

## **IMRT Dose Verification Using MOSFET Dosimeters**

Traditionally, dose verification with the Nomos Peacock IMRT system has been done with film and TLD. Film has a high spatial resolution, which handles the large dose gradients often found in IMRT, and is readily available in any radiation oncology department. It suffers, however, from being non-tissue equivalent, its need for calibration, and in its need for post-processing developing and scanning. TLD has good point dose resolution, but the drawbacks include technique dependence, its need for calibration, and pre- and post-processing, i.e. annealing, and reading. Ion chambers are good for real-time readout and can be absolute dosimeters, but suffer from a larger collection volume, verification at only one point, dose gradient averaging, and the need for some post-processing corrections, such as temperature, pressure, and chamber corrections. MOSFET dosimeters combine the spatial resolution of TLD with the convenience of an ion chamber. They are small (200 microns), and give an instant readout in cGy. Additionally, several dosimeters can be implanted in the phantom to verify dose across the distribution. Previous dosimeters have had an angular dependence, which effects the readout in DMLC arc therapy. We have evaluated the MOSFET detectors for angular dependence and compared their readouts to TLD in the Nomos phantom for test plans and clinically delivered IMRT treatment plans. The preliminary results show good agreement between TLD and dosimeter. This shows the utility of using MOSFET dosimeters for convenient, real time verification of IMRT dose delivery across the target distribution.