

## Prototype of a 250 $\mu\text{m}$ Pitch 36-Channel Silicon Photo Multiplier Array Using Silicon on Insulator Technology for Photon Counting Computed Tomography

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Photon counting computed tomography (PCCT) based on indirect conversion detectors have taken great interests from its low fabrication cost and easy handling. Recent fine-pitch scintillator array also shows great potentials for spatial resolution enhancement. However, requirements for photo detector are still severe for precise energy and position measurement in PCCT.

In order to achieve both sensitivity and high spatial resolution in photo detector, 250  $\mu\text{m}$  pitch Silicon photo-multiplier array using Silicon on Insulator technology (SOI-SiPM) was provided in this study. SiPM, which is operated at over breakdown voltage, provides weak light detection capability with high S/N and fast response derived from internal gain. Back illumination capability of SOI contributes to avoid detection efficiency deterioration derived from quench resistor. As feasibility study, the first prototype of a 36-channel SOI-SiPM array was fabricated and characterized.

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