X-rays tomographic reconstruction images using proximal methods based on L1 Norm and TV regularization

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Abstract: In this paper, sparse regularization methods are applied to X-rays tomographic reconstruction 2D images. These methods are based on total variation algorithm associated to L1 norm and proximal functions. The inverse problem can therefore be regularized by using total variation regularisation based on proximal functions such as Forward-Backward, Douglas-Rachford and Chambolle-Pock approaches. We applied this method to non-destructive evaluation of material in the case of 2D reconstruction of X-rays tomographic images containing real defects.

Keywords: x-ray tomographic, total variation, proximal methods