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A new X-Ray imaging system based on Chromatic Photon Counting technology

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An innovative X-ray imaging sensor with intrinsic digital characteristics is presented. It is based on Chromatic Photon Counting technology. The detector is able to count
individually the incident X-ray photons and to separate them according to their energy (two'color' images per exposure). The energy selection occurs in real time and at radiographic imaging speed (GHz global counting rate). Photon counting, color mode and a very high spatial
resolution (more than 10 l.p./mm at MTF50) allow to obtain an optimal ratio between image quality and absorbed dose. The individual building block of the imaging system is a two-side buttable pixellated CdTe crystal coupled to a very large area CMOS ASIC. Up to 8 tiles have been assembled together to obtain a very large sensitive area imaging system (25×2.5 cm^2). A dedicated machine to perform X-ray slot-scanning imaging has been designed, built and tested. Results from in depth testing of several configuration of sensors are discussed. ' Color' X-ray images from 3x2.5 to 25x25 cm2 area will be shown. A new 'plug and play' unit will be presented. To be fully operational, this unit requires only an external 12 V, lap-top type, power supply.
The X-Ray imaging system is the technological platform of PIXIRAD Imaging Counters s.r.l., a recently constituted INFN spin-off company.

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