

Development and Evaluation of a Portable MVT-based All-Digital Helmet PET Scanner

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We report a novel portable All-Digital Helmet PET system with a hemispherical detector arrangement, based on the Multi Voltage Threshold technology. It allows to scan subjects in a standing, sitting, and lying position, facilitate emergency and interventional image-guided surgery. The scanner exhibits a noise equivalent count rate peak of (151 ± 2) kcps at the activity of 40.65 kBq/mL, a sensitivity of (55.24 ± 0.05) cps/kBq, and a spatial resolution at the center of the Field Of View of approximately 2 mm. Time-dynamic human brain imaging shows the distinctive traits of tracer uptake within 30 s time frames. The usability of the device in the diagnostics of Alzheimer's Disease by imaging human subjects has been tested.

Field

Detectors and electronics

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