## A New Method for Post Implant Evaluation of Permanent Prostate Implants

Recent increase in permanent prostate implant procedures spawned the introduction of new tools for pre-planning, planning, and implant evaluation. The need for accurate evaluation is critical for QA purposes as well as improvement on implant techniques and planning. Current evaluation methods fall into two categories: CT-based and planar film (simulation) based reconstruction. While the first incorporates target and critical structure information, it often fails to reconstruct the seed locations, or even identify correctly all the seeds; and planar films offer precise localization of the seeds, but no volumetric information.

We developed a method to merge the planar based seed localization with CT based volumes. To do this, all seed coordinates are translated into CT space, where the volumes are then digitized. Specifically, this method entails identifying three different seeds on both planar and CT images – a task easy to carry out. Coordinate transformation parameters are calculated and used for seed coordinates translation. Seed and volume information are verified by superimposing the plan graphical output with planar and CT hard copies. When the simulation and CT are done close to implant time, this method may offer the physician an assessment of the technical accuracy in the implementation of the plan. Furthermore, since the dose volume histograms of critical structures (namely, the urethra, rectum, and bladder) are highly dependent on source positioning, this method appears more reliable than the ones currently available.