

## AbstractID: 9178 Title: TLD and GafChromic Film Results for a High Dose-Rate $^{103}\text{Pd}$ Applicator

The results for thermoluminescent dosimeters (TLDs) and GafChromic film experiments are compared with Monte Carlo modeling of a high dose rate  $^{103}\text{Pd}$  applicator. Theragenics Corporation® is developing the applicator for potential use in the treatment of Age Related Macular Degeneration (ARMD). The design of the source includes a cylindrical stainless steel casing, which contains the  $^{103}\text{Pd}$ . The active region of the device has an outer diameter of 5-mm. The experimental setup was modeled with the source in its as-built condition and located in the center of a Solid Water phantom, 3-mm from a piece of 2.54-cm x 2.54-cm GafChromic film™, XR type T. The dose to film was calculated using energy deposition and track length tallies at an axial distance of 3-mm and radial distance from  $r=0$  to 10-mm. The film irradiation was conducted with both the film and source in a Solid Water phantom, at a film to source spacing of 3-mm. The normalized modeling results compared to within 10% of the normalized images from the film. The TLD experimental setup was also modeled with the source and TLDs located in a solid water phantom. The TLDs were arranged at an axial distance of 3-mm and radial distance ranging from  $r=0$  to 10-mm from the source. The experimental and modeling results were compared, and the modeling results consistently over-estimated the dose by approximately 10%. The authors are employees or consultants of Theragenics Corporation®.