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A compact silicon pixel based PET detector with ATLAS Phase-II-like sensors

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Positron emission tomography (PET) is a powerful medical imaging method, which requires a precise measurement of two coincident low energy photons, with great spatial and time resolution. We present a plan to build a novel compact PET detector system based on pixel silicon detectors developed for ATLAS Phase-II upgrade which will achieve. A time resolution of the order of 30 ps for optimal contrast images and a total thickness of the order of cm allow the detector to be operated inside and at the same time of an MRI scanner. The performance of the detector will allow for a spatial resolution of a few millimeter on the photon source.

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