

## **Dose anisotropy measurement of an $^{192}\text{Ir}$ high dose rate source with a diamond detector**

The dose anisotropy around a Nucletron microSelectron HDR source has been measured with a diamond detector. The angular dependence of the dose anisotropy was measured in an automated 48x48x48 cm<sup>3</sup> Wellhofer water phantom. The microSelectron HDR source was programmed to dwell at a fixed position in a bronchial applicator attached to a jig in the water phantom. Diamond detector used in this study has a thickness of 0.26 mm and a diameter of approximately 3 mm. Diamond detector possesses some unique radiological properties that make it suitable for measurements around brachytherapy sources. The data in his study was normalized to 100% along the source transverse direction (90°). The dose anisotropy measured from 0° to 170° indicates that it is not symmetric along the source transverse axis (90°). This asymmetry is as a result of the design of the microSelectron HDR source. Between 20° and 150° the dose anisotropy differs by less than  $\pm 10$  percent. The dose anisotropy measurements with the diamond detector compare well with the dose anisotropy measured previously with small volume ionization chambers and TLDs.