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Photon counting with solid state detectors: from high energy physics to LiDAR

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The capability to detect faint light events at few photon level is of extreme importance for a number of application ranging from base research to medicine, to industry as well as daily life needs. Until few years ago, photon counting was synonym of Photomultiplier Tube and Solid State devices were considered not sensitive enough for this demanding use. Since the introduction of SPADs and SiPM, and their internal multiplication mechanism, this opinion greatly changed and now Solid State technology allows photon counting even in critical environmental conditions where the PMTs can not be used. A snapshot of the progresses and successes achieved in applying this technology to Physics and Industrial applications will be presented.

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