

Dual energy CT imaging for preclinical and clinical radiotherapy

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Propositions

Dual energy CT imaging for preclinical and clinical radiotherapy

Lotte Elisabeth Josephine Regine Schyns

1. Dual-source DECT is the DECT modality of choice in the field of radiotherapy (this thesis).
2. Preclinical radiotherapy would benefit more from beam hardening corrections than from iterative reconstructions (this thesis).
3. For preclinical studies that involve irradiations with kilovoltage beams, DECT images should be acquired instead of single energy CT images (this thesis).
4. The well-established reference data for human tissue compositions and densities should be updated using more modern spectroscopy techniques (this thesis).
5. The benefits of extensive pretreatment and peritreatment imaging in radiotherapy outweigh radiation dose, cost and other concerns. (radiotherapy).
6. Preclinical external beam radiotherapy studies should abandon kilovoltage beams and use modified megavoltage beams instead (radiotherapy).
7. In the future, automatic contouring algorithms will be able to outperform humans (radiotherapy).
8. Monte Carlo dose calculation algorithms should be preferred over superposition-convolution dose calculation algorithms in (pre)clinical treatment planning systems (valorisation addendum).