

A Novel Compton Scattering Tomography

Abstract: The Compton tomography is an emerging imaging which deals with the major technical challenge at present (the resolution of the phenomenon of Compton scattering of the photons which is the principal degradation of the image quality in tomographic imaging systems). In recent years, there has been a rapid development of Compton Scatter Imaging and several modalities of Compton Scatter Tomography (CST) have been proposed [1]. These modalities have both source as well as detector moving on a circular gantry centered at the origin of coordinates. Technically there could be a problem since the source may be voluminous because of the lead shielding which makes the motion difficult to realize. Here we propose a solution with fixed source on a gantry and detector elements are distributed all around this gantry. The novel configuration leads to a new mathematical modelling and a new image reconstruction algorithm.

The UCP-Argentina collaboration is very useful to work out a design of algorithmic implementations of image reconstruction which can benefit of the common experiences of Javier Cebeiro and Mai Nguyen [2,3].

References

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