

## **Efects of Data Corelation in a Sparse-View Compressive Sensing Based Image Reconstruction**

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**Abstract :** Computed tomography and laminography are heavily investigated in a compressive sensing based image reconstruction framework to reduce the dose to the patients as well as to the radiosensitive devices such as multilayer microelectronic circuit boards. Nowadays researchers are actively working on optimizing the compressive sensing based iterative image reconstruction algorithm to obtain better quality images. However, the effects of the sampled data's properties on reconstructed the image's quality, particularly in an insufficient sampled data conditions have not been explored in computed laminography. In this paper, we investigated the effects of two data properties i.e. sampling density and data incoherence on the reconstructed image obtained by conventional computed laminography and a recently proposed method called spherical sinusoidal scanning scheme. We have found that in a compressive sensing based image reconstruction framework, the image quality mainly depends upon the data incoherence when the data is uniformly sampled.

**Keywords :** computed tomography, computed laminography, compressive sending, low-dose

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