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A dedicated MRI/PET System for Radiotherapy Treatment Simulation

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The Unity 1.5T MR-linac has clinically been introduced to provide stereotactic precision for moving targets. We are now developing an integrated 1.5T PET/MRI system with identical MRI performance for planning of MR-linac treatments. The system offers 70 cm bore size and includes PET detectors mounted in the gap of a split gradient coil using the Hyperion III platform. Recently, the first ring of PET detectors was installed. We performed extensive interference tests and acquired the first simultaneous images using a brain phantom. Our vision is that the combination of MR-linac with PET/MRI will allow the use of PET information for stereotactic radiation therapy guidance.

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