Reviewer's report

Title: Estimating view parameters from random projections for Tomography using spherical MDS

Version: 8 Date: 29 April 2010

Reviewer: Deshan Yang

Reviewer's report:

Major compulsory revisions:

I am generally satisfied with authors' answers to my previous comments. Authors have removed claims about MR and 4DCT, and agreed that the method is only for spherical constraint motion, e.g. in cryo EM applications. But I see the presented results are not refined enough to support such adjustments.

1) Can authors add more details in section 1.1 about the targeted applications and the associated problems, about how cryoEM method is used to image virus. Please add some references.

2) Is cryoEM method used to image single virus or a group of viruses? I guess it is difficult to image single virus. If a group of unknown number of viruses are imaged, the proposed method by this paper has to be upgraded to another level, to deal with multiple objects. Or at least, the problems of multiple objects need to be discussed.

3) Since the proposed method by this paper is (almost) nothing to do with MR and 4DCT images, why do authors still want to use the simulated 2D MR images in the result section? The results are misleading the readers, and are not consistent along the claims and the final targeted applications of this paper. Can authors use (simulated) cryoEM images into the result section instead?

4) Can authors finish the 3D implementation and add the results? Should 3D implementation be relatively straightforward?

5) Is beam divergence a problem? Is it worth to discuss? (Are the electron beams used in cryoEM cone beams, or fan beams, like the x-ray beams in CT scanners?) What are the conditions to approximate such beams into parallel beams?

PS: I still like the paper as it is now. But I feel that the authors should try to move the method towards the actual applications.

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a
statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.