

1075-68-18

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Inverse Abel Transform method is widely used in reconstruction of 3D objects from their radiographic images. This mathematical transformation assumes exact axial symmetry of the object, yet it produces results also in cases when this assumption is not fulfilled. Unfortunately the deviation from strict symmetry is not uncommon in experimental radiographs, and results obtained in such way would have built in substantial systematic error. Two types of such errors are discussed. One parameter families of non-axially symmetric objects that create identical image that can be misinterpreted as unique axially symmetric image are the first one. The number of radiographic projections required to make reconstruction unique is discussed. Shift of the reconstruction axis in comparison to the symmetry axis of the object is the second case. Analytical formulas as well as numerical plots are presented to show reconstruction of a sphere as a function of shift of the symmetry axis, and difference of such reconstruction from the non-shifted one. Understanding these phenomena leads to generalization of Abel inversion: proper reconstruction of shapes and densities in cases when the symmetry assumption is not strictly fulfilled. (Received July 19, 2011)