds in a water phantom. The multi-geometry technique(1) is used to model the phantom and each seed in detail. Previous studies(2,3) have only studied a few seeds at a time. Our results show that there is a decrease in the dose of up to 16% when considering the interseed effects compared to the widely used superposition model. The user-code has been benchmarked against TG-43 data for single seeds. A full calculation for 125 seeds with a statistical precision of 1.6% in 3mm voxels takes about 35 min on a MP2400+ Athlon CPU.

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- (2) Burns and Raeside Med Phys 16 (1989) 627
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