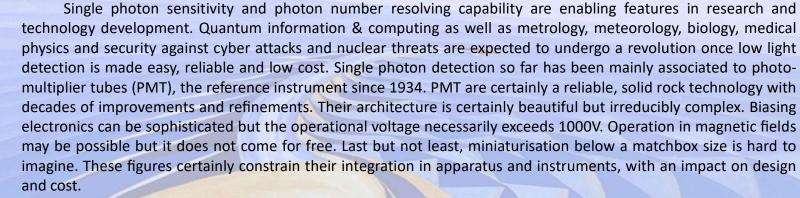
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## Silicon Photomultipliers: introducing the digital age in low light detection



Silicon PhotoMultipliers (SiPM) stand to PMT like transistors stand to thermoionic valves. In essence, SiPM are an array of p-n junctions operated beyond the breakdown voltage, with every cell in the array ready to trigger an avalanche with 10<sup>6</sup> gain as long as the absorption of a photon generates a charge carrier. With the simplicity and cost of a Silicon sensor, operational voltage not exceeding 100V, magnetic field immunity and miniaturization down to 1 mm<sup>2</sup>, SiPM are state-of-the-art sensors, featuring an unprecedented photon number resolving capability and introducing the digital revolution in low light detection. In my talk, I will address the fundamentals of SiPM, identifying the key figures of merit, their measurements and presenting the state of the art and future directions. Moreover, I will consider exemplary applications in nuclear particle detection and dosimetry, homeland security, medical imaging and environmental science.

IRB, Krilo Ivana Supeka 10:00 Zagreb October 24, 2018

Benedetta Cappa Marinetti - Velocità di motoscafo, 1919