Advances in Simultaneous PET/MR Imaging
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Semiconductor photosensors are continuously evolving and eventually likely to replace the conventional photomultiplier tubes (PMTs) in clinical PET/CT and PET/MRI. PET detectors and systems based on silicon photomultiplier (SiPM), which is a semiconductor photosensor with sufficiently high internal gain, have already outperformed the PMT-based detectors and systems (1). For the last several years, we have focused on the development of a very compact SiPM PET system that is readily combined with small-animal dedicated MRI systems (2-6). In this talk, I will present the combined PET/MRI system and demonstrate the capabilities of this novel system on in various rodent imaging studies. I will also present the challenges in the scale-up of SiPM PET systems for clinical use (e.g. high granularity of the SiPM) and our approaches to overcome these challenges (7,8).

REFERENCES