

## Dosimetric Characteristics of Model 2301 <sup>125</sup>I Brachytherapy Source

The dosimetric characteristics (anisotropy function, radial dose function, and dose rate constant) of a new double encapsulated <sup>125</sup>I seed have been determined experimentally according to the AAPM Task Group 43 recommendations and were related to the 1999 NIST calibration assigned to this source [ $S_{k,99std}$ ]. Phantoms made of solid water were machined to accommodate the LiF thermoluminescent dosimeters that were used to perform the measurements. Two sizes of chips were used with dimensions  $3.1 \times 3.1 \times 0.8 \text{ mm}^3$  and  $1.0 \times 1.0 \times 1.0 \text{ mm}^3$ . The TLD chips were surrounded by at least 10 cm of Solid Water phantom material to provide full scattering conditions. The anisotropy function,  $F(r,\theta)$ , of the new <sup>125</sup>I source was measured at distances of 2 cm and 5 cm from the source center. These data compared favorably with those from the 6711, 6702, and model 2300 sources. The radial dose function,  $g(r)$ , of the new <sup>125</sup>I source was measured at distances ranging from 0.2 cm to 10 cm. Our initial results indicate dose rate constant ( $\Lambda$ ) in solid water and anisotropy functions of the new source were in close agreement to the published data by Nath, et al. Radiochromic film dosimetry will be used as an independent confirmation at a future date. Dosimetric information will be presented in this meeting. Research supported by a contract with Best Medical International.