

**Meeting:** 1003, Atlanta, Georgia, SS 17A, AMS-SIAM Special Session on Nonsmooth Analysis in Variational and Imaging Problems, I

1003-44-1450      **Alexander Katsevich\*** ([akatsevi@pegasus.cc.ucf.edu](mailto:akatsevi@pegasus.cc.ucf.edu)), Department of Mathematics,  
University of Central Florida, Orlando, FL 32816-1364. *Image reconstruction for the circle and line trajectory.*

We propose an exact shift-invariant filtered backprojection algorithm for inversion of the cone beam data in the case when source trajectory consists of an incomplete circle and a line segment. The algorithm allows for axial truncation of the cone beam data. The length of the line scan is determined only by the region of interest and is independent of the size of the entire object. The algorithm is quite flexible and can also be used for more general trajectories consisting of several (complete or incomplete) circles and line segments. Results of numerical experiments demonstrate good image quality. (Received October 05, 2004)