

“Medical Applications of Silicon Detectors”

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Abstract

Silicon detector technology and associated front-end electronics, which have been developed for HEP applications over the last 30 years, has been applied during the last decade in many products and developments for new instruments in the medical imaging field. Silicon strip detectors, single sided and double sided, silicon double metal pad sensors and silicon pixel detectors are used in clinical imaging instruments. Custom made, self-triggering front-end electronics based on sub-micron technologies, has been specially developed for these purposes, both in HEP institutes and in industry. After a short introduction into the basic physics principles of photon, X-ray and γ -ray detection with silicon detectors an overview of applications and developments in a variety of fields like SPECT, PET, X-Ray Computed Tomography and Auto Radiography will be discussed. Performance of clinical instruments and results from recent proto-type developments will be presented.