

The Use of Multiple Static Fields to Smooth MLC Field Edges

Recently there has been increasing interest in micro- or mini- MLCs to produce fields that are more conformal than those that can be achieved with standard MLCs, which commonly have a projected leaf width of 1 cm. However in this presentation we will demonstrate that is also possible to increase the resolution of a standard MLC without any hardware modification. As originally proposed by Galvin *et al* [1], this method uses several static segments or subfields to modulate MLC field contours. For each subfield the patient couch is shifted spatially some fraction of the 1cm MLC leaf thickness. The MLC leaves are then refitted to the desired contour for each subfield to maintain the same treatment volume. The summation of the shifted subfields results in a field that is shown to better conform to the desired contour than the scalloped edges of an unshifted MLC field. This technique has the added benefit of reducing the peak leakage outside of the field, which can often be made worse by micro- or mini- MLCs due to the increased number of leaves. A convenient implementation of this method is now available which makes this clinically practical. Dosimetric results will be compared with standard MLCs and an mMLC.

[1] Galvin, J.M., *et al. Int J Rad Onc Biol Phys*, Vol 35, No. 1, pp 89-94, 1996.

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