

Patent title:	Photodetector
FBK center:	CMM
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Patent family:	EP2541219 (B1) — 2019-09-04
Application(s):	Positron emission tomography (PET), Medical applications
Keyword(s):	Detecting and counting photons
Abstract:	The present Invention relates to a photodetector (PD) comprising a plurality of pixels (PXL); each one of said pixels (PXL) comprises: - a group of detection devices (SPD-1, SPD-2, SPD-3, SPD-4) provided with respective outputs, each one of said detection devices (SPD-1, SPD-2, SPD-3, SPD-4) being of the SPAD type and therefore being adapted to generate an electrical pulse at the output thereof as a result of an event corresponding to a photon that hits thereon, - a combinational circuit (G-1, G-2, G-3, G-4, G-5A, G-5B, G-6, G-7) which has an output and a group of inputs that corresponds to said group of detection devices (SPD-1, SPD-2, SPD-3, SPD-4) and which implements a logic function between inputs and output, - a digital counter (CNT) having an input, the outputs of said detecting devices (SPD-1, SPD-2, SPD-3, SPD-4) of said group are connected respectively to the inputs of said combinational circuit (G-1, G-2, G-3, G-4, G-5A, G-5B, G-6, G-7) and the output of said combinational circuit (G-1, G-2, G-3, G-4, G-5A, G-5B, G-6, G-7) is connected to the input of said digital counter (CNT); whereby said digital counter (CNT) provides as output the sum of all the events detected by said detecting devices (SPD-1, SPD-2, SPD-3, SPD-4) of said group.