

Patent title:	Improved solid-state photomultiplier device and method for controlling said photomultiplier device
FBK center:	CMM
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Application(s):	Positron emission tomography (PET), Medical applications
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Abstract:	The invention is a solid-state photomultiplier device (SiPM) (1) for detecting one or more photons (F), comprising a sensitive surface (2) created on a semiconductor substrate (3), wherein the sensitive surface (2) is defined by a plurality of light sensitive microcells (4) connected to one another in parallel in such a way as to send out a common analog output signal (Sout), each one of the light sensitive microcells (4) comprising an avalanche photodiode (5) interposed between a first electrode (6) and a second electrode (7) suited to supply a reverse polarization voltage to the avalanche photodiode (5). The device is provided, for each one of the light sensitive microcells (4), with an interruption component (8) suited to interrupt electric continuity and interposed between the accumulation terminal (53) that accumulates the avalanche charge of the avalanche photodiode (5) and the first electrode (6). The interruption components (8) of the plurality of light sensitive microcells (4) are configured in such a way as to simultaneously switch over from a state of conduction to a state of inhibition or vice versa.