A Novel shallow-junction high photon detection efficiency Silicon Photomultiplier obtained with a 0.35 μm CMOS process

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Materials and Method

For the design of the CMOS, we used an advanced microfabrication CMOS process providing 0.018 μm2 trench depth and feature size down to 0.1 μm. The process was optimized for shallow junctions using a process flow similar to that of the CMOS technology. As for the use of CMOS technology, the CMOS shows the possibility of an integrated development of CMOS and electronics on the same chip within this generation line.

Results and Conclusions

The results demonstrated the high efficiency of the novel shallow-junction with improved PDE obtained in this paper, which can be further improved by the optimization of the CMOS technology. The high efficiency of the novel shallow-junction with improved PDE shows the potential for further applications in various fields, including medical imaging, astronomy, and environmental monitoring.