## EDW fields -- A New Technique for Data Collection

In Enhanced dynamic wedge (EDW) mode, the beam intensity is modulated by moving one of the independent collimator jaws as well as by varying the dose rate. Data collection for treatment planning poses special challenge for EDW due the dynamic nature of beam delivery. Two techniques used so far for data collection are film densitometry and linear detector array, each having its special advantages as well as disadvantages.

We used a new technique in which a single ion chamber is moved rapidly back and forth across the radiation field in a water phantom. The software in a CRS Beam Scanner was modified so the system can collect and integrate data at every quarter of a millimeter as the probe moves right and left across the field during multiple passes. A reference probe is positioned in air near the edge of the fixed jaw, at a point that remains unobstructed during the run. The reference signal is used to correct for changes in the dose rate as well as to eliminate some of the noise.

Scanned profiles for the EDW were generated at multiple depths using maximum dose rate and relatively large monitor units. These profiles were incorporated in a ROCS treatment planning computer. Computed isodose distribution shows that the angles of tilt are consistent with the nominal wedge angles and the hot spots compare well with the actual measurement.