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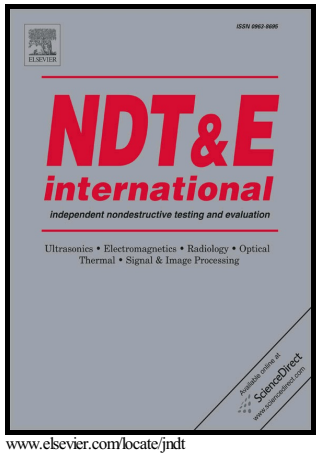

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Abstract

In fan-beam CT scanning, the scanned field of view is determined by the fan-beam angle and the effective length of a linear array detector. Therefore, when an object extends outside the scanned field of view, CT projection data acquired by the detector will not be complete and is truncated abruptly at the projection boundaries. Furthermore, due to mechanical misalignment of X-ray source, object and the linear array detector, the length of the truncated data on the left side is not equal to its length on the right side. This asymmetrical truncation on both sides will bring out dual bright-band artifacts in the reconstructed images. The purpose of this paper is to develop a method of eliminating these artifacts by projection extension techniques. We first extend the truncated projection unilaterally by using geometrical symmetry property of the fan-beam scanning. Through this method, the projection center of rotation is adjusted to the