Comparison of algorithms for multileaf collimator field segmentation

Several algorithms for multileaf collimator (MLC) field segmentation intended for the "stop and shoot" method of intensity modulated radiation therapy are investigated for their performance, with emphasis on the ability to deliver an intensity distribution in a small number of MLC field segments. The algorithm of Xia and Verhey* and one of its variations are found to be the best algorithms, while others are slightly less efficient. It is pointed out that when the background intensity level is not zero, it is not always efficient to deliver a segment to bring the background level to zero, and a criterion to decide whether it is worthwhile to do so is proposed.

*Med. Phys. 25, 1424-1434 (1998).