

## 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  $(151 \pm 2)$  kcps at the activity of 40.65 kBq/mL, a sensitivity of  $(55.24 \pm 0.05)$  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

**Primary authors:** ANTONECCHIA, Emanuele (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan 430074, China); ZHOU, Feng (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan 430074, China); XIE, Qingguo (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan 430074, China, and Department of Electronic Engineering and Information Science, University of Science and Technology of China, Hefei, Anhui, China); D'ASCENZO, Nicola (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan 430074, China, and Department of Electronic Engineering and Information Science, University of Science and Technology of China, Hefei, Anhui, China)

**Presenter:** ANTONECCHIA, Emanuele (School of Life Science and Technology, Huazhong University of Science and Technology, Wuhan 430074, China)

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