A novel approach for high accuracy and automatic 3D seeds localization from CT scans for prostate implants

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Purpose: To present and validate a conceptually novel method for high accuracy and automatic 3D reconstruction of prostate seed implants from CT scans.

Materials and Methods: Unlike existing methods for implant reconstruction from CT transverse images, the proposed algorithm uses raw CT data (sinograms) instead of reconstructed slices. Using sinograms solve several inevitable problems related to the reconstruction from CT slices. First, reconstruction artifacts in the presence of metallic objects and the seeds themselves in the patient body do not affect the sinograms. Second, the scanning axis of the sinograms is defined directly from the EUD calculations should be included in the new treatment planning to understand more clearly these ballistic and dose rate interactions. They will be helpful in the development of new radioisotopes presentations that will be soonly available.