

# **Tomotherapy Dosimetry and the Tomotherapy Workbench**

**John Balog**

A tomotherapy workbench device was constructed to investigate the feasibility of tomotherapy. The construction and operation of this workbench is explained. Next, some of the unique dosimetric properties of tomotherapy and one-dimensional MLCs are described. These include the enhanced percent depth dose that tomotherapy beams demonstrate. Tomotherapy leakage is quantified. It has been shown that there are no junctioning artifacts along the isocenter with helical tomotherapy. Junctioning artifacts near the periphery of the target are quantified. The philosophy of the workbench control program is explained. The challenges associated with the dosimetry of highly conformal three dimensional radiation therapy are examined as well as the solutions for dealing with them. Finally, the delivery and analysis of two and three-dimensional intensity modulated treatments are presented.