



Image-Guided Radiation Therapy

Call for Papers

Image-guided radiation therapy (IGRT) has been rapidly adopted by cancer centers which are engaged in advanced treatment delivery. The core technology is the process of utilizing two- or three-dimensional imaging, during a course of radiation treatments, to accurately guide radiation therapy delivery to the tumor sites. For the past decade, IMRT planning has been implemented to achieve high dose conformity of the tumors, while sparing the neighboring critical structures. Therefore, the delivery of the radiation dose to the target volumes must be highly precise and accurate. It can be achieved by innovative IGRT techniques. One example of IGRT would include performing a cone-beam computed tomography (CBCT) images before the treatment, registering acquired pretreatment CBCT with the planning CT dataset, making adjustment to account for the misalignment, and delivering the radiation once tumor is positioned to the correct coordinates derived from planning system. Another aspect of IGRT technology is toward devising precise target delineation using a variety of imaging modalities for dose planning purposes. Through advancements in imaging technology, combined with a further understanding of human biology at the molecular level, the impact of IGRT on radiotherapy treatment continues to evolve.

The main focus of this special issue is on the usage of new technologies to facilitate the accuracy of treatment delivery. The special issue becomes an international forum for researchers to explore and summarize the most recent developments in IGRT. Potential topics include, but are not limited to:

- Clinical trials and outcome research with IGRT
- New technologies development and implementation in IGRT
- Treatment delivery IGRT techniques
- Disease-specific treatment discussion
- Clinical therapy physics review and applications
- Medical imaging applications
- IGRT quality control and assurance
- Computing algorithm and optimization
- Image registration, segmentation, and deformation

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First Round of Reviews	Friday, 26 December 2014
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