SiPM under test

GOAL

- how does radiation affect the time resolution?
- how many photons are being produced in the protection layer?

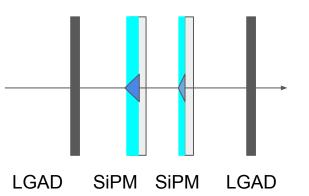


SiPM Under Test

- SiPM of November '22 beam test after being irradiated in Trento (10⁹ and 10¹⁰ NIEL)
- SiPM of bigger active area 3.2mmx3.12mm, 40 um pitch, with protection resins of 1, 1.5 and 3 mm Si, 1 mm Epoxy; in addition to this a SiPM Without resin

Data

- Data taken in the centre of the SiPM with 40 dB board and with single amplification stage to extrapolate a mean number of firing pixels at different OV (and also a comparison for what concerns the time resolution)
- efficiency
- results loading



- trigger on LGADs, SiPM with different width of resin under test
- LEFT: example of SiPM (3mm x 3mm) signal at 1 OV with two amplification stages:
 - still ok to get a mean number of firing spads (until 2-3 OV then saturates)
 - ok for (general) time resolution (clearly many SPADs are firing)
- RIGHT: signal at 4 OV for an irradiated sensor (1mmx1mm), mean number of firing SPADs is lower

