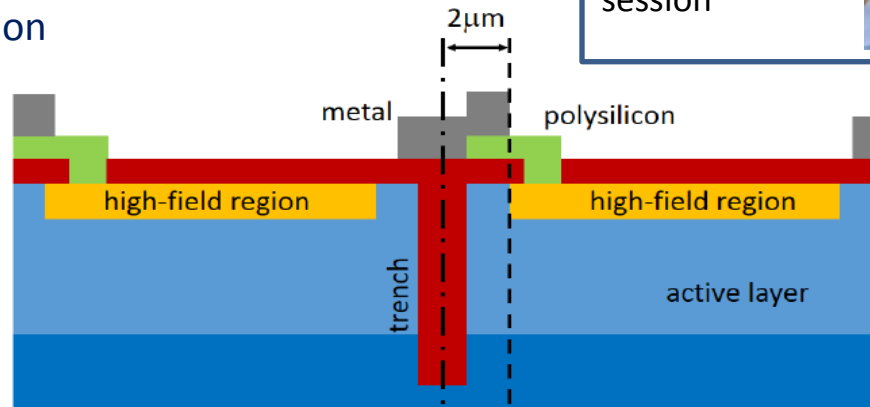
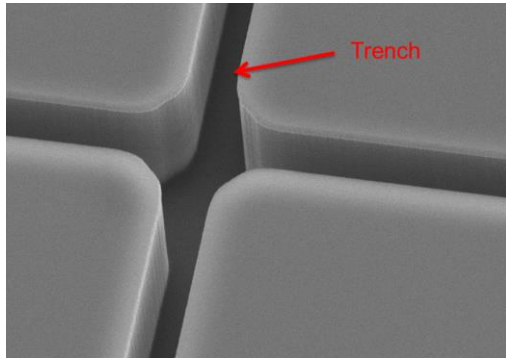


Characterization of first prototype of high-density NUV-HD SiPMs for near-UV light detection

G. Paternoster, F. Acerbi, A. Ferri, A. Gola, G. Zappalà, N. Zorzi, C. Piemonte

High cell Density (HD-SiPM) technology

New narrow cell border region, implementig trench for both electrical and optical cell isolation



Look for me
in the
Poster
session



Small Cell Pitch and High Fill Factor

Cell Pitch	Fill Factor	Cell Density
12 × 12 μm ²	52 %	7056 cells/mm ²
15 × 15 μm ²	62 %	4624 cells/mm ²
20 × 20 μm ²	66 %	2500 cells/mm ²
25 × 25 μm ²	72 %	1600 cells/mm ²
30 × 30 μm ²	78 %	1156 cells/mm ²

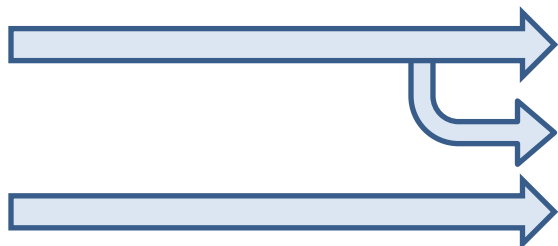
The HD technology allows to produce devices with **small cell pitch** (from 30um down to 12um) with a considerably **high Fill Factor** (**78%** for 30um cell pitch)

15um cell pitch

Characterization of first prototype of high-density NUV-HD SiPMs for near-UV light detection

1. Small cell Pitch

2. Narrow border region featuring trenches

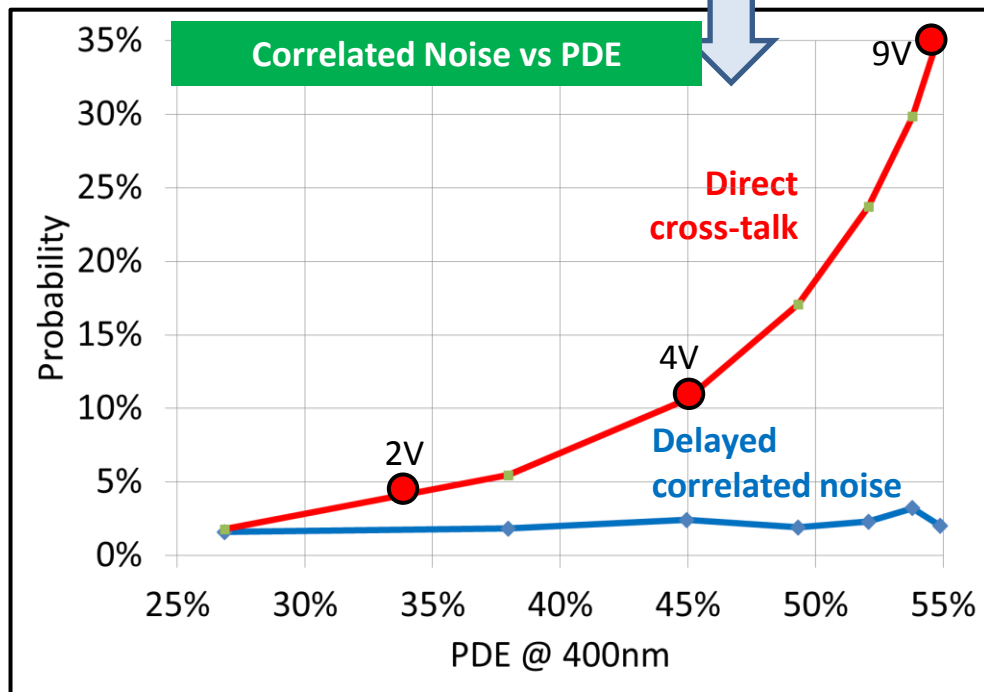
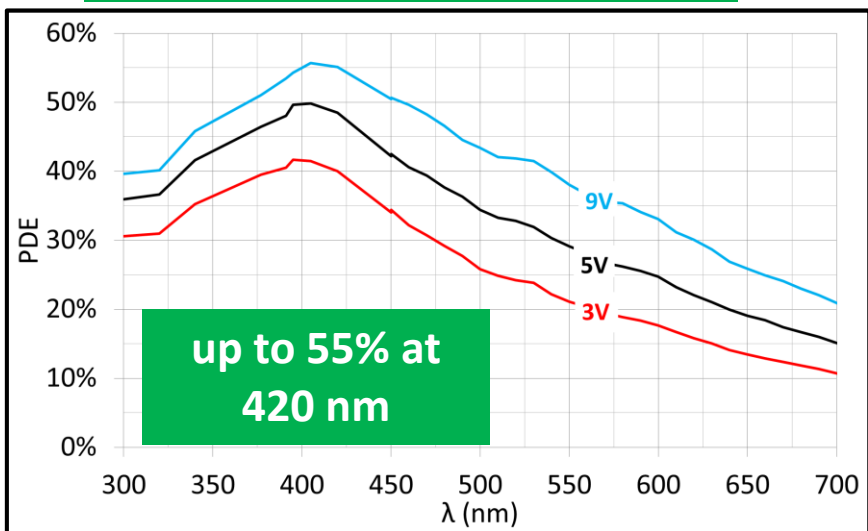


High dynamic range

Lower correlated noise
(Cross-Talk and After-Pulsing)

High Fill Factor

High Photodetection Efficiency



Cross-talk and After Pulse Probability as a function of PDE

(measured on devices with 30um Cell Pitch)