A high resolution collimating device - an affordable alternative to a micro-multileaf collimator.

A secondary collimating device used in conjunction with a standard multileaf collimator has been shown to produce shaped fields with spatial resolution as high as a micro multileaf collimator.

The secondary collimator consists of a series of slits each aligned with one of the pairs of leaves in the standard MLC. Irradiation through both collimators produces a series of narrow strips each receiving a high dose. The length of each strip is determined by the MLC and the width by the slits. To build up a continuous dose distribution the collimators are indexed relative to the patient, by a distance equivalent to the slit width, and the irradiation repeated with a different MLC setting.

Preliminary results will be presented showing that high resolution is achieved without compromising penumbra. The uniformity of the beam depends on the precision of the indexing system, ± 5% has achieved with the experimental model that has been constructed.

This method of collimation is compatible with IMRT and the maximum field size for which high resolution shielding is limited only by the aperture of the MLC to which it is attached.

The device is extremely simple, requiring no moving parts other than the indexing system. The manufacturing cost will be comparable to that of an electron applicator making it affordable to most centres with an MLC.

A Patent has been applied for by Elekta Oncology Systems naming the author as inventor